

A person's hands are shown writing on a notepad with a pen. The background is a dark blue gradient with orange geometric shapes and white plus signs.

# SSC CGL 2025

**eBook (Part 1)**

**Reasoning / English / Quant / GA**

**INCLUDES**

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- **500+** Questions
- **Topic-Wise Notes**

## Reasoning

- ❖ Letter Coding-Decoding
- ❖ Number Coding-Decoding
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- ❖ Income Expenditure and Savings, Population Based
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- ❖ Number System (No of zeros, Remainder Theorem)
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### General Awareness

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- ❖ Revolt of 1857, Partition of Bengal, Emergence of Gandhi
- ❖ Quit India Movement, Tripartite Struggle, Delhi Sultanate
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- ❖ Solar System, Longitude and Latitude, Earth's Interior & Plate Tectonics
- ❖ Rocks, continents and ocean, Geomorphology and Landforms
- ❖ Atmosphere and Water in atmosphere, Wind and Ocean Current
- ❖ India and its location, Himalays, Peninsular Plateau, Northern Plains
- ❖ Agriculture, Mineral and Monsoon
- ❖ Making of Indian Constitution, Preamble, Part 1 and Part 2
- ❖ Fundamental Rights, DPSP, Fundamental Duties, President, Vice President, Governor
- ❖ Council of Ministers, Parliament, State Legislature, Supreme Court, High Court
- ❖ Constitutional Bodies, Local Bodies, Acts and Parts, Parliamentary Committees
- ❖ Basics of Economy, National Income
- ❖ Budget and Taxation, Demand and Supply,
- ❖ Money and Banking, Monetary Policy
- ❖ Inflation and Unemployment, Balance of Payment and Poverty

**Part-2 will be released on 3rd July 2025**



## Reasoning

### Letter Coding-Decoding

#### 1. Constant addition in the position of letters

◆ *Logic:* Add a fixed number (e.g., +1) to each letter's position.

Example: CAT → DBU (C+1=D, A+1=B, T+1=U)

#### 2. Constant subtraction in the position of letters

◆ *Logic:* Subtract a fixed number (e.g., -1) from each letter.

Example: DOG → CNF (D-1=C, O-1=N, G-1=F)

#### 3. Denoting the position of letters in the alphabetical order

◆ *Logic:* Convert letters to numbers based on A=1 to Z=26.

Example: BIG → 2 9 7 (B=2, I=9, G=7)

#### 4. Addition of the positions of all the letters

◆ *Logic:* Add letter positions to form a number code.

Example: ACE → 1+3+5 = 9

#### 5. Constant addition and subtraction alternatively

◆ *Logic:* Add to 1<sup>st</sup> letter, subtract from 2<sup>nd</sup>, add to 3<sup>rd</sup>, and so on.

Example: TAP → UBQ (T+1=U, A-1=Z, P+1=Q)

#### 6. Square of the number of letters in the word

◆ *Logic:* Count letters, square that number.

Example: CAT → 3 letters →  $3^2 = 9$

#### 7. Arranging the letters in alphabetical order

◆ *Logic:* Rearranging letters alphabetically.

Example: STAR → ARST

#### 8. Arrangement of letters in reverse order

◆ *Logic:* Simply reverse the word.

Example: FLOW → WOLF

#### 9. Interchanging each pair of letters

◆ *Logic:* Swap 1<sup>st</sup> with 2<sup>nd</sup>, 3<sup>rd</sup> with 4<sup>th</sup>, etc.

Example: LEMON → ELNMO (L↔E, M↔O, N remains)








#### 10. Constant addition and reversal together

◆ *Logic:* Add fixed number to each letter, then reverse the result.

Example: DOG → FQI → IQF

### Number Coding-Decoding

#### Important Tricks and Techniques

-  1. Know Letter Positions in the Alphabet (A-Z)
-  2. Check for Direct Letter to Number Conversion
-  3. Check Sum or Product of Positions
-  4. Look for Reversal or Opposites
-  5. Check for Pattern Like +1, -1, ×2
-  6. Look for Number Series in Options
-  7. Identify Unique Word Patterns



### ◆ Types & Tricks

1. Direct Symbol Replacement
2. Symbol Represents a Condition/Meaning
3. Mathematical Operations Using Symbols
4. Positional Coding with Symbols
5. Symbol as a Clue to a Pattern

## Chinese Coding-Decoding

Tip/Trick	Explanation
<b>1. Word Common → Code Common</b>	If a word appears in two sentences, the common code represents that word.
<b>2. Use Elimination</b>	Once a word-code pair is found, eliminate it to reduce complexity.
<b>3. Unique Word ↔ Unique Code</b>	If a word appears only once, match it with the unique code in that sentence.
<b>4. Count Match</b>	If number of words = number of codes, assume one-to-one mapping.
<b>5. Create Word-Code Table</b>	Use a table to map words and codes for easy visualization.

## Paragraph Based Coding-Decoding

### ✓ TRICK FORMAT TO FOLLOW




Here's a simple way to approach such problems:

- ◆ **Step 1:** Find the actual answer (based on general knowledge).
- ◆ **Step 2:** Find what that actual thing is called in the coded world.
- ◆ **Step 3:** Choose the coded term as the final answer.

## Symbol Based Coding-Decoding

Component	Description	Examples / Statements	Tips & Tricks
Basic Definition	Syllogism is a form of reasoning where <b>conclusions</b> are drawn from <b>two or more given premises</b> .	-	Always understand <b>ALL + SOME + NO + SOME NOT</b> formats.
Standard Statements	A. All A are B B. Some A are B C. No A is B D. Some A are not B	All dogs are animals. Some cats are dogs.	Convert them into Venn Diagrams.
Types of Conclusions	✓ Possibility-based ✓ Definite conclusions	-	Focus on whether the conclusion is <b>100% true</b> from the given statements.
Use of Venn Diagram	Draw circles to represent relationships between different elements.	All A are B → Circle A inside B	Use intersecting/non-intersecting sets to visualize <b>some</b> or <b>no</b> relation.
Complementary Pairs	Some A are B + Some A are not B → <b>No definite conclusion</b>	Some boys are girls + Some boys are not girls	Complementary conclusions → Can't be both true together.
Universal Truth	Some + Some / All + Some ≠ All or definite	Some books are pens ≠ All books are pens	Never assume extra info beyond the statements.
Keywords to Note	All, Some, No, Some not, Only, Few	-	"Only A are B" means <b>All B are A</b> .
Golden Rule	If a conclusion <b>must be true in all possible Venn diagrams</b> , only then it follows.	-	Use <b>elimination method</b> for quick results in MCQs.



## Syllogism (Basic)

Aspect	Description	Tips & Tricks / Examples
1. Reverse Possibility	When a conclusion says "It is possible that..."	Always true <b>unless</b> it <b>directly contradicts</b> the statements.  Check by constructing Venn diagram showing possibility.
2. "Only" and "Only a few"	"Only A are B" $\rightarrow$ All B are A "Only a few A are B" $\rightarrow$ Some A are B and Some A are not B	Convert <b>"only"</b> to <b>"All B are A"</b> & <b>"only a few"</b> into <b>partial overlap + partial exclusion</b> .
5. Immediate Conversion Rule	Convert statements safely: All A are B $\rightarrow$ Some B are A No A is B $\rightarrow$ No B is A	 All B are A is <b>not</b> valid from All A are B.  Use "Some" for reverse possibility.
6. Chain Rule (3 Statements)	When 3 linked statements form a chain like: A $\rightarrow$ B, B $\rightarrow$ C $\rightarrow$ derive indirect relation A $\rightarrow$ C	Helps solve <b>coded syllogism</b> or long chains. $\checkmark$ All A are B, All B are C $\rightarrow$ All A are C
7. Diagram Elimination Strategy	For MCQs: Test conclusions <b>against multiple Venn diagrams</b> in your mind.	If even <b>one diagram violates</b> the conclusion $\rightarrow$ it does <b>not follow</b> . Use this for fast elimination.
8. "Some not" Trap	"Some A are not B" is a <b>negative &amp; non-convertible</b> statement	Cannot derive <b>No A is B</b> or <b>All A are B</b> from it. It <b>can't be converted</b> reliably.
9. 'At least some' Statements	If conclusion says "At least some A are B" — it means <b>Some A are B</b>	Conclusion follows if Venn diagram <b>shows even one</b> overlapping part. Very common in possibility-type questions.

## Syllogism (Either or case)

Concept	Explanation	Example
What is Either-Or Case?	A special case in syllogism when <b>both conclusions are false individually</b> , but <b>can't be false together</b> .	Some A are B. Conclusions: (i) All A are B. (ii) Some A are not B. $\rightarrow$ Either-Or applies.
Basic Requirement 1	Both conclusions <b>must be false individually</b> as per the Venn diagram.	From the Venn, neither conclusion is definitely true.
Basic Requirement 2	<b>Both conclusions must be logically complementary.</b>	One should be the <b>positive form</b> of the other (e.g., "All" vs "Some not").
Basic Requirement 3	Both conclusions must involve the <b>same two terms</b> .	Not one with A-B and other with B-C.

## Syllogism (Possibility)

Concept / Situation	Explanation / Rule	Tip / Trick / Shortcut	Example
What is Possibility Case?	Possibility case checks whether a conclusion <b>can be true</b> – not necessarily <b>must be true</b> .	If a conclusion is <b>possibly true</b> , it is <b>considered valid</b> in possibility questions.	Statement: All A are B. Conclusion: Some B being A is a possibility $\rightarrow$ 
Use of Venn Diagrams	Visualizing basic Venn helps judge possibility cases accurately.	Do not over-assume connections. Stick to <b>minimum</b> possible diagrams.	All dogs are animals. Conclusion: Some animals being dogs is a possibility $\rightarrow$ 

Concept / Situation	Explanation / Rule	Tip / Trick / Shortcut	Example
<b>If a conclusion is already definite</b>	Possibility case becomes <b>invalid</b> .	"Possibility" case should not <b>restate</b> an already definite conclusion.	All A are B → Conclusion: Some B being A is a possibility → Invalid (already definitely true).
<b>Negative possibility</b>	If a conclusion says "It is <b>not possible</b> ", validate via <b>contradiction</b> .	If the said event <b>can happen</b> , then the conclusion is <b>false</b> .	Some A are B. Conclusion: It is not possible that all A are B → <b>✗</b> (because it's possible)
<b>Universal Positive + Possibility</b>	From "All A are B", "Some B being A is a possibility" is <b>invalid</b> (already true).	If possibility = already true ⇒ conclusion is <b>invalid</b> .	Statement: All pens are tools. Conclusion: Some tools being pens is a possibility → <b>✗</b>
<b>Universal Negative + Possibility</b>	From "No A is B", "Some A being B is a possibility" is <b>invalid</b> .	No A is B leaves <b>no possibility</b> of overlap.	Statement: No boys are tall. Conclusion: Some boys being tall is a possibility → <b>✗</b>
<b>Particular statements allow possibilities</b>	"Some A are B" ⇒ "All A being B is a possibility" = <b>✓</b>	Particular statements allow scope for more overlap.	Statement: Some A are B. Conclusion: All A being B is a possibility → <b>✓</b>
<b>Definite false = Valid possibility</b>	If conclusion says: "All A being B is a possibility" and it's <b>not definitely false</b> , then it's <b>valid</b> .	Check for <b>contradiction</b> . If no contradiction ⇒ conclusion is valid.	Statement: Some cats are dogs. Conclusion: All cats being dogs is a possibility → <b>✓</b>
<b>Complementary possibility</b>	Statement denies a relation (e.g., No A is B), and conclusion assumes possibility of that → <b>✗</b>	From "No", no chance of "some", "all", or any overlap.	Statement: No A is B. Conclusion: All A being B is a possibility → <b>✗</b>
<b>Either-or with possibility</b>	Possibility conclusion can't form <b>either-or</b> pair with definite conclusion.	Both must be <b>definite &amp; mutually exclusive</b> .	Statement: Some A are B. Conclusions: 1. All A are B. 2. All A being B is a possibility → <b>✗</b> Either-or not valid

## Syllogism (Final tips and tricks)

No.	Tip / Trick	Explanation / Example
1	<b>Understand basic statements</b>	Learn meanings: "All A are B", "Some A are B", "No A is B", "Some A are not B".
2	<b>Use Venn diagrams</b>	They visually clarify relationships. Especially useful for complex statements.
3	<b>Know the four standard propositions</b>	A – Universal affirmative (All A are B); E – Universal negative (No A is B); I – Particular affirmative (Some A are B); O – Particular negative (Some A are not B).
4	<b>Test conclusions individually</b>	Always check each conclusion separately using the diagram or logic.
5	<b>Follow only/only a few rule</b>	"Only A are B" = All B are A. Make sure you interpret it correctly.
6	<b>Use keywords carefully</b>	Words like "some", "all", "no", "some not" define logic. One word change can change logic.
7	<b>Remember possibility-based logic</b>	"It is possible that..." conclusions are true unless directly contradicted.
8	<b>Practice standard patterns</b>	SSC repeats certain statement types. Practice "All + No", "Some + Some", etc.
9	<b>Learn complementary pairs</b>	E.g., "Some A are not B" and "All A are B" cannot both be true together.
10	<b>Mark definite vs. possible conclusions</b>	SSC may mix "possibility" type conclusions with direct ones. Treat them separately.

## Dice & Cube (Basic)

Concept / Rule	Explanation / Tip	Example / Note
<b>Standard Dice (Opposite Faces)</b>	In standard dice, the <b>sum of opposite faces is always 7</b>	1-6, 2-5, 3-4 are opposite pairs
<b>Non-Standard Dice (Different Dice Views)</b>	Use <b>common faces method</b> or <b>adjacent face rule</b> to find opposite faces	Analyze the face that remains constant in two views
<b>Common Face Rule</b>	If two dice show a common face, the face <b>not shown</b> is opposite to the face <b>not common</b>	Trick to find opposite faces
<b>Adjacent Faces Rule</b>	If two faces are adjacent in one dice and same in another view, the face opposite is <b>not shown in either</b>	Useful when common face isn't available
<b>No Common Face</b>	Cannot find opposite face unless more info is given	Avoid assumptions unless specific
<b>Rotational Views</b>	Dice may be rotated but <b>face relationships remain same</b>	Helps solve confusing orientations
<b>Mirror Image Dice</b>	Numbers are unchanged; only <b>positions flip</b>	Especially in figure-based dice questions

## Dice & Cube (Open dice)

Concept / Topic	Explanation / Tip	Trick / Rule
<b>1. Unfolded Dice (Net of Cube)</b>	A net is a 2D representation of cube faces. Used to visualize adjacent/opposite.	Opposite faces never appear in <b>L-shape</b> or <b>plus (+) shape</b> layout.
<b>2. L-Shape Rule</b>	Faces in "L-shape" in net are always <b>adjacent</b> , never opposite.	Useful to eliminate incorrect face pairings.
<b>3. '+' (Plus) Shape Rule</b>	The face in the <b>center</b> of plus shape is opposite to the face not visible.	Use this to find opposite pairs quickly.
<b>4. Adjacent Faces Rule</b>	If two faces are connected along an edge in the net, they are <b>adjacent</b> .	Helpful in visualizing 3D fold.
<b>5. Folding of Dice</b>	Visualize the cube folding from the net; opposite faces never touch the same edge.	Practice identifying which fold faces come together.
<b>6. Dot Marking Technique</b>	Used in dice with dots or symbols. Helps find opposite by observing dot positions.	Number of total dots on opposite faces = 7 (standard dice).
<b>7. Opposite Sum Rule (Standard Dice)</b>	In a standard number dice: 1-6, 2-5, 3-4 are opposite pairs.	Sum of opposite faces is always 7.
<b>8. Rotation of Dice</b>	When dice is rotated (not flipped), adjacent faces remain adjacent.	Use this to compare rotated positions.
<b>9. Mirror Dice / Similar Dice</b>	Sometimes, dice appear mirrored in image. Be cautious while identifying faces.	Observe orientation and try to match face positions.
<b>10. Shortcut for Opposites in Net</b>	In a net, the face that is <b>not adjacent</b> to a given face is its opposite.	Opposite = Non-touching face in the net.

## Cube Painted on All Sides ( $n \times n \times n$ )

Cubes with Painted Faces	Formula	Explanation
<b>0 face painted</b>	$(n - 2)^3$	Completely hidden inner cubes
<b>1 face painted</b>	$6(n - 2)^2$	Center cubes on each face
<b>2 faces painted</b>	$12(n - 2)$	Edge cubes (excluding corners)
<b>3 faces painted</b>	8	Always 8 corners of the cube



## Cuboid Painted on All Sides ( $a \times b \times c$ )

Cubes with Painted Faces	Formula	Explanation
0 face painted	$(a-2)(b-2)(c-2)$	Fully inside cuboid, not exposed
1 face painted	$2[(a-2)(b-2) + (b-2)(c-2) + (a-2)(c-2)]$	Centers of each face
2 faces painted	$4(a+b+c-6)$	Edge cubes except corners
3 faces painted	8	All 8 corners of the cuboid

## Dice Formation from Net – (Folding Type)

S.No.	Concept / Rule	Explanation	Example / Tip
1	L-Shape Rule	The 3 faces that form an 'L' shape in a dice net are always <b>adjacent</b> to each other.	If faces 1, 2, and 3 are in L-shape, they <b>can't be opposite</b> .
2	Opposite Face Rule	The 2 faces that are placed <b>directly opposite</b> each other in the net <b>never touch each other</b> in the flat layout.	If face 1 is opposite 6, they will <b>not be side-by-side</b> in the net.
3	T-Shape Rule	The 4 faces forming a 'T' shape (3 in row, 1 in middle on top) → middle and bottom of T are <b>opposite</b>	Helps in identifying opposites quickly
4	Face Adjacency	Two opposite faces can <b>never</b> appear together on a single view of folded dice	If a figure shows both faces 2 and 5 together, they <b>cannot be opposite</b>
5	Faces in Straight Line	In a net, if 3 faces lie in a straight line, the <b>two on ends are opposite</b>	e.g., faces 1-2-3 → 1 and 3 are opposite
6	3 Adjacent Faces Rule	Any 3 faces visible together in a net can't include any pair of opposite faces	Useful in elimination-type MCQs
7	Only 3 Faces Visible Rule	In a real dice, you can see <b>only 3 faces at a time</b>	If a diagram shows 4 faces together, it's a <b>net</b> , not a dice
8	Unfolding/Net Type Patterns	There are <b>11 possible dice nets</b> , but SSC typically uses 3-4 standard patterns	Familiarity with common nets helps you spot errors fast
9	Same face repeated in net?	If a net shows <b>same number or symbol on 2 faces</b> , it's <b>invalid</b>	Real dice has 6 different faces
10	Trick for Opposite Faces	Pick 2 faces not sharing a common edge in net – most likely <b>opposite</b>	Helps in time-saving guesswork
11	Elimination Technique	If a given folded dice shows faces together that are opposite in the net – <b>it's not valid</b>	Used in "Which of the following dice cannot be formed?" questions
12	Cube Net → Dice View	Practice mentally folding nets into dice → visual skills improve	Use paper dice models for practice if needed

## Letter Series

Pattern Type	Description	Example	Explanation
1. Constant Forward Shift	Each letter moves forward by a fixed number.	A, C, E, G	+2 shift: A(1), C(3), E(5), G(7)
2. Constant Backward Shift	Each letter moves backward by a fixed number.	Z, X, V, T	-2 shift: Z(26), X(24), V(22), T(20)
3. Alternate Forward & Backward	Pattern alternates between forward and backward shifts.	A, C, B, D, C, E	+2, -1 alternation
4. Odd Position Letters	Series includes only letters at odd positions in the alphabet.	A, C, E, G	A(1), C(3), E(5), G(7)
5. Even Position Letters	Series includes only letters at even positions.	B, D, F, H	B(2), D(4), F(6), H(8)

Pattern Type	Description	Example	Explanation
<b>6. Repetition Series</b>	One or more letters repeat in a fixed pattern.	A, B, A, B, A, B	Alternating repetition of A and B
<b>7. Reverse Series</b>	Letters are listed in reverse alphabetical order.	Z, Y, X, W	Z(26), Y(25), X(24), W(23)
<b>8. Mirror Series</b>	Series reflects around a central point.	A, B, C, B, A	Mirror at C
<b>9. Skipping Letters</b>	One or more letters skipped between each.	A, D, G, J	+3 skips each time
<b>10. Alphabet + Number Mapping</b>	Letters represented with positions, follow a numerical logic.	D, G, J, M	D(4), G(7), J(10), M(13): +3
<b>11. Fixed Group Shift</b>	Whole blocks of letters shift positions.	ABC, DEF, GHI	+3 per group
<b>12. Rotation within a group</b>	Letters rotate their positions within a group.	ABC → BCA → CAB	Circular shift
<b>13. Vowel-Consonant Alternation</b>	Alternating vowels and consonants.	A, B, E, F, I, J	Vowel (A, E, I), Consonant (B, F, J)
<b>14. Coding/Decoding Logic</b>	Letters follow coded shift logic (e.g., +3, -1 etc.).	M, P, S, V	M(13), P(16), S(19), V(22) → +3 logic
<b>15. Symmetric Series</b>	Beginning and end elements mirror each other.	A, B, C, D, C, B, A	Symmetry around D
<b>16. Dual Series</b>	Two interleaved letter series.	A, X, B, W, C, V	A, B, C (+1), X, W, V (-1) → Two separate series
<b>17. Increasing Difference</b>	Gap between letters increases regularly.	A, C, F, J	+2, +3, +4
<b>18. Z-A Reverse Pattern</b>	Letters from the end of the alphabet.	Z, X, V, T	-2 each step
<b>19. Position-Based Word Letters</b>	Each letter picked from a specific position in a sequence of words.	First letter of each word: CAT, DOG, EGG → C, D, E	Based on position in word
<b>20. Combination Series</b>	Combination of two or more patterns (e.g., skipping + alternating).	A, C, B, D, C, E	Mix of skip and alternation

### Number Series

Pattern Type	Identification Clue	Logic / Rule	Example
<b>1. Arithmetic Series</b>	Constant difference	Add/Subtract same number	2, 5, 8, 11, 14, <b>17</b> (+3)
<b>2. Geometric Series</b>	Constant multiplication/division	Multiply/Divide by same number	3, 6, 12, 24, <b>48</b> (×2)
<b>3. Square Series</b>	Numbers are perfect squares	Square of natural numbers	1, 4, 9, 16, 25, <b>36</b> (1 <sup>2</sup> , 2 <sup>2</sup> ...)
<b>4. Cube Series</b>	Numbers are perfect cubes	Cube of natural numbers	1, 8, 27, 64, <b>125</b> (1 <sup>3</sup> , 2 <sup>3</sup> ...)
<b>5. Alternating Pattern</b>	Every 2nd or 3rd number differs	Alternate addition/subtraction/multiplication	3, 6, 5, 10, 7, 14, <b>9</b> (+3, -1, ×2...)
<b>6. Prime Number Series</b>	Series of prime numbers	Consecutive primes used	2, 3, 5, 7, 11, <b>13</b>

Pattern Type	Identification Clue	Logic / Rule	Example
<b>7. Even/Odd Series</b>	All numbers even or odd	Increase in even/odd numbers	2, 4, 6, 8, <b>10</b> or 1, 3, 5, 7, <b>9</b>
<b>8. Fibonacci Series</b>	Sum of last two terms	Each term = sum of previous two	1, 1, 2, 3, 5, 8, <b>13</b>
<b>9. Mixed Operations</b>	Combo of add, subtract, multiply	Repeating or changing operation	2, 4, 12, 36, <b>108</b> ( $\times 2$ , $\times 3$ ...)
<b>10. Square + Constant</b>	Square of n plus a number	$n^2 + k$ or $n^2 - k$	1, 5, 10, 17, 26, <b>37</b> ( $1^2+0$ , $2^2+1$ , $3^2+1$ ...)
<b>11. Cube + Constant</b>	Cube of n plus a number	$n^3 + k$ or $n^3 - k$	1, 9, 35, 91, <b>189</b> ( $1^3+0$ , $2^3+1$ , $3^3+8$ ...)
<b>12. Difference of Differences</b>	2nd level difference is constant	First differences are not equal, but their difference is	1, 3, 7, 13, 21, <b>31</b> (diffs: +2, +4, +6...)
<b>13. Position-based Pattern</b>	Involves place value (A=1, B=2...)	Pattern based on index or position	1, 4, 9, 16, <b>25</b> (position <sup>2</sup> )
<b>14. Reverse Pattern</b>	Pattern is backward	Decreasing order by logic	100, 50, 25, 12.5, <b>6.25</b> ( $\div 2$ )
<b>15. Decimal/Fraction Series</b>	Use of decimals or fractions	Multiply or divide by decimal/fraction	1, 0.5, 0.25, 0.125, <b>0.0625</b> ( $\div 2$ )
<b>16. Exponential Growth</b>	Rapid increase	$2^n$ , $3^n$ , etc.	2, 4, 8, 16, 32, <b>64</b>
<b>17. Multiples of N</b>	All terms are divisible by a number	Multiple of fixed number	5, 10, 15, 20, <b>25</b> ( $\times 5$ )
<b>18. Double Series (Two Series Combined)</b>	Two patterns interleaved	Alternate terms follow different rules	1, 4, 2, 8, 3, 16, <b>4</b> (+1 and $\times 2$ )

### Alpha-Numeric Series

Pattern Type	Description	What to Observe	Example
<b>1. Letter-Number-Symbol Repeat Pattern</b>	Fixed cycle of letters, numbers, and symbols.	Identify the recurring unit.	A1@ B2# C3\$ D4% → Pattern: [Letter + Number + Symbol]
<b>2. Symbol Pattern</b>	Symbols inserted at fixed positions or alternated.	Look for every 2nd, 3rd, or even/odd pattern.	A#B C#D E#F → # after every letter pair
<b>3. Alternate Letter-Number</b>	Alternating between letters and numbers.	See sequence of positions (A=1).	A 1 C 3 E 5 → Odd position letters and numbers
<b>4. Repetition Pattern</b>	Some elements are repeated at fixed intervals.	Count frequency and positions.	A1B A2C A3D → 'A' repeated every 3 units
<b>5. Coding Based on Position</b>	Element's code is its position or reverse.	Match index position in series.	3rd element = C, C → 3
<b>6. Mixed Logic (Alpha + Num + Sym)</b>	Combination pattern involving all.	Decode letters, values, and positions together.	B2@ D4# F6\$ → Letter+Even Number+Symbol
<b>7. Increasing Length Pattern</b>	Number of elements in a block increase/decrease.	Observe group sizes.	A1, B2C3, D4E5F6 → Elements in 1, 2, 3 format

## Wrong Series

Pattern Type	Pattern Description	Clue to Identify Wrong Number	Example
1. Addition/Subtraction Series	Numbers increase or decrease by fixed/increasing value	Look for consistent gaps; one term will break the pattern	5, 10, 15, 21, 25 → Wrong: 21
2. Multiplication/Division	Series involves $\times$ or $\div$ with same or changing multiplier/divider	Multiply/divide adjacent numbers; mismatch reveals the error	2, 4, 8, 18, 32 → Wrong: 18
3. Alternating Pattern	Pattern alternates between positions (odd/even)	Check every 2nd number for a separate logic	2, 6, 3, 12, 5, 24 → Wrong: 5
4. Prime Numbers Series	Series of prime numbers or pattern involving primes	Check for wrong prime/non-prime value	2, 3, 5, 7, 9, 11 → Wrong: 9
5. Perfect Square/Cube Series	Series based on squares or cubes (or near-squares/cubes)	Identify numbers like 4, 9, 16, 25 or 8, 27, 64, etc.	1, 4, 9, 15, 25 → Wrong: 15
6. Fibonacci/Modified Fib.	Sum of two previous numbers or variations	Check sums of previous two terms	1, 1, 2, 3, 5, 10 → Wrong: 10
7. Difference of Differences	First difference not constant, but second difference is constant	Subtract adjacent terms multiple times to find pattern	1, 4, 9, 16, 24, 35 → Wrong: 24
8. Combination Pattern	Mix of $\times$ , $\div$ , $+$ , or $-$ in different places	Try different operations positionally	2, 3, 6, 12, 24, 50 → Wrong: 50
9. Ratio or Percentage Based	Series built on percentage increase/decrease or ratio	Analyze ratio between terms	100, 90, 81, 72, 60 → Wrong: 60
10. Positional Multiplication	Each term based on its position (e.g., term $\times$ position)	Check if index or position plays a role	1, 4, 9, 16, 28, 36 → Wrong: 28
11. Reverse Pattern	Numbers increase or decrease then reverse (mirror symmetry)	Pattern switches after middle term	2, 4, 8, 16, 8, 4 → Wrong: 16
12. Wrong Middle Term	Wrong number is <b>not</b> at the end, but in the <b>middle</b>	Check consistency of logic before and after the term	1, 3, 5, 11, 9, 11 → Wrong: 11
13. Wrong Series with Powers	Series uses powers or roots of integers	Identify square roots or cube roots used incorrectly	1, 8, 27, 65, 125 → Wrong: 65
14. Arithmetic-Geometric Hybrid	Mix of $+$ (Arithmetic) and $\times$ (Geometric) series alternately	Check if one operation follows another consistently	2, 5, 10, 13, 26, 29 → Wrong: 29
15. Odd/Even Position Rule	Odd and even position numbers follow separate logic	Analyze sequences at even and odd places separately	1, 4, 2, 6, 3, 8 → Wrong: 3

## Letter Based Analogy

Pattern Type	Explanation	Example
1. Alphabetical Order	Both pairs follow a sequential alphabetical logic (forward or backward).	A : B :: C : D
2. Opposite Letter	Letters are equidistant from the start and end of the alphabet (A-Z = 1-26 mapping).	A : Z :: B : Y
3. Position Value (Direct)	Letter positions in the alphabet are compared numerically.	C (3) : F (6) :: D (4) : G (7)
4. Positional Difference	Fixed difference in positions between the pair letters.	M : P :: T : W (each +3)
5. Reverse Alphabet	Letters are matched based on reverse alphabetical position (Z=1, Y=2... A=26).	A (26) : Z (1) :: B (25) : Y (2)
6. Letter Skipping Pattern	Skipping a fixed number of letters to form the analogy.	A : D :: B : E (each +3)
7. Mirror Image in Alphabet	First letter is mapped to its mirror letter (A-Z, B-Y, etc.), often in logic puzzles.	A : Z :: C : X



Pattern Type	Explanation	Example
<b>8. Vowel-Consonant Logic</b>	One pair is made of vowels and the other from consonants or vice versa.	A : E :: B : D
<b>9. Increasing-Decreasing Order</b>	One pair may be in ascending order and the other in descending order, based on position value.	B : D :: E : C
<b>10. Mathematical Position Change</b>	Operations like $\times 2$ , $\div 2$ , $+5$ , $-3$ etc., on letter positions.	C (3) : F ( $6=3\times 2$ ) :: D (4) : G (8)
<b>11. Coding-Pattern Logic</b>	Based on number codes or cipher codes assigned to letters.	A (1) : C (3) :: D (4) : F (6)
<b>12. First-Last Alphabet Pairs</b>	Combination of 1st & last letters (A-Z, B-Y, etc.) used in pairing logic.	A : Z :: B : Y
<b>13. Symmetry around M/N</b>	Center letters M (13) or N (14) used as symmetry axis in the analogy.	L (12) : O (15) :: K (11) : P (16)
<b>14. Alphabet Trios or Grouping</b>	Patterns involving 3-letter segments of the alphabet.	ABC : DEF :: GHI : JKL
<b>15. Circular Arrangement</b>	Alphabet treated in a circular pattern (after Z comes A).	Y : B :: Z : C (each $+3$ )

### Number Based Analogy

S.No.	Pattern Type	Explanation / Logic	Example
1	<b>Addition Series</b>	Same number is added to get second number.	5 : 8 :: 10 : 13 (Add 3)
2	<b>Subtraction Series</b>	Fixed number is subtracted to reach second number.	12 : 7 :: 10 : 5 (Subtract 5)
3	<b>Multiplication</b>	Second number is a multiple of the first.	4 : 12 :: 5 : 15 ( $\times 3$ )
4	<b>Division</b>	Second number is obtained by dividing the first.	16 : 4 :: 20 : 5 ( $\div 4$ )
5	<b>Square/Cube Relationship</b>	Second number is square or cube of the first (or vice versa).	5 : 25 :: 6 : 36 (Square)
6	<b>Square Root / Cube Root</b>	Reverse of above: second is root of the first.	49 : 7 :: 64 : 8
7	<b>Sum of Digits</b>	Sum of digits of the first = second (or some manipulation).	123 : 6 :: 234 : 9
8	<b>Difference of Numbers</b>	Difference follows a pattern.	11 : 7 :: 9 : 5 (Both $-4$ )
9	<b>Prime Numbers</b>	First or second is a prime; check prime progression.	5 : 11 :: 7 : 13
10	<b>Even-Odd Relationship</b>	Both numbers have even/odd relation.	2 : 4 :: 3 : 6
11	<b>Reverse Digits</b>	Digits are reversed in the second number.	13 : 31 :: 14 : 41
12	<b>Digit Square Sum</b>	Square digits and add.	12 : $1^2 + 2^2 = 5$ :: 23 : $2^2 + 3^2 = 13$
13	<b>Sum <math>\times</math> Multiplier</b>	Sum of digits $\times$ constant = second number.	23 : $(2+3)\times 2 = 10$ :: 41 : $(4+1)\times 2 = 10$
14	<b>Geometric Series</b>	Terms form geometric progression (multiply/divide by ratio).	2 : 4 :: 8 : 16
15	<b>Increasing Square Pattern</b>	Use squares in increasing order.	1 : 4 :: 9 : 16
16	<b>Factorial Based</b>	Involve factorial of digits.	3 : 6 ( $3! = 6$ ) :: 4 : 24 ( $4!$ )
17	<b>Multiple Operations</b>	Apply $+$ , $-$ , $\times$ or $\div$ together or in sequence.	5 : $(5\times 2)+1 = 11$ :: 6 : $(6\times 2)+1 = 13$
18	<b>Combination of Positions</b>	Use position in number line or place value logic.	1 : A :: 26 : Z (Alphabet-Number)

## Word Based Analogy

S.No.	Analogy Pattern Type	Explanation / Logic	Example
1	<b>Synonym Relationship</b>	First and second words are synonyms; find a similar pair.	Joy : Happiness :: Anger : Rage
2	<b>Antonym Relationship</b>	Words are opposites; second pair must also be opposites.	Generous : Stingy :: Kind : Cruel
3	<b>Cause &amp; Effect</b>	First causes the second; apply same logic to second pair.	Fire : Burn :: Ice : Freeze
4	<b>Tool and Profession</b>	Tool used by a professional; match second pair similarly.	Scalpel : Surgeon :: Brush : Painter
5	<b>Worker and Product</b>	A worker makes or produces the item.	Author : Book :: Poet : Poem
6	<b>Function or Purpose</b>	First is used for second's purpose.	Knife : Cut :: Pen : Write
7	<b>Part and Whole</b>	First is part of the second; maintain same relation.	Wheel : Car :: Page : Book
8	<b>Object and Action</b>	Action performed by or on the object.	Axe : Chop :: Gun : Shoot
9	<b>Quantity/Measurement</b>	One unit used to measure another.	Liter : Liquid :: Kilogram : Mass
10	<b>Degree/Intensity</b>	Second is a higher or lower degree of first.	Warm : Hot :: Cold : Freezing
11	<b>Animal and Sound</b>	Sound made by the animal.	Dog : Bark :: Cat : Meow
12	<b>Animal and Habitat</b>	Natural home or habitat of the animal.	Fish : Water :: Lion : Forest
13	<b>Tool and Object Used On</b>	Tool is used on the second object.	Hammer : Nail :: Comb : Hair
14	<b>Class and Member</b>	First is a category, second is a specific member.	Flower : Rose :: Tree : Oak
15	<b>Male-Female / Gender Relation</b>	Gender counterparts of living beings.	King : Queen :: Bull : Cow
16	<b>Young One / Offspring Relation</b>	Adult and baby relationship.	Dog : Puppy :: Cat : Kitten
17	<b>Profession and Place of Work</b>	The place associated with a profession.	Teacher : School :: Doctor : Hospital
18	<b>Tool and Its Output</b>	What a tool or device produces.	Oven : Bread :: Camera : Photograph
19	<b>Instrument and Measurement</b>	Scientific instruments and what they measure.	Thermometer : Temperature :: Barometer : Pressure
20	<b>Capital and Country</b>	Capital cities and their countries.	Tokyo : Japan :: Paris : France
21	<b>Currency and Country</b>	Currency associated with countries.	Yen : Japan :: Rupee : India
22	<b>Worker and Raw Material</b>	Person and material they work with.	Carpenter : Wood :: Blacksmith : Iron
23	<b>Word-Meaning / Definition</b>	Second word is a definition of the first.	Honest : Truthful :: Brave : Courageous
24	<b>Object and Material Made Of</b>	Material from which something is made.	Bottle : Glass :: Shirt : Cotton
25	<b>Vehicle and Path/Medium</b>	Medium of movement for a vehicle.	Ship : Water :: Airplane : Air

## Practice Questions

- In a certain code language, 'SILK' is written as 'TIML' and 'INSECT' is written as 'IOTEDU'. How will 'CHANGE' be written in that language?  
(a) DOIHAE (b) DEIOHA  
(c) DEIHAO (d) DIAOHE
- In a certain code, JEALOUS is written as BFKKTVP. How is HEARTEN written in that code?  
(a) OFUQBFI (b) BFIQOFU  
(c) BFIQOFO (d) UFOQIBF
- DHJ is related to AEG in a certain way based on the English alphabetical order. In the same way, ZML is related to WJI To which of the following is EKQ related following the same logic?  
(a) HNT (b) DJK  
(c) BHN (d) QKE
- Select the letter-cluster from among the given options that can replace the question mark (?)  
In the following series.  
ZAA, YEB, XIC, WOD, ?  
(a) VUE (b) VQE  
(c) UVD (d) VEW
- If CALENDAR = AYJCLBYP, then STABLE = \_\_\_\_\_  
(a) RQYZCJ (b) QRYZJC  
(c) QRYCZJ (d) RQCYZJ
- In a certain code language, 'MRGF' is coded as '15-20-9-8' and 'YDXB' is coded as '27-6-26-4'. What is the code for 'JWAS' in the given code language?  
(a) 14-27-5-23 (b) 11-23-2-22  
(c) 12-25-3-21 (d) 16-28-6-24
- In a certain code language 'USJI' is coded as '49' and 'DPTQ' is coded as '51'. What is the code for 'FAUL' in the given language?  
(a) 62 (b) 57  
(c) 68 (d) 59
- In a certain code language, 'FIXTURE' is written as '42737', and 'TORMENT' is written as '281442'. Which of the following are correct matches as per the given code language?

WORD	CODE
(i) PROGRAM	(W) 322049
(ii) JANITOR	(X) 422429
(iii) FULCRUM	(Y) 251843

- (a) i-Y, ii-W, iii-X only (b) i-W, iii-X only  
(c) i-W, ii-Y, iii-X only (d) iii-X only

- In a certain code language, 'LTRH' is coded as '58' and 'NBZW' is coded as '65'. How is 'GSCE' coded in the given language?  
(a) 34 (b) 40  
(c) 31 (d) 39
- If ROW is coded as 3 and LAND is coded as 4, FRIGHTENED will be coded as \_\_\_\_\_.  
(a) 15 (b) 10  
(c) 25 (d) 20
- In a certain code language, 'KENT' is coded as '9^\*7' and 'BENT' is coded as '\*~79'. What is the code for 'B' in that code language?  
(a) \* (b) 9  
(c) ~ (d) ^
- If  $3\%6\&9 = 4.5$  and  $4\%2\&6 = 12$  then find  $16\%16\&4$   
(a) 12 (b) 16  
(c) 0.25 (d) 4
- Complete the third equation on the basis of a certain system followed in the first two equations.  
(1)  $5*4*2*1 = 1425$   
(2)  $7*8*1*6 = 6817$   
(3)  $9*3*7*5 = ?$   
(a) 3795 (b) 5397  
(c) 5973 (d) 5379
- If  $15\#2 = 26$ ,  $11\#3 = 16$  and  $10\#9 = 2$ , then find the value of  $11\#4 = ?$   
(a) 4 (b) 6  
(c) 14 (d) 16
- If  $61 @ 12 \# 24 = 122$  and  $54 \# 11 @ 198 = 3$ , then  $78 @ 13 \# 5 = ?$   
(a) 32 (b) 30  
(c) 31 (d) 35



- 16.** In a certain code language, 'Tudo Bem' is written as 'All Fine', 'Como Esta' is written as 'How You', and 'Bem Como' is written as 'Fine You'. How will 'Tudo Esta' be written as in the same language?  
 (a) How Fine (b) All Fine  
 (c) All You (d) All How
- 17.** Read the given information and answer the question(s) that follow(s).  
 In a certain code language, 'Sit Stand Tall' is written as 'TEX OPT REF', 'Height Tall Dwarf' is written as 'DIS REF REA' and 'Dwarf Sit Weight' is written as 'OPT DIS CON'. How will 'Sit' be written in that language?  
 (a) OPT (b) TEX  
 (c) DIS (d) REF
- 18.** If in a certain coding language, 'flowers go black' is written as 'la vo mu', 'black panther died' is written as 'zi mu be' and 'panther go red' is written as 'be la ho', how will 'panther' be written in that language?  
 (a) zi (b) be  
 (c) ho (d) la
- 19.** In a code language 'LEMON' is coded as 'p t s r a', 'NET' is coded as 'spc' and 'EAT' is written as 'cfp', then how will 'A' be written in this code language?  
 (a) p (b) c  
 (c) f (d) s
- 20.** In a certain code language 'you are beautiful' is written as '786', 'beautiful people are nice' is written as '4796' and 'they are nice' is written as '962' then how will 'they' be written in this code language?  
 (a) 4 (b) 6  
 (c) 9 (d) 2
- 21.** If truck is called bus, bus is called tractor, tractor is called cat, cat is called scooter, scooter is called dog, dog is called moped, which is used to plough a field?  
 (a) Truck (b) Tractor  
 (c) Cat (d) Scooter
- 22.** If 'elephant' is called 'dog', 'dog' is called 'crow', 'crow' is called 'tiger', 'tiger' is called 'snake', 'snake' is called 'lion', which is reared as pet?  
 (a) Crow (b) Tiger  
 (c) Snake (d) Elephant
- 23.** If 'Red' is called as 'Blue', 'Blue' is called as 'Black', 'Black' is called as 'Brown', 'Brown' is called as 'Pink' and 'Pink' is called 'Yellow' what is the color of crow?  
 (a) Red (b) Black  
 (c) Brown (d) Yellow
- 24.** If lead is called stick, stick is called nib, nib is called needle, needle is called rope, and rope is called thread, what will be fitted in a pen to write with it?  
 (a) Needle (b) Thread  
 (c) Rope (d) Lead
- 25.** If 'water' is called 'food', 'food' is called 'tree', 'tree' is called 'sky', 'sky' is called 'wall'. On which of the following grows a fruit.  
 (a) Water (b) Food  
 (c) Sky (d) Tree
- 26.** Which of the following conclusions logically follows from the given statements, assuming the statements are true, even if they seem contrary to general knowledge?  
 Statements:  
 I. Some mice are bats.  
 II. Some bats are cats.  
 Conclusions:  
 I. All cats are mice.  
 II. Some bats are mice.  
 (a) Only conclusion II follows.  
 (b) Neither conclusion I nor conclusion II follows.  
 (c) Both conclusion I and conclusion II follow.  
 (d) Only conclusion I follows.
- 27.** In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.  
 Statements:  
 1. No G are M.  
 2. Some A are M.  
 Conclusion:  
 I. Some M are A.  
 II. Some M are G.  
 (a) Both conclusions I and II follows.  
 (b) Only conclusion I follows.  
 (c) Only conclusion II follows.  
 (d) Neither conclusion follows.
- 28.** In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.



Statements:

1. No P is A.
2. Some S are A.

Conclusion:

- I. No A is P.
- II. Some S are P.
- (a) Both conclusions I and II follows.
- (b) Only conclusion I follows.
- (c) Neither conclusion follows.
- (d) Only conclusion II follows.

29. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

1. Some K are P.
2. Some Z are K.

Conclusion:

- I. Some Z are P.
- II. Some K are Z.
- (a) Both conclusions I and II follows.
- (b) Only conclusion I follows.
- (c) Only conclusion II follows.
- (d) Neither conclusion follows.

30. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

- I. All R are Q.
- II. All M are R.

Conclusion:

- I. All M are Q.
- II. Some Q are R.
- (a) Both conclusions I and II follows.
- (b) Only conclusion I follows.
- (c) Neither conclusion follows.
- (d) Only conclusion II follows.

31. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly

known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- I. All cars are rabbits.
- II. All rabbits are bananas.
- III. All bananas are lamps.

Conclusions:

- (I): All cars are lamps.
- (II): Some lamps are rabbits.
- (a) Only conclusion (I) follows.
- (b) Only conclusion (II) follows.
- (c) Both conclusions (I) and (II) follow.
- (d) Neither conclusion (I) nor (II) follows.

32. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

1. No E are F.
2. Some G are F.

Conclusion:

- I. All G are E.
- II. No F is E.
- (a) Neither conclusion follows.
- (b) Only conclusion I follows.
- (c) Only conclusion II follows.
- (d) Both conclusions I and II follows.

33. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- Some crayon is colour.
- No colour is water.
- Some water is liquid.

Conclusions:

- I) Some crayon is liquid.
- II) Some crayon is not water.
- III) Some liquid is not colour.
- (a) Only III
- (b) Only I and III
- (c) Only II
- (d) Only II and III

- 34.** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.  
Statements:  
Some rice is white.  
Some rice is brown.  
No white is wheat.  
Conclusions:  
I) Some wheat is brown.  
II) Some rice is not wheat.  
III) Some brown is not white.  
(a) Only I and III  
(b) Only II  
(c) Only II and III  
(d) Only III
- 35.** Two statements are given followed by three by conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements:  
Some blues are Green.  
Some blues are pink.  
Conclusions:  
I. Some Green are pink.  
II. No pink is blue.  
III. No Green is Pink.  
(a) Only conclusion II follows  
(b) Only conclusions I and II follow.  
(c) Either conclusion I or III follow.  
(d) Either conclusion I or II follow
- 36.** Two statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements:  
I. All chips are snacks.  
II. Some fried foods are chips.  
Conclusions:  
I. All fried foods are snacks.  
II. Some snacks are fried foods.  
III. No fried food is snack.  
(a) Only conclusion II follows  
(b) Only conclusion III follows  
(c) Only conclusions II and III follow  
(d) Either conclusion I or III follows
- 37.** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.  
Statements:  
I. Few doctors are buildings.  
II. Most buildings are papers.  
III. All papers are frogs.  
Conclusions:  
(I) Few doctors are papers.  
(II) Some frogs are doctors.  
(III) Some buildings are frogs.  
(a) Only conclusion I follows  
(b) Only conclusion III follows  
(c) All the conclusions I, II and III follow  
(d) Either conclusion I or conclusion II follows
- 38.** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements:  
I. All bottles are jugs.  
II. Some bottles are flasks.  
III. All flasks are bins.  
Conclusions:  
I. Some bottles are bins.  
II. Some jugs are bins.  
III. Some flasks are jugs.  
(a) All conclusions I, II and III follow  
(b) Either conclusion I or II follows  
(c) Only conclusions II and III follow  
(d) Only conclusions I and II follow
- 39.** Two statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements:  
I. All strawberries are fruits.  
II. Some berries are strawberries.  
Conclusions:  
I. All berries are fruits.  
II. Some fruits are strawberries.  
III. No berry is a fruit.  
(a) Only conclusion III follows.  
(b) Only conclusion II follows.  
(c) Both conclusions II and III follow.  
(d) Either conclusion I or III follows.

- 40.** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.  
Statements:  
All flags are symbols.  
All symbols are prides.  
Some prides are bright  
Conclusions:  
(I) All flags are prides.  
(II) Some flags are bright is a possibility  
(III) Some symbols are bright is a possibility.  
(a) Only conclusion I follows  
(b) Only conclusion II follows  
(c) All conclusions I, II and III follow  
(d) Both conclusions I and II follow
- 41.** Three Statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements:  
All Tamil is tobacco.  
No Tiran is Tamil.  
A few Tilaks is tobacco.  
Conclusions:  
I. All Tobacco being Tiran is a possibility.  
II. Some Tilak is not Tiran.  
III. All Tiran is Tilak is a possibility.  
(a) Only I follows  
(b) Only II follows  
(c) Only III follows  
(d) All follows
- 42.** Read the given statement and conclusion carefully. Assuming that the information given in the statement is true, even if it appears to be variance with commonly known facts decide which of the given conclusion logically follow(s) from the statement.  
Statement:  
All petrol are gas.  
No gas are Iron.  
No iron are Stone.  
Conclusion:  
I. All Iron are Petrol is a possibility.  
II. No petrol are stone.  
III. All gas are stone is a possibility.  
IV. Some gass are not Petrol.  
(a) Both the conclusion II and IV follow  
(b) only conclusion I follow  
(c) Both the conclusion II and III follow  
(d) Only conclusion III follow
- 43.** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.  
Statements: At least some guitar is ana.  
100% papaya is banana.  
No ana is papaya.  
Conclusions: I. At least some ana being papaya is a possibility.  
II. All banana is guitar is a possibility.  
III. Some papaya is guitar.  
(a) Only conclusions II and III follow  
(b) Only conclusions I and III follow  
(c) Only conclusion II follows  
(d) All conclusions follow
- 44.** Statements:  
Only travel are planet.  
Some crow are travel.  
All crow are silver.  
Conclusions:  
I. Some planet being silver is a possibility.  
II. All travel can never be crow.  
In this question below, some statements are given followed by some conclusions. You have to assume everything in the statements to be true even if they seem to be at variance with commonly known facts. Now, decide which of the two given conclusions logically follow from the statements, disregarding commonly known facts.  
(a) Only I follows  
(b) Only II follows  
(c) Either I or II follows  
(d) Both I and II follow
- 45.** In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.  
Statements:  
I. All Math are Science.  
II. Some Science are Hindi.  
Conclusion:  
I. No Hindi are Math.  
II. All Hindi are Science.  
(a) Both conclusions I and II follows.  
(b) Only conclusion I follows.  
(c) Neither conclusion follows.  
(d) Only conclusion II follows.

46. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

- I. All Colour are Red.
- II. Some Yellow are Red.

Conclusion:

- I. All Yellow are Colour.
- II. Some Red are Yellow.

- (a) Only conclusion I follows.
- (b) Both conclusions I and II follows.
- (c) Neither conclusion follows.
- (d) Only conclusion II follows.

47. Statements: All developer are engineer  
Only progress are coders.  
Some progress are developer.  
All engineer is first.

Conclusions:

- I. Some coders being engineers is a possibility.
- II. No progress is first.

In this question, some statements are given followed by two conclusions, numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts. Give answer-

- (a) If only conclusion I follows
- (b) If only conclusion II follows
- (c) If either conclusion I or II follows
- (d) If neither conclusion I nor II follows

48. In the following question, two statements are given and these statements are followed by three conclusions numbered (1) to (3). You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

Statement:

- (I) Some packets are bricks.
- (II) All bricks are homes.

Conclusions:

- (1) All packets can be homes.
- (2) Some packets are homes is a possibility.
- (3) No packet is home is a possibility.

- (a) If only conclusion 1 follows.
- (b) If only conclusion 2 follows.
- (c) If both 1 and 2 conclusions follow.
- (d) If only conclusion 3 follows.

49. Read the given statements and conclusions carefully Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- (1) Few sheep are chimpanzees.
- (2) No chimpanzee is a gorilla.
- (3) All gorillas are bears.

Conclusions:

- (I) Some bears are not chimpanzees.
- (II) All chimpanzees are sheep.
- (III) All bears are gorillas.
- (a) Either conclusion I or conclusion III follow
- (b) Only conclusion II follows
- (c) None of the conclusions follow
- (d) Only conclusion I follows

50. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- 1. Some doors are rocks.
- 2. All rocks are woods.

Conclusions:

- (I) At least some woods are doors.
- (II) All woods are rocks.
- (a) Both conclusions (I) and (II) follows.
- (b) Only conclusion (II) follows.
- (c) Neither conclusion (I) nor (II) follows.
- (d) Only conclusion (I) follows.





51. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

I. All juices are burgers.

II. Some burgers are chocolates.

Conclusions:

(I) Some burgers are juices.

(II) Some juices are chocolates.

(a) Neither conclusion I nor II follow

(b) Both conclusions I and II follow

(c) Only conclusion I follows

(d) Only conclusion II follows

52. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

(1) All lions are cheetahs.

(2) Some cheetahs are tigers.

Conclusions:

(I) Some tigers are not cheetahs.

(II) All cheetahs are lions.

(a) Only conclusion I follows

(b) Both conclusions I and II follow

(c) Only conclusion II follows

(d) Neither conclusion I nor II follows

53. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statement:-

Some cars are trains.

All trains are bikes.

No bike is pen.

Some pen are erasers.

Conclusion:-

I. Some cars are erasers.

II. Some trains being erasers is a possibility.

III. No car is pen.

(a) Both conclusions I and III follows

(b) Only conclusion II follows

(c) Both conclusions I and II follows

(d) All conclusion follows

54. Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

(1) All pages are diaries.

(2) Some diaries are books.

(3) All books are notebooks.

Conclusions:

I. No page is a notebook.

II. All pages are notebooks.

III. All diaries being notebooks is a possibility.

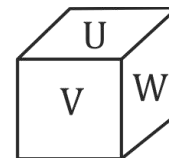
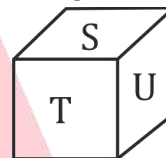
(a) Both conclusion I and II follow

(b) Only conclusions I and III follow

(c) Only conclusion III follows

(d) Only conclusion II follows

55. Six letters S, T, U, V, W and X are written on different faces of a dice. Two positions of this dice are shown in the figure. Which letter will be opposite to X?



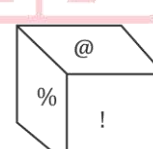
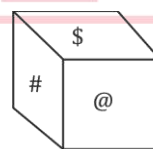
(a) W

(b) S

(c) T

(d) U

56. Six symbols !, @, #, \$, %, and & are written on different faces of a dice. Two positions of this dice are shown in the figure. Which symbol will be opposite to &?



(a) #

(b) %

(c) @

(d) \$

57. Two positions of a dice are given below. What will come on the face opposite to the face containing 'F' on it?



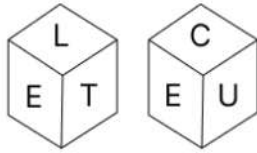
(a) 4

(b) J

(c) 9

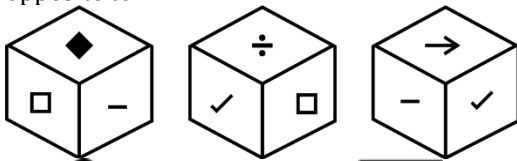
(d) E

58. A dice has its faces marked by letters C, L, A, U, T and E. Two positions of the same dice are shown in the given figures. Which face is opposite to face A?



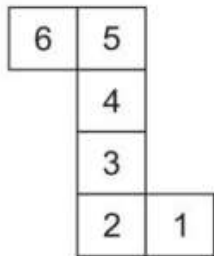
- (a) T (b) E  
(c) C (d) U

59. There are six different symbols drawn over the six faces of a cube. Symbols are  $\blacklozenge$ ,  $-$ ,  $\rightarrow$ ,  $\square$ ,  $\div$  and check mark symbol. Three different positions of the same cube are shown in the given figures. Which symbol is opposite to  $\rightarrow$ ?



- (a)  $\div$  (b)  $\square$   
(c)  $\checkmark$  (d)  $\blacklozenge$

60. When the given figure is folded to form a box, which face CANNOT be adjacent to the face with '2'?



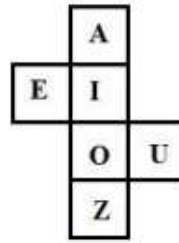
- (a) 6 (b) 1  
(c) 5 (d) 4

61. Select the die which cannot be formed on folding the given sheet.



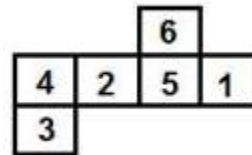
- (a) (b)   
(c) (d)

62. If the given figure is folded to form a cube, which letter will come opposite to 'E'?



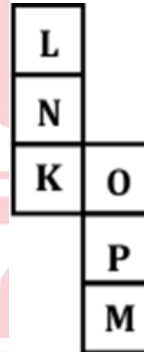
- (a) U (b) A  
(c) Z (d) O

63. A cube is made by folding the given sheet. In the cube so formed, which number will be on the face opposite to the face having the number '5'?



- (a) 6 (b) 1  
(c) 4 (d) 3

64. What would be the letter on the opposite side of 'P' if the given sheet is folded to form a cube?



- (a) L (b) N  
(c) M (d) K

65. A cube with a side length of 200 cm is completely painted Blue on every surface and subsequently divided into smaller cubes, each with a side length of 20 cm. Determine the total number of these smaller cubes that have all three faces painted.

- (a) 8 (b) 27  
(c) 64 (d) 125

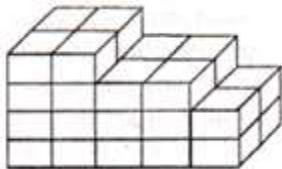
66. A cube with a side length of 100 cm is painted blue on all its faces and then cut into smaller cubes with side lengths of 20 cm each. How many of the smaller cubes will have exactly two faces painted?

- (a) 24 (b) 48  
(c) 36 (d) 72

67. A cube of side 15 cm, is painted red on all the faces and then cut into smaller cubes, each of side 5 cm. What is the total number of smaller cubes having two of their faces painted?

- (a) 18 (b) 24  
(c) 12 (d) 15

68. Few cubes are arranged as shown in the figure. How many cubes are unseen?

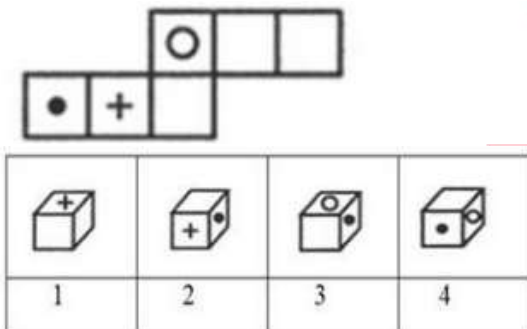


- (a) 8 (b) 10  
(c) 12 (d) 14

69. A cube of side 100 cm is painted Red on all the faces and then cut into smaller cubes of sides 10 cm each. Find the number of smaller cubes having all the three faces painted.

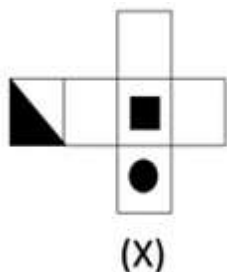
- (a) 32 (b) 64  
(c) 28 (d) 8

70. Select the box (from 1, 2, 3, 4) that is similar to the box formed from the given sheet of paper.



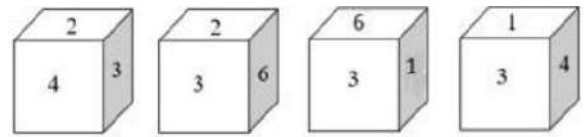
- (a) 1, 2 and 3 only (b) 2 and 3 only  
(c) 1, 2, 3 and 4 (d) 1 only

71. Choose the dice from the given options that is similar to the dice formed from the given sheet of paper (X).



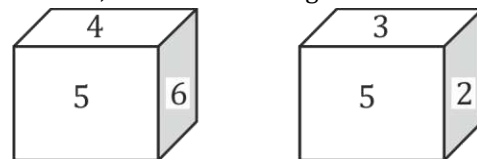
- (a) (b)   
(c) (d)

72. Four positions of a DICE are shown. Find out which number occurs on the face opposite to the face having the number '4'?



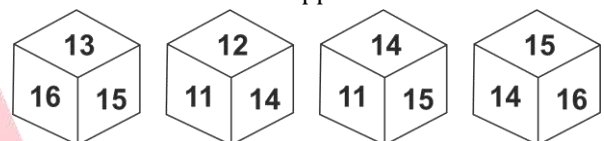
- (a) 1 (b) 2  
(c) 6 (d) 3

73. Two positions of the same cube are shown below. Determine which face of the cube will have the hidden number, from these two figures.



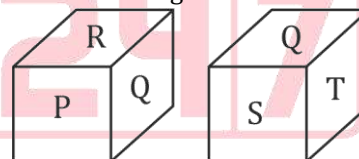
- (a) Opposite of '4' (b) Opposite of '5'  
(c) Opposite of '3' (d) Opposite of '6'

74. Four different positions of the same dice are given below. Find the number opposite of 13.



- (a) 15 (b) 14  
(c) 11 (d) 16

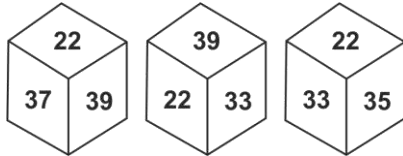
75. Two different positions of the same dice are shown. Select the letter that will be on the face opposite to the face having the letter T?



- (a) U (b) P  
(c) Q (d) R

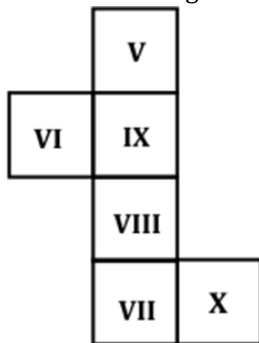
**SSC CGL MAHAPACK**  
Complete Tier 1+2 Prep.  
Selection ka Saathi

76. Three different positions of the same dice are given below. Find the number opposite of 37.



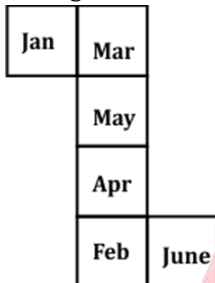
- (a) 35  
(b) 33  
(c) 39  
(d) 22

77. What would be the Roman numeral on the opposite side of 'V' if the given sheet is folded to form a cube?



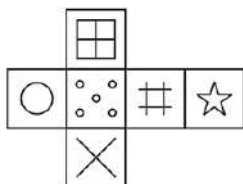
- (a) VII  
(b) X  
(c) VIII  
(d) VI

78. What would be the word on the opposite side of 'Feb' if the given sheet is folded to form a cube?



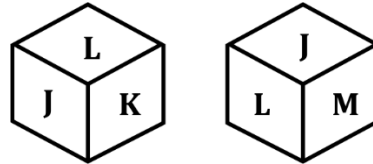
- (a) June  
(b) Jan  
(c) May  
(d) Mar

79. Which of the following cube in the answer figure cannot be made based on the unfolded cube in the question figure?



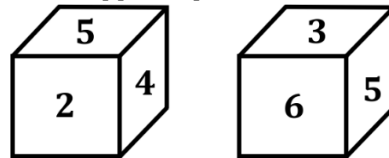
- (a)   
(b)   
(c)   
(d)
- (a) a  
(b) b  
(c) c  
(d) d

80. Six letters, J, K, L, M, N and O, are written on the different faces of a dice. Two positions of this dice are shown in the given figure. Find the letter on the face opposite to K?



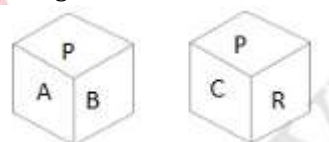
- (a) N  
(b) M  
(c) L  
(d) J

81. A dice with six faces is marked with six numbers 1, 2, 3, 4, 5 and 6, respectively. It is rolled 2 times and lands on the positions shown below. Which number is on the opposite plane of 5?



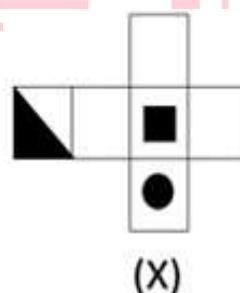
- (a) 1  
(b) 6  
(c) 2  
(d) 3

82. Six letters A, B, C, P, Q and R are written on different faces of a dice. Two positions of this dice are shown in the figure. Find the letter on the face opposite to B.



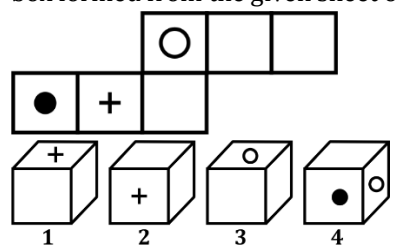
- (a) Q  
(b) R  
(c) A  
(d) C

83. Choose the dice from the given options that is similar to the dice formed from the given sheet of paper (X).



- (a)   
(b)   
(c)   
(d)



84. Select the box (from 1, 2, 3, 4) that is similar to the box formed from the given sheet of paper.
- 
- (a) 1, 2 and 3 only (b) 2 and 3 only  
(c) 1, 2, 3 and 4 (d) 1 only
85. Complete the following series:  
ABY, CDW, EFU, ?  
(a) GHS (b) GHI  
(c) GHR (d) GHT
86. Choose the correct alternative that will complete the given series.  
BDF, HJL, NPR, ?  
(a) TRP (b) TVX  
(c) TVY (d) UWX
87. Which of the following terms will replace the question mark (?) in the given series?  
PDRY, QFQW, RHPU, ?, TLNQ  
(a) JOSS (b) SOJS  
(c) SJOS (d) JSOS
88. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.  
RT, WE, BP, GA, ?  
(a) LL (b) LM  
(c) LT (d) LR
89. Choose the Correct alternative that will complete the given series  
FIL, HKN, JMP, ?  
(a) LOR (b) LOM  
(c) LON (d) LOQ
90. Which of the following numbers will replace the question mark (?) in the given series?  
23, 54, 81, 117, 137, 182, 191, ?  
(a) 249 (b) 294  
(c) 245 (d) 254
91. Select the number from among the given options that can replace the question mark (?) in the following series.  
12, 16, 25, 50, 99, ?, 389  
(a) 200 (b) 220  
(c) 240 (d) 180
92. Which of the following numbers will replace the question mark (?) in the given series?  
122, 135, 161, 200, 252, ?  
(a) 217 (b) 417  
(c) 317 (d) 517
93. Choose the correct option to complete the following number series:  
240, 306, 380, 462, ?  
(a) 602 (b) 586  
(c) 524 (d) 552
94. Select the number that can replace the question mark (?) in the following series.  
23, 33, 57, 101, 171, ?  
(a) 273 (b) 278  
(c) 277 (d) 275
95. What will be written in the place of question mark in the given series?  
C3A1N14R18?24  
(a) W (b) U  
(c) V (d) X
96. What should be written in the place of question mark in the given series?  
G4, I8, ?, M16, O20  
(a) J12 (b) J14  
(c) K12 (d) K14
97. What should be written in the place of question mark in the given series?  
M8, O15, Q22, ?, U36  
(a) S29 (b) Q22  
(c) U25 (d) T25
98. Select the alphanumeric-cluster from among the given options that can replace the question mark (?) in the following series.  
F5, J8, R14, D23, ?  
(a) S35 (b) U35  
(c) T38 (d) T35
99. Select the term from among the given options that can replace the question mark (?) in the following series.  
E25, H27, J30, M32, O35, ?  
(a) R38 (b) Q36  
(c) Q37 (d) R37
100. Select the numbers from among the given options that can replace the question marks (?) in the same sequence and make the series logically complete.  
17, 18, 22, 31, ?, 72, ?, 157  
(a) 49, 106 (b) 45, 107  
(c) 47, 108 (d) 47, 105

- 101.** Which letter-cluster will replace the question mark (?) to complete the given series?  
WGDE, ZEGC, ?, FAMY, IYPW  
(a) DBJC (b) DCIB  
(c) CCJA (d) ZCIB
- 102.** What should come in place of the question (?) in the given series based on the English alphabetical order?  
IGK, LJN, OMQ, RPT, ?  
(a) USW (b) VRW  
(c) URW (d) VSW
- 103.** Which of the following numbers will replace the question mark (?) in the given series?  
5, 14, 41, 122, 365, ?  
(a) 1049 (b) 1490  
(c) 1940 (d) 1094
- 104.** Complete the following series:  
ABY, CDW, EFU, ?  
(a) GHS (b) GHI  
(c) GHR (d) GHT
- 105.** Select the wrong term in the given alpha-numeric series.  
H25U, I30T, J35S, K40R, L45P  
(a) L45P (b) I30T  
(c) H25U (d) K40R
- 106.** Select the wrong term in the following number series:  
6, 12, 48, 382, 6144  
(a) 12 (b) 48  
(c) 382 (d) 6144
- 107.** Select the wrong term in the given alpha-numeric series.  
Y17, A34, C51, F68, G85  
(a) Y17 (b) C51  
(c) F68 (d) A34
- 108.** Select the wrong term in the given alpha-numeric series.  
L11, O22, R44, U44, X55  
(a) U44 (b) O22  
(c) R44 (d) X55
- 109.** Select the wrong term in the following number series:  
9, 10, 19, 44, 93, 175  
(a) 10 (b) 175  
(c) 93 (d) 44
- 110.** Select the option that shows a word that has the same meaning as the words on the right and left sides of the brackets.  
BEGIN, (\_\_\_\_), COMMENCE  
(a) Ending (b) Last  
(c) Start (d) First
- 111.** 'FNNTA' is related to 'BKRZ' in a certain way based on the English alphabetical order. In the same way, 'JOCY' is related to 'FLAX'. To which of the following is 'RWLS' related, following the same logic?  
(a) OSIR (b) NTJR  
(c) MRGT (d) MSHS
- 112.** Select the option that is related to the third term in the same way as the second term is related to the first term.  
QNKH : WTQN :: PMJG : ?  
(a) VTPM (b) PMVS  
(c) VSON (d) VSPM
- 113.** AMBUSH is related to FPIWTH in a certain way based on the English alphabetical order. In the same way, LYPASE is related to QBWCTE. To which of the given options is OCTANE related, following the same logic?  
(a) TFBDM (b) TFBCOF  
(c) TFADME (d) TFACOE
- 114.** In a certain code language, 'BOOK' is written as 'DRTR' and 'WORM' is written as 'YRWT'. How will 'READ' be written in that language?  
(a) TIFK (b) THGK  
(c) THFL (d) THFK
- 115.** Select the pair from among the given options that is analogous to the given pair.  
10 : 999  
2 : 7  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)  
(a) 6 : 215 (b) 4 : 65  
(c) 5 : 128 (d) 8 : 315



- 116.** Select the pair which is related to each other in the same way as the following –  
14 : 205  
5 : 34  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)  
(a) 25:636 (b) 16:247  
(c) 9:91 (d) 28:793
- 117.** 35 is related to 48 following a certain logic. Following the same logic, 15 is related to 24. Which of the following is 80 related to, following the same logic?  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)  
(a) 99 (b) 95  
(c) 98 (d) 89
- 118.** Select the option that is related to the third number in the same way as the second number is related to the first number and the sixth number is related to the fifth number.  
546: 15:: 879:?: 715: 13  
(a) 19 (b) 24  
(c) 21 (d) 17
- 119.** Select the set in which the numbers are related in the same way as the numbers of the following set.  
(9, 83, 164)  
(4, 18, 34)  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)  
(a) (5, 27, 56) (b) (6, 38, 74)  
(c) (11, 122, 242) (d) (13, 167, 334)
- 120.** Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.)  
Red Cross : Hospital :: Wheel : ?  
(a) Progress (b) Tardiness  
(c) Danger (d) Family planning
- 121.** Find which of the following would be similar to the group.  
Sugar, Jaggery, Stevia, Maple syrup, ?  
(a) Cocoa (b) Honey  
(c) Cinnamon (d) Salt
- 122.** Select the option that is related to the third term in the same way as the second term is related to the first term.  
Amend : Rectify :: Chaos : ?  
(a) Creativity (b) Array  
(c) Disorder (d) Ungrateful
- 123.** 'Runway' is related to 'Airplane' in the same way as 'Track' is related to '\_\_\_\_\_'.  
(a) Athlete (b) Ship  
(c) Bus (d) Boat
- 124.** 'Dreamland' is related to 'Utopia' in the same way as 'Earth' is related to:  
(a) People (b) Terra Firma  
(c) Rocks (d) Soil
- 125.** Circle : Sphere :: Square : ?  
(a) Rectangle (b) Cube  
(c) Triangle (d) Hexagon
- 126.** Select the word that is related to Dollar ; Lira ; Rupee in the same way.  
(a) Dinar (b) Value  
(c) Coin (d) Money
- 127.** 'Atom' is related to 'Molecule' in the same way as 'Cell' is related to which of the following ?  
(a) Organ (b) Plant  
(c) Tissue (d) DNA
- 128.** In the following question there is certain relationship between two given words on left side of (: :) and one word is given on another side of (: :) while another word is to be found from the given alternatives, having the same relation with this word as the given pair has. Select the logically correct alternative.  
Goitre : Iodine : : Rickets : ?  
(a) Vitamin A (b) Vitamin C  
(c) Vitamin D (d) Vitamin V1212

- 129.** 'Lizard' is related to 'Reptile' in the same way as 'Ostrich' is related to ?  
 (a) Amphibian (b) Egg  
 (c) Bird (d) Mammal
- 130.** Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must NOT be related to each other based on the number of letters/number of consonants/vowels in the word)  
 Immigration : Entrance :: Emigration : ?  
 (a) Bridge (b) Departure  
 (c) Passport (d) Aeroplane
- 131.** Select the pair which is related to each other in the same way as the following –  
 27:82  
 9:28  
 (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
- (a) 36:107 (b) 42:127  
 (c) 18:37 (d) 45:138
- 132.** 325 is related to 30 following a certain logic. Following the same logic, 424 is related to 32. Which of the following numbers is related to 16 using the same logic?  
 (a) 178 (b) 182  
 (c) 180 (d) 184
- 133.** Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must NOT be related to each other based on the number of letters/number of consonants/vowels in the word)  
 Map : Directions :: Manual : ?  
 (a) Assumptions (b) Conclusions  
 (c) Statements (d) Instructions
- 134.** Select the triad from among the given options that is analogous to the given triad.  
 505 – 604 – 217  
 (a) 432 – 513 – 711 (b) 161 – 512 – 710  
 (c) 125 – 223 – 342 (d) 244 – 226 – 262

## Solutions

- |              |              |              |              |
|--------------|--------------|--------------|--------------|
| S1. Ans.(d)  | S22. Ans.(a) | S43. Ans.(c) | S64. Ans.(b) |
| S2. Ans.(b)  | S23. Ans.(c) | S44. Ans.(b) | S65. Ans.(a) |
| S3. Ans.(c)  | S24. Ans.(a) | S45. Ans.(c) | S66. Ans.(c) |
| S4. Ans.(a)  | S25. Ans.(c) | S46. Ans.(d) | S67. Ans.(c) |
| S5. Ans.(b)  | S26. Ans.(a) | S47. Ans.(d) | S68. Ans.(b) |
| S6. Ans.(c)  | S27. Ans.(b) | S48. Ans.(a) | S69. Ans.(d) |
| S7. Ans.(c)  | S28. Ans.(b) | S49. Ans.(d) | S70. Ans.(c) |
| S8. Ans.(b)  | S29. Ans.(c) | S50. Ans.(d) | S71. Ans.(d) |
| S9. Ans.(a)  | S30. Ans.(a) | S51. Ans.(c) | S72. Ans.(c) |
| S10. Ans.(b) | S31. Ans.(c) | S52. Ans.(d) | S73. Ans.(b) |
| S11. Ans.(c) | S32. Ans.(c) | S53. Ans.(b) | S74. Ans.(b) |
| S12. Ans.(d) | S33. Ans.(d) | S54. Ans.(c) | S75. Ans.(b) |
| S13. Ans.(d) | S34. Ans.(b) | S55. Ans.(d) | S76. Ans.(b) |
| S14. Ans.(c) | S35. Ans.(c) | S56. Ans.(c) | S77. Ans.(c) |
| S15. Ans.(b) | S36. Ans.(a) | S57. Ans.(d) | S78. Ans.(c) |
| S16. Ans.(d) | S37. Ans.(b) | S58. Ans.(b) | S79. Ans.(c) |
| S17. Ans.(a) | S38. Ans.(a) | S59. Ans.(b) | S80. Ans.(b) |
| S18. Ans.(b) | S39. Ans.(b) | S60. Ans.(d) | S81. Ans.(a) |
| S19. Ans.(c) | S40. Ans.(c) | S61. Ans.(c) | S82. Ans.(b) |
| S20. Ans.(d) | S41. Ans.(c) | S62. Ans.(a) | S83. Ans.(d) |
| S21. Ans.(c) | S42. Ans.(d) | S63. Ans.(c) | S84. Ans.(c) |



S85. Ans.(a)	S98. Ans.(d)	S111. Ans.(b)	S124. Ans.(b)
S86. Ans.(b)	S99. Ans.(d)	S112. Ans.(d)	S125. Ans.(b)
S87. Ans.(c)	S100. Ans.(c)	S113. Ans.(d)	S126. Ans.(a)
S88. Ans.(a)	S101. Ans.(c)	S114. Ans.(d)	S127. Ans.(c)
S89. Ans.(a)	S102. Ans.(a)	S115. Ans.(a)	S128. Ans.(c)
S90. Ans.(a)	S103. Ans.(d)	S116. Ans.(d)	S129. Ans.(c)
S91. Ans.(b)	S104. Ans.(a)	S117. Ans.(a)	S130. Ans.(b)
S92. Ans.(c)	S105. Ans.(a)	S118. Ans.(b)	S131. Ans.(b)
S93. Ans.(d)	S106. Ans.(c)	S119. Ans.(b)	S132. Ans.(b)
S94. Ans.(a)	S107. Ans.(c)	S120. Ans.(a)	S133. Ans.(d)
S95. Ans.(d)	S108. Ans.(c)	S121. Ans.(b)	S134. Ans.(d)
S96. Ans.(c)	S109. Ans.(b)	S122. Ans.(c)	
S97. Ans.(a)	S110. Ans.(c)	S123. Ans.(a)	



## English

### Verb (Basic)

#### What is a Verb?

A **verb** is a word that shows an **action**, **state**, or **occurrence**.

- **Action Verb:** He **runs** fast.
- **State Verb:** She **is** happy.
- **Occurrence Verb:** It **happens** suddenly.

#### Types of Verbs

##### 1. Main Verbs

These express the main action or state in the sentence.

- Ex: go, come, write, read, is, was, etc.

##### 2. Helping Verbs (Auxiliary Verbs)

They help the main verb to form tense, mood, or voice.

- Be, Do, Have (Primary Auxiliaries)
- Can, May, Shall, Will (Modal Auxiliaries)

#### Verb Tenses

Verbs change form according to **tense** (time of action).

- Present: eat / eats
- Past: ate
- Future: will eat

#### Common SSC Confusion:

- **I did not go** (NOT *I did not went*)
- Use **V1** after **did**.

#### Forms of Verb (V1, V2, V3)

Verb	V1	V2	V3
Go	go	went	gone
Write	write	wrote	written
Eat	eat	ate	eaten

Learn at least 100 common irregular verbs for SSC.

#### Transitive vs Intransitive Verbs

Type	Needs Object	Example
Transitive	Yes	He <b>wrote</b> a letter.
Intransitive	No	He <b>slept</b> peacefully.

#### Regular vs Irregular Verbs

- **Regular Verbs:** Add -ed in past (e.g., play → played)
- **Irregular Verbs:** Change form (e.g., go → went)

#### Important SSC Grammar Rules & Exceptions

##### Rule 1: No 's' or 'es' with plural subject in present tense

- She eats, They eat (✓)
- They eats ✗

##### Rule 2: Do/Does + V1 only

- He does not play (✓)
- He does not plays ✗

### Rule 3: Tense Agreement

- Past habit: **used to** + V1
- He **used to** play cricket.

### VS Rule 4: Been vs Gone

- He **has gone** to Delhi. (He's still there.)
- He **has been** to Delhi. (He returned.)

### ⚠ Rule 5: Avoid Double Negatives

- He did not say anything (✅)
- He did not say nothing ❌

### 🧠 Points to Remember for SSC CGL

- Infinitive Rule:** After some verbs, use **to + V1** (agree, refuse, promise)
  - He **agreed to go**.
- Gerund Rule:** Some verbs are followed by **verb+ing** (enjoy, avoid, suggest)
  - She **enjoys dancing**.
- Causative Verbs:** Make, Let, Get
  - He **made** me do it. (Use V1 after 'make')
- Subject-Verb Agreement is CRUCIAL**
  - Neither he nor she **is** responsible.
  - Either of the boys **has** done it.
- Use of Had + V3 in past perfect**
  - He **had eaten** before I arrived.
- Passive Voice Rule:** Be + V3
  - The work **was done** on time.



### Common Error Spotting Areas:

Mistake Type	Wrong Example	Correct Form
Wrong verb form	He did not <b>went</b> there	He did not <b>go</b> there
Agreement mismatch	One of the boys <b>have</b> gone	<b>has</b> gone
Irregular verb error	He <b>drinked</b> water	He <b>drank</b> water
Causative error	He made me <b>to go</b>	He made me <b>go</b>

## Vocabulary – Homophones

### 📖 What Are Homophones?

Homophones are words that sound the same when pronounced but have different meanings, spellings, or both.

### List of Confusing & Important Homophones

Homophone Pair	Meaning 1	Meaning 2
Affect / Effect	<i>Affect</i> – verb: to influence	<i>Effect</i> – noun: result or outcome
Accept / Except	<i>Accept</i> – to receive or agree	<i>Except</i> – excluding
Compliment / Complement	<i>Compliment</i> – praise	<i>Complement</i> – something that completes or goes well with
Principal / Principle	<i>Principal</i> – head of school / main	<i>Principle</i> – rule or law
Lose / Loose	<i>Lose</i> – to misplace or not win	<i>Loose</i> – not tight
Stationary / Stationery	<i>Stationary</i> – not moving	<i>Stationery</i> – paper, pens, office supplies
Brake / Break	<i>Brake</i> – to stop (a vehicle)	<i>Break</i> – to shatter or pause

Homophone Pair	Meaning 1	Meaning 2
<b>Council / Counsel</b>	<i>Council</i> – a group of people for discussion	<i>Counsel</i> – advice or legal advisor
<b>Desert / Dessert</b>	<i>Desert</i> – dry land OR to abandon	<i>Dessert</i> – sweet food after a meal
<b>Precede / Proceed</b>	<i>Precede</i> – to come before	<i>Proceed</i> – to go ahead or continue
<b>Capital / Capitol</b>	<i>Capital</i> – city or money	<i>Capitol</i> – legislative building
<b>Sight / Site / Cite</b>	<i>Sight</i> – ability to see <i>Site</i> – location <i>Cite</i> – to quote	
<b>Advice / Advise</b>	<i>Advice</i> – noun: suggestion	<i>Advise</i> – verb: to recommend
<b>Weather / Whether</b>	<i>Weather</i> – climate condition	<i>Whether</i> – expressing choice or doubt
<b>Access / Excess</b>	<i>Access</i> – entry or approach	<i>Excess</i> – too much
<b>Allusion / Illusion</b>	<i>Allusion</i> – indirect reference	<i>Illusion</i> – false impression or deception
<b>Bail / Bale</b>	<i>Bail</i> – release from custody OR remove water	<i>Bale</i> – a bundle (like hay or cotton)
<b>Canvas / Canvass</b>	<i>Canvas</i> – heavy fabric	<i>Canvass</i> – to solicit or campaign
<b>Elicit / Illicit</b>	<i>Elicit</i> – to draw out (a response)	<i>Illicit</i> – illegal or unlawful
<b>Persecute / Prosecute</b>	<i>Persecute</i> – to oppress or harass	<i>Prosecute</i> – to bring legal action against

### Advanced Verb Rules – SSC CGL Quick Revision Table

Topic	Rule	Examples
<b>Subject-Verb Agreement</b>	Singular subject → singular verb Plural subject → plural verb	<i>She writes, They write</i>
<b>Special Agreement Cases</b>	<i>Each, Either, Neither, Everyone</i> → Singular verb	<i>Neither of the boys was present</i>
<b>With/As well as etc.</b>	Verb agrees with the main subject only	<i>The teacher, along with students, is going</i>
<b>Tense Consistency</b>	Tense remains consistent unless time shift is required	<i>He said that he was tired</i>
<b>Correct Verb Forms</b>	Use V1, V2, V3, V+ing as per helping verb	<i>She has gone (V3), They are playing (V+ing)</i>
<b>Infinitive (to + V1)</b>	Used after <i>want, hope, decide, etc.</i>	<i>I want to go</i>
<b>Gerund (V+ing)</b>	Used after <i>enjoy, avoid, consider, etc.</i>	<i>He avoided talking</i>
<b>Modals</b>	Always followed by V1	<i>You should go</i>
<b>Causative Verbs</b>	- <i>Make/Let + obj + V1</i> - <i>Get + obj + to V1</i> - <i>Have + obj + V3</i>	<i>She made him cry</i> <i>I got him to wash</i> <i>I had my car repaired</i>
<b>Conditionals</b>	- If + V1, will + V1 - If + V2, would + V1 - If + had + V3, would have + V3	<i>If he works, he will pass</i> <i>If I were you, I would go</i>
<b>Passive Voice</b>	Be form + V3	<i>The work is done, The task will be completed</i>
<b>Verb after Prepositions</b>	Use gerund (V+ing)	<i>She is good at dancing</i>
<b>Verb + Fixed Preposition</b>	Some verbs have fixed prepositions (insist on, confess to)	<i>He confessed to stealing the money</i>



## Homophones

Homophone Pair	Meaning 1	Meaning 2
Bear / Bare	Bear – to carry or tolerate / an animal	Bare – uncovered or naked
Buy / By / Bye	Buy – to purchase	By – beside or through / method Bye – short for goodbye / walkover in sports
Pair / Pear	Pair – a set of two	Pear – a type of fruit
Flour / Flower	Flour – ground grain used in cooking	Flower – blooming plant
Hear / Here	Hear – to perceive sound	Here – in this place
Hole / Whole	Hole – an opening	Whole – complete, entire
Idle / Idol	Idle – inactive or lazy	Idol – someone admired or a statue of a deity
Knew / New	Knew – past of "know"	New – not old, recently made
Knight / Night	Knight – a medieval soldier or noble	Night – the dark part of a day
Male / Mail	Male – a gender	Mail – postal service or letters
Meat / Meet	Meat – flesh used as food	Meet – to encounter or gather
Morning / Mourning	Morning – time after sunrise	Mourning – expressing sorrow after loss
Peace / Piece	Peace – calm or absence of war	Piece – a part of something
Plain / Plane	Plain – simple or flat land	Plane – aircraft or a tool for smoothing wood
Right / Write	Right – correct / direction	Write – to compose letters or words
Sole / Soul	Sole – only one / bottom of foot or shoe	Soul – spirit or essence of a person
Steal / Steel	Steal – to take unlawfully	Steel – a strong metal
Son / Sun	Son – male child	Sun – star at the center of our solar system
Toe / Tow	Toe – part of the foot	Tow – to pull something (like a vehicle)
Vain / Vein / Vane	Vain – proud or futile	Vein – blood vessel Vane – blade that rotates with wind
Witch / Which	Witch – one who practices magic	Which – question word used to choose
Waist / Waste	Waist – body part below the ribs	Waste – unwanted material / to squander
Weathered / Withered	Weathered – worn out by exposure	Withered – dried up or shriveled (esp. plants)

## Important Rules of Verb (Advance)

S.No.	Topic	Rule / Exception	Example(s)
1	<b>Inversion with Negative Words</b>	Negative adverbials at the beginning cause inversion (Aux + Subject + Verb)	<i>Never have I seen such courage. Rarely does he speak in public.</i>
2	<b>Collective Noun Agreement</b>	Singular verb if acting as unit; plural if acting individually	<i>The team is winning. The team are wearing their new jerseys.</i>
3	<b>Emphatic "do/does/did"</b>	Use to emphasize main verb in present or past simple	<i>He does know the truth. I did complete the task.</i>
4	<b>Verbs of Perception</b>	Use V1 for complete action, V+ing for ongoing action	<i>I saw him leave. (entire act) I saw him leaving. (in progress)</i>
5	<b>Stative Verbs (Non-continuous)</b>	Verbs expressing state (emotion, possession, thought) not used in continuous form	<i>I know the answer. ❌ I am knowing the answer.</i>
6	<b>Transitive vs Intransitive Verbs</b>	Transitive needs object; intransitive does not	<i>He wrote a letter. (transitive) He sleeps peacefully. (intransitive)</i>

S.No.	Topic	Rule / Exception	Example(s)
7	<b>Gerund vs Infinitive Meaning</b>	Some verbs change meaning with V+ing vs. to + V1	<i>I remember meeting her. (past) Remember to meet her. (future)</i>
8	<b>Double Object Verbs</b>	Some verbs take both indirect and direct objects	<i>She gave me a gift. She gave a gift to me.</i>
9	<b>Bare Infinitive After Certain Verbs</b>	Verbs like make, let, help are followed by V1 without 'to'	<i>She made him cry. Let him go. Help me carry this.</i>
10	<b>Subjunctive Mood (V1 after that)</b>	After suggest, demand, recommend etc., use V1 after "that"	<i>They suggested that he study. I demand that she be punished.</i>

## Important Rules & Exceptions of Tenses – SSC CGL Special

Tense	Rule	Usage Example	Common Exceptions / Notes
Simple Present	For general truths, habits, regular actions	He <b>goes</b> to school every day.	With 'if', 'unless', 'as soon as', use simple present for future events.
Present Continuous	Action happening now or planned future actions	She <b>is writing</b> a letter.	Not used with stative verbs (e.g., know, believe, own).
Present Perfect	Action completed <b>recently</b> or with present relevance	I <b>have finished</b> my work.	Do <b>not use</b> with <b>specific past time</b> (e.g., yesterday, last year).
Present Perfect Continuous	Action started in past and still continuing	He <b>has been studying</b> since morning.	Use <b>since</b> for point of time, <b>for</b> for period of time.
Simple Past	Completed action in the past at a specific time	She <b>went</b> to Delhi yesterday.	Avoid using present perfect with definite past time.
Past Continuous	Past action in progress when another action occurred	I <b>was reading</b> when he came.	Often used with <b>while</b> and <b>when</b> .
Past Perfect	Action completed before another past action	He <b>had left</b> before I arrived.	Use only if <b>two past actions</b> are compared.
Past Perfect Continuous	Past action continuing up to a point in the past	She <b>had been crying</b> for hours before help came.	Rare in use; typically with <b>for/since + point of time</b> .
Simple Future	Action that will happen in the future	They <b>will come</b> tomorrow.	Use <b>shall</b> with "I/We" in formal usage (rare in modern English).
Future Continuous	Action that will be ongoing at a future time	I <b>will be working</b> at 5 PM tomorrow.	Not used with time clauses (e.g., when, after, before).
Future Perfect	Action that will be completed before a certain time in the future	She <b>will have reached</b> by 10 AM.	Often used with time expressions (by then, before, etc.).
Future Perfect Continuous	Action continuing until a certain time in the future	By June, he <b>will have been working</b> here for 5 years.	Rarely asked but useful for elimination in options.

## Most Repeated Synonyms

Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
<b>Abandon</b>	Forsake	To leave something permanently	त्यागना / छोड़ देना	He abandoned the project due to lack of support.
<b>Accurate</b>	Precise	Exact and free from error	सटीक	The report provides accurate details.
<b>Adverse</b>	Unfavorable	Harmful or not helpful	प्रतिकूल	He faced adverse weather conditions during travel.
<b>Aggressive</b>	Hostile	Angry and ready to fight	आक्रामक	His aggressive behavior scared the children.
<b>Alter</b>	Modify	To change or make different	बदलना	You must alter your plans due to the rain.

Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
<b>Ambiguous</b>	Vague	Not clearly defined or stated	अस्पष्ट	His answer was too ambiguous to understand.
<b>Appraise</b>	Evaluate	To assess or estimate the value of something	मूल्यांकन करना	The teacher appraised the essay fairly.
<b>Artificial</b>	Man-made	Not natural; made by humans	कृत्रिम	This necklace is made of artificial diamonds.
<b>Avert</b>	Prevent	To avoid or stop something from happening	टालना / रोकना	He averted the accident by quick braking.
<b>Banish</b>	Expel	To send someone away as punishment	निर्वासित करना	The criminal was banished from the kingdom.
<b>Bold</b>	Daring	Brave and courageous	साहसी	Her bold move impressed everyone.
<b>Candid</b>	Frank	Honest and straightforward	स्पष्टवादी	She gave a candid reply in the interview.
<b>Cease</b>	Stop	To bring to an end	रोकना / बंद करना	The noise suddenly ceased at midnight.
<b>Colossal</b>	Huge	Extremely large	विशाल	The company suffered a colossal loss last year.
<b>Confess</b>	Admit	To accept or own up to something	स्वीकार करना	He confessed his mistake to the teacher.
<b>Defect</b>	Flaw	A fault or shortcoming	दोष	The engineer fixed the defect in the machine.
<b>Deprive</b>	Rob	To deny the possession of something	वंचित करना	Poverty deprives many children of education.
<b>Deter</b>	Discourage	To stop someone from doing something	रोकना / हतोत्साहित करना	Fear of punishment deters crime.
<b>Emerge</b>	Appear	To come into view	प्रकट होना	A leader emerged from among the people.
<b>Enormous</b>	Massive	Very large in size or quantity	बहुत बड़ा	The elephant is an enormous animal.
<b>Fragile</b>	Delicate	Easily broken or damaged	नाज़ुक	Handle this glass with care—it's fragile.
<b>Genuine</b>	Authentic	Real or true	असली / वास्तविक	Is this a genuine diamond?
<b>Hinder</b>	Obstruct	To slow down or block	बाधा डालना	Heavy traffic hindered his progress.
<b>Idle</b>	Inactive	Not working or being used	निष्क्रिय	The machines are lying idle due to lack of power.
<b>Imminent</b>	Impending	About to happen	आसन्न	The arrival of the storm is imminent.
<b>Illuminate</b>	Light up	To make light or clear	प्रकाशित करना	The street was illuminated at night.
<b>Jeopardy</b>	Danger	Risk of loss or harm	खतरा	His life was in jeopardy during the mission.
<b>Keen</b>	Eager	Very enthusiastic	उत्सुक	She is keen to learn new skills.
<b>Lenient</b>	Merciful	Not strict; forgiving	उदार / नरम	The teacher was lenient with the latecomers.
<b>Lucid</b>	Clear	Easily understandable	स्पष्ट / साफ-सुथरा	His explanation was lucid and simple.

## TENSE: Important Rules & Exceptions

Tense Category /	Advanced Rule / Exception	Example
1. Simple Present	Used for <b>scheduled future events</b> (esp. transport, timetables, fixed programs).	The train <b>leaves</b> at 6 AM tomorrow.
	Used in <b>commentaries, narratives, and instructions</b> .	Dhoni <b>hits</b> a six! / First, <b>mix</b> the batter.
2. Present Continuous	Can express <b>annoyance or irritation</b> with "always," "constantly," etc.	She is <b>always interrupting</b> me!
3. Present Perfect	Used in <b>news headlines</b> to imply recent actions even when the time is known.	India <b>has won</b> the match. (headline use, even though time is implied)
	Sometimes used with " <b>just now</b> " in Indian English, but it's ungrammatical in standard English.	✗ I have seen him just now. ✓ I <b>saw</b> him just now.
4. Simple Past	Used for <b>imaginary / hypothetical situations</b> in conditional sentences.	If I <b>knew</b> , I would help.
	After " <b>wish</b> " and " <b>as if</b> ," even present/future ideas take <b>past tense</b> .	I <b>wish I had</b> a car. / He talks as if he <b>were</b> a king.
5. Past Perfect	Not necessary if <b>sequence is clear</b> through connectors like "before," "after," "when."	✓ He <b>left</b> before I arrived. (Past Simple is fine here too)
	Past Perfect is used in <b>reported speech</b> to backshift present/present perfect.	He said he <b>had completed</b> the task.
6. Future Tenses	' <b>Will</b> ' is <b>not used</b> in clauses starting with time expressions: "when," "as soon as," "before," "after."	✓ I will call you when he <b>comes</b> . ✗ I will call you when he <b>will come</b> .
	Future Perfect is also used for <b>assumptions about completed actions</b> .	He <b>will have reached</b> by now. (assumption, not future event)
7. Future Continuous	Used to indicate <b>polite inquiries</b> about someone's plans.	Will you be <b>joining</b> us for dinner?
8. Mixed Tense Usage	Sentences can <b>mix tenses</b> when referring to different time frames.	I <b>know</b> he <b>was</b> lying. / She <b>said</b> she <b>wants</b> to help.
9. Stative Verbs	Stative verbs (like know, love, believe) usually do not take continuous tenses — but <b>exceptions exist in informal usage</b> .	✓ I am <b>loving</b> this movie! (informal)
10. Historical Present	Used in storytelling or literature to make events feel immediate, even if in the past.	So, he <b>goes</b> to the king and <b>says</b> , "I need help."

## Most Repeated Synonyms

Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
Abduct	Kidnap	To take someone away illegally	अपहरण करना	The child was abducted from the park.
Benevolent	Kind	Showing kindness or goodwill	परोपकारी / दयालु	She is known for her benevolent nature.
Chaos	Disorder	Complete confusion and lack of order	अव्यवस्था	The stadium was in chaos after the match.
Concise	Brief	Short and clear	संक्षिप्त	Please keep your answers concise.
Diligent	Hardworking	Showing care and effort in work	परिश्रमी / मेहनती	She is a diligent student and always tops the class.



Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
<b>Eliminate</b>	Remove	To get rid of something	हटाना / समाप्त करना	The coach eliminated the weakest players.
<b>Feeble</b>	Weak	Lacking physical strength	कमजोर	His voice was too feeble to be heard.
<b>Grumble</b>	Complain	To express dissatisfaction	शिकायत करना	The workers grumbled about their low wages.
<b>Harmony</b>	Accord	Peaceful agreement	मेल / सद्भाव	People of all faiths live in harmony here.
<b>Indolent</b>	Lazy	Not willing to work	आलसी	His indolent behavior cost him the job.
<b>Nimble</b>	Agile	Quick and light in movement or action	फुर्तीला	The dancer's nimble steps impressed everyone.
<b>Optimistic</b>	Hopeful	Expecting good things to happen	आशावादी	Despite setbacks, she remains optimistic.
<b>Perish</b>	Die	To die, especially in an accident	नष्ट होना / मर जाना	Many people perished in the flood.
<b>Radiant</b>	Glowing	Bright or shining	चमकदार / दीप्तिमान	Her radiant smile lit up the room.
<b>Reluctant</b>	Unwilling	Not eager to do something	अनिच्छुक	He was reluctant to share his views.

### Most Repeated Synonyms

Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
<b>Abate</b>	Subside	To become less intense or widespread	कम होना / घटाना	The storm suddenly abated.
<b>Ample</b>	Plentiful	More than enough	पर्याप्त / बहुत ज्यादा	There is ample evidence to support the claim.
<b>Brutal</b>	Cruel	Extremely violent or harsh	क्रूर	The brutal murder shocked the city.
<b>Curb</b>	Restrain	To control or limit something undesirable	नियंत्रण रखना	The government imposed laws to curb inflation.
<b>Disclose</b>	Reveal	To make known or expose	उजागर करना / बताना	The report disclosed many hidden facts.
<b>Eradicate</b>	Eliminate	To remove or destroy completely	समाप्त करना / जड़ से हटाना	The disease was eradicated from the village.
<b>Foster</b>	Encourage	To promote growth or development	बढ़ावा देना	The teacher fostered creativity in students.
<b>Humble</b>	Modest	Not proud or arrogant	विनम्र / नम्र	Despite his fame, he remained humble.
<b>Imitate</b>	Copy	To mimic or reproduce someone's actions	अनुकरण करना	Children often imitate their parents.
<b>Jolly</b>	Cheerful	Full of happiness or joy	प्रसन्न / हंसमुख	He is a jolly person and always smiling.
<b>Lure</b>	Attract	To tempt someone with a reward or bait	लुभाना / आकर्षित करना	The offer was used to lure customers.
<b>Mend</b>	Repair	To fix or correct something	सुधारना / मरम्मत करना	He mended the torn shirt.
<b>Nag</b>	Pester	To annoy persistently	तंग करना	She nagged him about cleaning his room.

Word	Synonym	Meaning (English)	Hindi Meaning	Example Sentence
<b>Oblige</b>	Compel	To make someone do something by law/duty	मजबूर करना / उपकार करना	I felt obliged to help my friend.
<b>Plead</b>	Beg	To make an emotional request	विनती करना / गुहार करना	He pleaded for mercy in court.
<b>Quarrel</b>	Dispute	A heated argument or disagreement	झगड़ा	They had a quarrel over money.
<b>Rebuke</b>	Scold	To criticize sharply	डांटना	The teacher rebuked him for cheating.
<b>Shriek</b>	Scream	To cry out loudly and sharply	चीखना	She shrieked in fear.
<b>Thrive</b>	Prosper	To grow or develop successfully	फलना-फूलना	His business is thriving rapidly.
<b>Vanish</b>	Disappear	To stop being visible	गायब हो जाना	The magician made the coin vanish.

## General Structure of Voice Transformation

Voice Type	Structure
<b>Active Voice</b>	Subject + Verb + Object
<b>Passive Voice</b>	Object (of active) + form of "be" + past participle (V3) + by + Subject (of active)

## Tense-wise Rules of Voice Conversion

Tense	Active Voice Structure	Passive Voice Structure	Example (Active → Passive)
<b>Simple Present</b>	S + V1 + O	O + is/am/are + V3 + by + S	She writes a letter. → A letter <b>is written</b> by her.
<b>Present Continuous</b>	S + is/am/are + V1+ing + O	O + is/am/are + being + V3 + by + S	He is painting a wall. → A wall <b>is being painted</b> by him.
<b>Present Perfect</b>	S + has/have + V3 + O	O + has/have + been + V3 + by + S	They have finished the work. → The work <b>has been finished</b> by them.
<b>Simple Past</b>	S + V2 + O	O + was/were + V3 + by + S	She cleaned the room. → The room <b>was cleaned</b> by her.
<b>Past Continuous</b>	S + was/were + V1+ing + O	O + was/were + being + V3 + by + S	They were watching a movie. → A movie <b>was being watched</b> by them.
<b>Past Perfect</b>	S + had + V3 + O	O + had + been + V3 + by + S	He had completed the task. → The task <b>had been completed</b> by him.
<b>Simple Future</b>	S + will/shall + V1 + O	O + will/shall + be + V3 + by + S	She will read the book. → The book <b>will be read</b> by her.
<b>Future Perfect</b>	S + will/shall + have + V3 + O	O + will/shall + have + been + V3 + by + S	He will have written a letter. → A letter <b>will have been written</b> by him.

## Tenses Without Passive Voice

Tense	Reason
<b>Present Perfect Continuous</b>	Cannot be changed due to continuous duration emphasis
<b>Past Perfect Continuous</b>	No direct passive form exists
<b>Future Continuous</b>	Passive structure is not used in English
<b>Future Perfect Continuous</b>	No acceptable passive structure

## Most Repeated Antonyms

Word	Meaning (Eng)	Meaning (Hindi)	Antonym	Antonym Meaning (Eng/Hindi)	Example Sentence
<b>Abstain</b>	Refrain, avoid doing	परहेज करना	<b>Indulge</b>	Take part in / लिप्त होना	He decided to abstain from alcohol.
<b>Adversity</b>	Hardship, difficulty	विपत्ति	<b>Prosperity</b>	Success, wealth / समृद्धि	He never gave up even in adversity.
<b>Ambiguous</b>	Unclear, open to interpretation	अस्पष्ट	<b>Explicit</b>	Clear, direct / स्पष्ट	His ambiguous answer confused the panel.
<b>Audacious</b>	Bold, daring	दुस्साहसी	<b>Timid</b>	Shy, fearful / डरपोक	The soldier's audacious move surprised everyone.
<b>Benevolent</b>	Kind, charitable	परोपकारी	<b>Malevolent</b>	Evil-minded / द्वेषपूर्ण	The benevolent king helped the poor.
<b>Candid</b>	Honest, straightforward	स्पष्टवादी	<b>Deceptive</b>	Misleading / धोखेबाज़	She gave a candid reply in the interview.
<b>Complacent</b>	Self-satisfied	आत्मसंतुष्ट	<b>Concerned</b>	Worried / चिंतित	Don't become complacent after small success.
<b>Diligent</b>	Hardworking	परिश्रमी	<b>Lazy</b>	Idle / आलसी	She is a diligent student who never misses a deadline.
<b>Erudite</b>	Scholarly, learned	विद्वान	<b>Ignorant</b>	Uninformed / अज्ञानी	The professor was highly erudite in history.
<b>Frugal</b>	Economical, thrifty	मितव्ययी	<b>Extravagant</b>	Lavish / खर्चीला	They lived a frugal life to save money.
<b>Gregarious</b>	Social, outgoing	मिलनसार	<b>Reserved</b>	Introverted / अंतर्मुखी	He is gregarious and enjoys large gatherings.
<b>Heinous</b>	Shockingly evil	जघन्य	<b>Noble</b>	Virtuous / उदात्त	The criminal committed a heinous act.
<b>Impartial</b>	Fair, unbiased	निष्पक्ष	<b>Biased</b>	Partial / पक्षपाती	Judges must remain impartial in all cases.
<b>Lucid</b>	Clear, easy to understand	स्पष्ट	<b>Obscure</b>	Unclear / अस्पष्ट	The teacher gave a lucid explanation.
<b>Mitigate</b>	Reduce, alleviate	कम करना	<b>Aggravate</b>	Intensify / बढ़ाना	The medicine helped mitigate the pain.
<b>Naive</b>	Innocent, inexperienced	भोला	<b>Cunning</b>	Clever & deceitful / चालाक	She was too naive to notice the trick.
<b>Obsolete</b>	Outdated, no longer used	अप्रचलित	<b>Modern</b>	Contemporary / आधुनिक	Typewriters have become obsolete now.
<b>Prudent</b>	Wise, careful	विवेकशील	<b>Reckless</b>	Careless / लापरवाह	It is prudent to save money for emergencies.
<b>Superficial</b>	Shallow, not deep	सतही	<b>Profound</b>	Deep / गहन	His analysis was superficial and lacked depth.
<b>Tedious</b>	Boring, monotonous	नीरस	<b>Interesting</b>	Engaging / रोचक	The job involved tedious paperwork.

### Active to Passive Voice Rules for Modal Verbs

S.No.	Modal Verb	Active Voice Structure	Passive Voice Structure	Example (Active)	Example (Passive)
1	<b>Can / Could</b>	Subject + can/could + V <sub>1</sub> + object	Object + can/could + <b>be</b> + V <sub>3</sub> + by + subject	She can solve the problem.	The problem can be solved by her.
2	<b>May / Might</b>	Subject + may/might + V <sub>1</sub> + object	Object + may/might + <b>be</b> + V <sub>3</sub> + by + subject	He might complete the work.	The work might be completed by him.
3	<b>Shall / Should</b>	Subject + shall/should + V <sub>1</sub> + object	Object + shall/should + <b>be</b> + V <sub>3</sub> + by + subject	You should follow the rules.	The rules should be followed by you.
4	<b>Will / Would</b>	Subject + will/would + V <sub>1</sub> + object	Object + will/would + <b>be</b> + V <sub>3</sub> + by + subject	They will launch the app.	The app will be launched by them.
5	<b>Must / Ought to</b>	Subject + must/ought to + V <sub>1</sub> + object	Object + must/ought to + <b>be</b> + V <sub>3</sub> + by + subject	We must obey the law.	The law must be obeyed by us.
6	<b>Has to / Have to / Had to</b>	Subject + has/have/had to + V <sub>1</sub> + object	Object + has/have/had to + <b>be</b> + V <sub>3</sub> + by + subject	He has to complete the form.	The form has to be completed by him.
7	<b>Used to</b>	Subject + used to + V <sub>1</sub> + object	Object + used to + <b>be</b> + V <sub>3</sub> + by + subject	She used to teach French.	French used to be taught by her.
8	<b>Need to</b>	Subject + need(s)/needed to + V <sub>1</sub> + object	Object + need(s)/needed to + <b>be</b> + V <sub>3</sub> + by + subject	You need to submit the file.	The file needs to be submitted by you.

### Active to Passive Voice Rules for Imperative Sentences

S.No.	Type of Sentence	Active Voice Structure	Passive Voice Structure	Example (Active)	Example (Passive)
1	<b>Order / Command</b>	V <sub>1</sub> + object	<b>Let</b> + object + <b>be</b> + V <sub>3</sub>	Close the door.	Let the door be closed.
2	<b>Request / Advice</b>	Please + V <sub>1</sub> + object	<b>You are requested/advised to</b> + V <sub>1</sub> + object	Please help me.	You are requested to help me.
3	<b>Negative Command</b>	Do not + V <sub>1</sub> + object	<b>Let not</b> + object + <b>be</b> + V <sub>3</sub>	Do not waste time.	Let not time be wasted.
4	<b>Suggestive Sentences</b>	Let's + V <sub>1</sub> + object	<b>Let</b> + object + <b>be</b> + V <sub>3</sub>	Let's paint the wall.	Let the wall be painted.
5	<b>General Instruction</b>	V <sub>1</sub> + object	<b>It is advised/instructed that</b> + object + <b>should be</b> + V <sub>3</sub>	Read the instructions.	It is advised that the instructions should be read.

### Most Repeated Antonyms

Word	Meaning (Eng)	Meaning (Hindi)	Antonym	Antonym Meaning (Eng/Hindi)	Example Sentence
<b>Abridge</b>	To shorten or condense	संक्षिप्त करना	<b>Expand</b>	To make longer / विस्तार करना	The editor decided to abridge the novel for young readers.
<b>Belligerent</b>	Aggressive, warlike	झगड़ातू	<b>Peaceful</b>	Calm, non-violent / शांतिप्रिय	The belligerent nations finally agreed to a ceasefire.
<b>Coherent</b>	Logical and consistent	सुसंगत	<b>Incoherent</b>	Confused, unclear / असंगत	His argument was not coherent and lacked structure.



Word	Meaning (Eng)	Meaning (Hindi)	Antonym	Antonym Meaning (Eng/Hindi)	Example Sentence
<b>Deprive</b>	To deny or take away	वंचित करना	<b>Provide</b>	To give, offer / देना	Poverty can deprive children of proper education.
<b>Eloquent</b>	Fluent and persuasive in speech	वाक्पटु	<b>Inarticulate</b>	Unable to express / अस्पष्ट	The speaker's eloquent speech moved the audience.
<b>Feasible</b>	Possible, practical	संभव	<b>Impractical</b>	Unrealistic / अव्यवहारिक	It's not feasible to finish this project in two days.
<b>Hostile</b>	Unfriendly, aggressive	शत्रुतापूर्ण	<b>Friendly</b>	Kind, welcoming / मित्रवत	The crowd turned hostile after the announcement.
<b>Lament</b>	To express sorrow	शोक प्रकट करना	<b>Rejoice</b>	To celebrate / आनंदित होना	She lamented the loss of her childhood home.
<b>Meek</b>	Humble, submissive	विनम्र	<b>Assertive</b>	Confident and forceful / आत्मविश्वासी	Though meek by nature, she stood up for her rights.
<b>Trivial</b>	Unimportant, minor	तुच्छ	<b>Significant</b>	Important / महत्वपूर्ण	He was scolded for wasting time on trivial matters.

### Most Repeated Antonyms

Word	Meaning	Hindi Meaning	Antonym	Antonym Meaning	Hindi Meaning (Antonym)	Example Sentence
<b>Abstain</b>	To deliberately avoid	जानबूझकर परहेज करना	<b>Indulge</b>	To take part in (esp. pleasure)	लिप्त होना	Doctors advise patients to abstain from smoking.
<b>Benevolent</b>	Kind and generous	दयालु और उदार	<b>Malevolent</b>	Having ill will	द्वेषपूर्ण	The king was benevolent, unlike his malevolent predecessor.
<b>Concur</b>	To agree	सहमत होना	<b>Dissent</b>	To disagree	असहमति जताना	All members concurred with the decision except one who dissented.
<b>Deride</b>	To mock or ridicule	मज़ाक उड़ाना	<b>Praise</b>	To express admiration	प्रशंसा करना	Critics derided the film, while audiences praised it.
<b>Eloquent</b>	Fluent and expressive in speaking	प्रभावशाली वक्ता	<b>Inarticulate</b>	Unable to express clearly	अस्पष्ट	Her eloquent speech moved the entire crowd.
<b>Furtive</b>	Secretive and stealthy	छिपा हुआ, गुप्त	<b>Open</b>	Not secret or hidden	खुला	He cast a furtive glance at the forbidden file.
<b>Gregarious</b>	Sociable, enjoying company	मिलनसार	<b>Introverted</b>	Reserved and shy	अंतर्मुखी	She's gregarious and loves hosting parties.
<b>Haughty</b>	Arrogantly superior	घमंडी	<b>Humble</b>	Modest and respectful	विनम्र	His haughty behavior cost him many friends.
<b>Imminent</b>	About to happen	आसन्न	<b>Distant</b>	Far away in time	दूरस्थ	The dark clouds signaled an imminent storm.
<b>Lethargic</b>	Lacking energy	सुस्त	<b>Energetic</b>	Full of energy	ऊर्जावान	After the meal, he felt lethargic and sleepy.

Word	Meaning	Hindi Meaning	Antonym	Antonym Meaning	Hindi Meaning (Antonym)	Example Sentence
<b>Meticulous</b>	Very careful and precise	बहुत सावधानीपूर्वक	Careless	Not paying attention	लापरवाह	She is meticulous in checking every detail.
<b>Nefarious</b>	Wicked or criminal	नीच / दुष्ट	Virtuous	Morally good	सदाचारी	The police cracked down on the nefarious activities of the gang.
<b>Obsolete</b>	No longer in use	पुराना, अप्रचलित	Modern	Current and up-to-date	आधुनिक	Typewriters have become obsolete in the digital age.
<b>Placid</b>	Calm and peaceful	शांत	Agitated	Troubled or nervous	व्याकुल	The lake looked placid under the moonlight.
<b>Reticent</b>	Reserved, not talkative	कम बोलने वाला	Talkative	Fond of talking	बातूनी	Though reticent in public, she is expressive in writing.
<b>Scrupulous</b>	Very principled, honest	ईमानदार, सच्चा	Corrupt	Dishonest or immoral	भ्रष्ट	A scrupulous officer cannot be bribed.
<b>Tenacious</b>	Persistent, determined	जिद्दी, दृढ़	Irresolute	Uncertain or weak-willed	अस्थिर	Her tenacious attitude helped her win the case.
<b>Urbane</b>	Sophisticated, polite	शिष्ट	Rude	Impolite	अशिष्ट	He was known for his urbane charm and grace.
<b>Vapid</b>	Dull, lacking interest	नीरस	Lively	Full of energy	जीवंत	The lecture was so vapid that students started yawning.
<b>Wary</b>	Cautious, alert	सतर्क	Reckless	Careless	लापरवाह	One should be wary while driving at night.

## Noun (Important Points to Remember)

S.No.	Concept / Rule	Explanation	Examples / Exceptions
1	<b>Definition of Noun</b>	A noun is the name of a person, place, thing, idea, or quality.	Ram, honesty, India, chair
2	<b>Types of Nouns</b>	1. Proper 2. Common 3. Collective 4. Abstract 5. Material	India (Proper), Army (Collective), Honesty (Abstract)
3	<b>Countable vs Uncountable</b>	Countable: Can be counted; Uncountable: Cannot be counted	Book (C), Sugar (U)
4	<b>Plural Formation (regular)</b>	Add -s or -es to form plural	Book → Books, Box → Boxes
5	<b>Plural Formation (irregular)</b>	Change internal vowel/consonant or form remains same	Man → Men, Sheep → Sheep
6	<b>Some nouns always plural</b>	Nouns that exist in plural form only	Scissors, Trousers, Spectacles
7	<b>Some nouns always singular</b>	Certain abstract/material nouns always used in singular	Advice, Furniture, Information
8	<b>Collective nouns - singular/plural</b>	Treated as singular or plural depending on context	The jury <i>is</i> (unity), The jury <i>are</i> (disagreement)
9	<b>Proper nouns</b>	Always capitalized, no article usually used	Ram, Delhi, Everest

S.No.	Concept / Rule	Explanation	Examples / Exceptions
10	<b>Material nouns</b>	No plural, no article usually; uncountable	Gold, Iron, Milk
11	<b>Abstract nouns</b>	Names of qualities, emotions, or concepts	Beauty, Honesty, Freedom
12	<b>Nouns ending in -f/-fe → ves</b>	Some change to -ves in plural	Knife → Knives, Wife → Wives (BUT Roof → Roofs)
13	<b>Nouns ending in -o → s/es</b>	Some add -es, some only -s	Hero → Heroes, Photo → Photos
14	<b>Same form for singular &amp; plural</b>	No change in plural	Deer, Sheep, Aircraft
15	<b>Possessive case</b>	's for living things / time / personified objects	Ram's book, A year's time
16	<b>Double possessive not used</b>	Avoid using two apostrophes	✗ Ram's brother's car
17	<b>Double noun subjects</b>	When two nouns refer to the same person, use singular verb	The poet and philosopher is dead.
18	<b>Nouns after 'many a' or 'each of'</b>	Always followed by singular noun and singular verb	Many a student was late.
19	<b>"One of the" rule</b>	Always followed by plural noun	One of the boys is missing.
20	<b>Abstract → countable sense exception</b>	Abstract nouns can become countable if used in a specific sense	Many <i>beauties</i> of nature
21	<b>Uncountable noun made countable</b>	With "units" or "measures"	<i>A glass of water, Two pieces of information</i>
22	<b>Use of Articles with Nouns</b>	No article with proper/material/abstract nouns in general	✗ The gold is precious → ✓ Gold is precious
23	<b>Nationality as singular noun</b>	Country name = singular, nationality = adjective or plural people	India is a country. Indians are kind.
24	<b>Gender specific nouns</b>	Nouns with masculine/feminine forms	Actor → Actress, Prince → Princess
25	<b>Compound nouns pluralized by first word</b>	The main noun takes the plural form	Passers-by, Sisters-in-law
26	<b>Numerical expressions</b>	Expressions like 'hundred', 'dozen', 'thousand' do not take 's' when preceded by a number	Ten dozen eggs ✓, Dozens of people ✓
27	<b>Data, Media, Criteria - plural forms</b>	These are plural of Datum, Medium, Criterion, but often used as singular in modern usage	Criteria are important (formal)

### Most Repeated One Word Substitution

One Word Substitution	Meaning (English)	Meaning (Hindi)	Example Sentence
<b>Ambiguous</b>	Having more than one possible meaning	अस्पष्ट / संदिग्ध	His ambiguous statement confused the entire audience.
<b>Belligerent</b>	Hostile and aggressive	लड़ाकू / झगड़ालू	The belligerent nations were on the verge of war.
<b>Altruist</b>	A person who works selflessly for the welfare of others	परोपकारी व्यक्ति	An altruist never thinks of personal gain.
<b>Euphemism</b>	A mild or indirect word substituted for a harsh one	मधुर अभिव्यक्ति	"Passed away" is a euphemism for "died."
<b>Reticent</b>	Someone who is reserved or reluctant to speak	मितभाषी	She is reticent about her personal life.

One Word Substitution	Meaning (English)	Meaning (Hindi)	Example Sentence
<b>Sycophant</b>	A person who flatters to gain advantage	चापलूस	A sycophant never gives honest feedback.
<b>Heresy</b>	A belief contrary to orthodox religious doctrine	विधर्मिता	His views on the church were considered heresy.
<b>Iconoclast</b>	One who attacks traditional beliefs	परंपरा विरोधी	The iconoclast challenged long-standing societal norms.
<b>Misogynist</b>	One who hates women	नारी द्वेषी	A misogynist should not be given a public platform.
<b>Obsolete</b>	No longer in use	पुराना / अप्रचलित	Typewriters have become obsolete now.
<b>Pseudonym</b>	A fictitious name used by an author	छद्म नाम	Mark Twain is the pseudonym of Samuel Clemens.
<b>Stoic</b>	A person indifferent to pain or pleasure	भावहीन / संयमी	The soldier remained stoic in the face of death.
<b>Panacea</b>	A remedy for all ills or difficulties	संपूर्ण उपचार	Education is not a panacea for all societal problems.
<b>Ubiquitous</b>	Present everywhere	सर्वव्यापी	Mobile phones have become ubiquitous these days.
<b>Calligraphy</b>	The art of beautiful handwriting	सुंदर लेखन कला	Her calligraphy impressed the art teacher.
<b>Ephemeral</b>	Lasting for a very short time	क्षणिक	The beauty of a rainbow is ephemeral.
<b>Somnambulist</b>	One who walks in sleep	निद्राचारी / नींद में चलने वाला	A somnambulist may not remember their nocturnal walk.
<b>Philatelist</b>	A person who collects stamps	टिकट संग्रहकर्ता	Being a philatelist, he owns rare stamps from 50 countries.
<b>Bureaucracy</b>	Government by departments or officials	नौकरशाही	The project's progress is delayed due to bureaucracy.
<b>Insolvent</b>	One who is unable to pay debts	दिवालिया	The firm was declared insolvent by the court.

### Noun (Most Important Rules)

Rule No.	Grammar Concept	Rule Explanation	Incorrect Sentence	Correct Sentence
1	Singular-form Plural Nouns	Nouns like <i>cattle, police, people</i> look singular but take <b>plural verbs</b> .	The cattle <b>was</b> grazing in the field yesterday.	The cattle <b>were</b> grazing in the field yesterday.
2	"One of / Each of / None of" + Plural Noun	These expressions are always followed by a <b>plural noun</b> .	One of the <b>player</b> was not on the field.	One of the <b>players</b> was not on the field.
			Each of the <b>student</b> was given two books.	Each of the <b>students</b> was given two books.
3	Collective Noun – Not a Single Unit	If the collective noun implies division, use <b>plural verb</b> .	The medical panel <b>was</b> divided in its diagnosis.	The medical panel <b>were</b> divided in their diagnosis.
			The family <b>is</b> at sixes and sevens regarding property.	The family <b>are</b> at sixes and sevens regarding property.



Rule No.	Grammar Concept	Rule Explanation	Incorrect Sentence	Correct Sentence
4	Possessive of 'One'	Use ' <b>one's</b> ' (not his/their) as possessive pronoun with "one".	One must do <b>his</b> duty towards humanity.	One must do <b>one's</b> duty towards humanity.
5	No Preposition with Location Words	Words like <b>upstairs, downstairs, outside</b> don't take 'to'.	Grandpa went <b>to upstairs</b> a few minutes ago.	Grandpa went <b>upstairs</b> a few minutes ago.
			You must go <b>to outside</b> immediately.	You must go <b>outside</b> immediately.
6	Present Continuous for Irritating Habit	Use <b>present continuous</b> for repeated <b>annoying</b> actions.	He always <b>hits</b> me without any reason.	He is always <b>hitting</b> me without any reason.
7	Avoid Splitting Infinitives	Don't separate "to" from the verb with an adverb.	She liked <b>to never play</b> basketball.	She <b>never liked to play</b> basketball.
8	Future Conditional (Real)	When both actions are future, use: <b>If + Present Simple</b> , then <b>Future Simple</b> .	If she <b>will come</b> to Delhi, we will meet her.	If she <b>comes</b> to Delhi, we will meet her.
			As soon as he <b>will enter</b> the room, you will turn off the lights.	As soon as he <b>enters</b> the room, you will turn off the lights.
9	Impossible Past Condition	Use: <b>If + Past Perfect</b> , then <b>Would have + V3</b> .	If Joan <b>would have invited</b> me, I would have met her.	If Joan <b>had invited</b> me, I would have met her.
10	Two Past Actions – Sequence	Earlier past action: <b>Past Perfect</b> , Later: <b>Simple Past</b> .	By the time we reached, he <b>left</b> the place.	By the time we reached, he <b>had left</b> the place.

### Most Repeated One Word Substitution

One Word Substitution	Meaning (English)	Meaning (Hindi)	Example Sentence
<b>Fatalist</b>	One who believes in fate or destiny	भाग्यवादी	A fatalist accepts everything as preordained.
<b>Emigrant</b>	A person who leaves their own country to settle elsewhere	प्रवासी	He is an emigrant who now lives in Canada.
<b>Infallible</b>	Incapable of making mistakes or being wrong	अचूक / त्रुटिहीन	The scientist believed his method was infallible.
<b>Omnipotent</b>	All-powerful	सर्वशक्तिमान	Many cultures believe in an omnipotent deity.
<b>Itinerary</b>	A planned route or journey	यात्रा कार्यक्रम	Our itinerary includes a visit to the Eiffel Tower.
<b>Misanthrope</b>	One who hates mankind	मानवद्वेषी	The old man was a misanthrope who avoided all company.
<b>Introspection</b>	Examination of one's own thoughts or feelings	आत्मनिरीक्षण	After the failure, he went into deep introspection.
<b>Anthropologist</b>	One who studies human races and cultures	मानव जाति का अध्ययन करने वाला	An anthropologist studied tribal rituals in Africa.
<b>Mercenary</b>	One who fights for money rather than cause	धन के लिए लड़ने वाला	He was branded a mercenary for switching sides in war.
<b>Connoisseur</b>	An expert in matters of taste (food, art, etc.)	पारखी / ज्ञानी	He is a connoisseur of fine wines.
<b>Pessimist</b>	One who always sees the negative side of things	निराशावादी	A pessimist never expects good outcomes.
<b>Optimist</b>	One who always looks at the bright side	आशावादी	Despite the loss, he remained an optimist.
<b>Bigot</b>	A person who is intolerant toward others' beliefs	कट्टरपंथी	A bigot refuses to accept diverse viewpoints.

One Word Substitution	Meaning (English)	Meaning (Hindi)	Example Sentence
Teetotaler	A person who never drinks alcohol	मद्यत्यागी	He's a strict teetotaler even at parties.
Venial	Easily excusable (of a fault or mistake)	क्षम्य	His offence was venial and not worth punishment.
Manuscript	A handwritten or typed document before publication	पांडुलिपि	The author submitted her manuscript last week.
Refugee	A person who flees to another country for safety	शरणार्थी	Thousands of refugees crossed the border.
Versatile	Talented in many fields	बहुप्रतिभाशाली	She is a versatile actor and singer.
Incorrigible	Incapable of being corrected or reformed	असुधारनीय	He is an incorrigible liar.
Etymology	The study of origin of words	शब्दों की उत्पत्ति का अध्ययन	I love learning etymology of English terms.

## Question Tag

Rule No.	Rule / Concept	Explanation	Example
1	Positive Statement → Negative Tag	If the main sentence is positive, the tag is negative.	She is dancing, <b>isn't she?</b>
2	Negative Statement → Positive Tag	If the sentence is negative, the tag is positive.	He hasn't gone, <b>has he?</b>
3	Use of Helping Verb in Tag	Use the auxiliary (helping) verb from the main clause in the tag.	You can drive, <b>can't you?</b>
4	If no helping verb, use 'do/does/did'	For simple present or past without helping verbs.	She works hard, <b>doesn't she?</b>
5	Tense consistency	Tag tense should match the main sentence.	He went to Delhi, <b>didn't he?</b>
6	Use of 'Pronoun' in tag	Subject in tag should be in pronoun form.	Raj is late, <b>isn't he?</b>
7	Imperative sentences → will you / won't you / can you	Polite requests: use <b>will you</b> or <b>won't you</b> depending on tone.	Open the door, <b>will you?</b>
8	Let's → shall we	When sentence begins with "Let's".	Let's go to the park, <b>shall we?</b>
9	Let me → will you	Requesting permission with "Let me".	Let me help you, <b>will you?</b>
10	Never / hardly / scarcely / seldom / little → Positive Tag	These are negative in meaning, so tag should be positive.	He never lies, <b>does he?</b>
11	I am → aren't I	Exception: Tag of "I am" is "aren't I", not "am I not".	I am your friend, <b>aren't I?</b>
12	Everything / Everyone / Somebody → they	Use <b>they</b> in tag for general indefinite pronouns.	Everyone was present, <b>weren't they?</b>
13	Nothing / Nobody → they (positive tag)	Though subject is negative, tag should be positive.	Nobody called you, <b>did they?</b>
14	With 'used to' use 'didn't'	Even though 'used to' is past tense, the tag uses <b>did</b> .	He used to smoke, <b>didn't he?</b>
15	'There' as subject → use there in tag	Maintain 'there' in tag.	There is a problem, <b>isn't there?</b>
16	Tag follows intonation: rising tone	Question tags are usually spoken with a <b>rising tone</b> (uncertainty or confirmation).	You're fine, <b>aren't you?</b>

## Most Repeated Idioms

S.No.	Idiom/Phrase	Meaning	Example Sentence
1	<b>A blessing in disguise</b>	A good thing that seemed bad at first	Losing that job was a blessing in disguise.
2	<b>Beat around the bush</b>	Avoid saying something directly	Stop beating around the bush and tell me the truth.
3	<b>Burn the midnight oil</b>	Work late into the night	He burnt the midnight oil to prepare for the exam.
4	<b>Bite the bullet</b>	To face something difficult bravely	I had to bite the bullet and admit my mistake.
5	<b>Cry over spilt milk</b>	Worrying about something that cannot be changed	Don't cry over spilt milk, move on.
6	<b>Hit the nail on the head</b>	Do or say something exactly right	She hit the nail on the head with her analysis.
7	<b>Let the cat out of the bag</b>	Reveal a secret by mistake	He let the cat out of the bag about the surprise party.
8	<b>Once in a blue moon</b>	Happens very rarely	I go to the cinema once in a blue moon.
9	<b>Under the weather</b>	Feeling ill or sick	I'm feeling a bit under the weather today.
10	<b>The ball is in your court</b>	It's your decision or responsibility now	I've done my part, now the ball is in your court.
11	<b>To call a spade a spade</b>	To speak the truth bluntly	He always calls a spade a spade, even if it offends.
12	<b>Add fuel to the fire</b>	Worsen an already bad situation	His comments only added fuel to the fire.
13	<b>Break the ice</b>	To initiate a conversation in a social setting	He told a joke to break the ice at the party.
14	<b>By leaps and bounds</b>	Very quickly or significantly	Her English has improved by leaps and bounds.
15	<b>Cost an arm and a leg</b>	Very expensive	That luxury car costs an arm and a leg.
16	<b>Hit the sack</b>	Go to bed or sleep	I'm tired, going to hit the sack early tonight.
17	<b>Kick the bucket</b>	To die	Sadly, the old man kicked the bucket last week.
18	<b>In hot water</b>	In trouble	He found himself in hot water after the mistake.
19	<b>On cloud nine</b>	Extremely happy	She was on cloud nine after winning the competition.
20	<b>Make a mountain out of a molehill</b>	Exaggerate a minor issue	Don't make a mountain out of a molehill.
21	<b>Throw in the towel</b>	To give up or quit	After several failed attempts, he threw in the towel.
22	<b>Take with a grain of salt</b>	Not take something too seriously	Take his advice with a grain of salt.
23	<b>Spill the beans</b>	Reveal secret information	She spilled the beans about the wedding surprise.
24	<b>Go the extra mile</b>	Do more than what is required	She always goes the extra mile for her students.
25	<b>Barking up the wrong tree</b>	Accusing the wrong person	You're barking up the wrong tree by blaming me.

## Most Important Pronoun Rules

S.No.	Pronoun Rule	Explanation / Usage	Example
1	A pronoun must agree with its antecedent in number and gender.	Singular noun → singular pronoun; plural noun → plural pronoun	Every boy loves <b>his</b> mother.
2	'Each', 'Everyone', 'Either', 'Neither', 'One' are singular.	Take singular verbs and singular pronouns	Each of the girls has <b>her</b> own book.
3	Use of 'It' for lifeless things and animals.	Used as a subject or object for objects/animals (unless personified)	<b>It</b> is a nice chair.
4	'They' used for plural or when gender is not known.	Used for collective, gender-neutral reference	If anyone comes, <b>they</b> will be welcomed.
5	Reflexive pronouns used when subject and object are same.	Myself, himself, herself, etc. used when subject = object	She hurt <b>herself</b> .
6	Avoid using reflexives incorrectly.	Not used in place of subject/object when not reflexive	✗ Myself went there. ✓ I went there.
7	Relative Pronouns (who, whom, whose, which, that)	'Who' – subject; 'Whom' – object; 'Which' – non-living; 'That' – persons + things	The man <b>who</b> came is my uncle.
8	Use of 'who' vs 'whom'	Who – doer of action; Whom – receiver of action	The girl <b>whom</b> I met was helpful.
9	'One' must be followed by 'one's', not 'his/her'.	Maintain consistency in pronoun reference	One must do <b>one's</b> duty.
10	Two singular nouns joined by 'and' → plural pronoun.	Compound subject → plural verb/pronoun	Ram and Shyam did <b>their</b> work.
11	If two nouns refer to the same person → singular pronoun.	If article is before first noun only	The poet and philosopher gave <b>his</b> opinion.
12	Use of 'it' and 'this/that'	'It' for known reference; 'This/That' to refer to something just mentioned	<b>It</b> is raining. <b>This</b> is my pen.
13	Distributive pronouns – each, either, neither	Always take singular verbs and singular pronouns	<b>Neither</b> of the men has done <b>his</b> duty.
14	Pronouns must be clear in reference.	Avoid ambiguous or vague pronoun references	✗ When Ravi met Raj, <b>he</b> was angry. (Unclear)
15	Emphatic pronouns used for emphasis.	Myself, herself, themselves, etc.	I <b>myself</b> did it.
16	Pronoun after 'than' or 'as' takes the case of the comparison.	Compare in same case as subject or object	He is taller than <b>I</b> (am).
17	'Each other' vs 'one another'	'Each other' – two; 'one another' – more than two	They love <b>each other</b> .
18	Use of possessive pronouns (mine, yours, theirs)	Do not use apostrophe (no mine's, your's, etc.)	This book is <b>mine</b> .
19	Avoid redundant pronouns	Do not repeat subject unnecessarily	✗ Ramesh he is my friend. ✓ Ramesh is my friend.
20	Pronoun must match in person (1st, 2nd, 3rd).	If using a sentence like "You and I...", maintain person sequence	<b>You and I</b> should do <b>our</b> work.



## Practice Questions

1. Identify the segment in the sentence which contains the grammatical error.  
A few years back, I used to have complaints regarding the night shifts but now I am used to work in night.  
(a) I used to have (b) work in night  
(c) A few years back (d) regarding
2. Parts of the following sentence have been given as options. One of them may contain an error.  
Age doesn't seeming to diminish our capacity to speak, write and learn new things.  
(a) Age doesn't seeming to  
(b) No error  
(c) write and learn new things  
(d) diminish our capacity to speak
3. Parts of the following sentence have been given as options. Select the option that contains an error.  
The Board of Directors held / a meeting sorting out / the issue of / the NPAs of the bank.  
(a) the issue of  
(b) the NPAs of the bank.  
(c) a meeting sorting out  
(d) The Board of Directors held
4. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
My mother said / that Ben will done / the assignment / today.  
(a) today (b) My mother said  
(c) that Ben will done (d) the assignment
5. Parts of the sentence have been given as options. Select the option that contains an error. If there is no error select "No error" as your answer.  
The professor asked the student to repeat again the same answer during the viva.  
(a) The professor asked  
(b) the student to repeat again  
(c) the same answer during the viva  
(d) No error
6. Select the most appropriate option to fill in the blank.  
The \_\_\_\_\_ of the crime scene made it difficult for investigators to gather evidence.  
(a) cite (b) set  
(c) site (d) sleight
7. Select the most appropriate homonym in the context of the following sentence to fill in the blank.  
He was convicted of assaulting a police officer, but he got off with a \_\_\_\_\_ sentence.  
(a) light: any device serving as a source of illumination  
(b) light: not serious or profound  
(c) light: the energy from the sun  
(d) light: lightly; with few burdens
8. Select the most appropriate option that can substitute the highlighted segment in the given sentence.  
In times of difficulty, she preys for an oracle to guide her.  
(a) pray (b) praise  
(c) price (d) prayers
9. Select the most appropriate option to fill in the blank.  
Grey \_\_\_\_ is no sure sign of attaining wisdom.  
(a) heir (b) air  
(c) hare (d) hair
10. In a certain code language, 'WEDS' is coded as '3' and 'MAIUFX' is coded as '6'. How is 'GIQRBZLA' coded in the given language?  
(a) 7 (b) 8  
(c) 5 (d) 4
11. One of the sentence parts may contain an error.  
The investigation conducting by the research team / yielded statistically significant results / providing substantial evidence / to support the hypothesis.  
(a) to support the hypothesis  
(b) yielded statistically significant results  
(c) providing substantial evidence  
(d) The investigation conducting by the research team
12. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
The man who / was committed / the theft last night / was caught this evening.  
(a) was committed  
(b) the theft last night  
(c) The man who  
(d) was caught this evening.



- 13.** Select the most appropriate option that can substitute the highlighted segment in the given sentence.  
In order to enhancing their reputation, companies are investing a lot of money in social initiatives.  
(a) enhance their reputation  
(b) enhancing their reputation  
(c) have their reputation  
(d) have enhanced their reputation
- 14.** Select the most appropriate option that can substitute the highlighted segment in the given sentence.  
Rajan is having three brothers and three sisters.  
(a) Rajan having  
(b) Rajan was having  
(c) Rajan has been having  
(d) Rajan has
- 15.** Select the most appropriate option to fill in the blank.  
By next summer, they will be \_\_\_\_ their house.  
(a) renovates (b) renovate  
(c) renovating (d) renovated
- 16.** Select the most appropriate homophone to fill in the blank.  
I will \_\_\_\_ any job offer \_\_\_\_ for the one that requires me to work on weekends.  
(a) except; accept (b) expect; except  
(c) expect; accept (d) accept; except
- 17.** Select the most appropriate homophone to fill in the blank.  
Developers \_\_\_\_ the old buildings on the site to make way for new construction.  
(a) raze (b) rays  
(c) raise (d) rase
- 18.** Select the most appropriate homonym in the context of the following sentence to fill in the blank.  
The key was hanging on a \_\_\_\_ by the door.  
(a) nail: to catch someone, especially when they are doing something wrong, or guilty  
(b) nail: a small metal spike, driven into wood to join things together or to serve as a hook  
(c) nail: a thin, hard area that covers the upper side of the end of each finger and each toe  
(d) nail: to do something successfully
- 19.** Select the most appropriate homophone to fill in the blank.  
The doctors gave him more powerful drugs in the \_\_\_\_ hope that he might recover.  
(a) when (b) vein  
(c) wane (d) vain
- 20.** Select the most appropriate option to fill in the blanks.  
I happily \_\_\_\_ to the demand of our workmen for extra bonus. After all, this year our sales had \_\_\_\_ all expectations.  
(a) acceded, exceeded (b) exceeded, exceeded  
(c) acceded, acceded (d) exceeded, acceded
- 21.** Out of the given alternatives given choose the most appropriate option.  
The teacher made the students \_\_\_\_\_.  
(a) work hard (b) to work hard  
(c) working hard (d) worked hard
- 22.** Improve the highlighted part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.  
The Government has been building more schools to provided education at the secondary level.  
(a) No improvement  
(b) provide educationally on  
(c) providing education to  
(d) provide education at
- 23.** Out of the given alternatives given choose the most appropriate option.  
The woman, who has been missing for 10 days, is believed \_\_\_\_\_.  
(a) to be abducted  
(b) to be abducting  
(c) to have been abducted  
(d) to have been abducting
- 24.** In following question, there may be an error in one part of the sentence. That error part would be your answer. If there would be no error in the sentence, your answer would be 'No error'.  
He is trying to (A)/ acquire money (B)/ by writing books.(C) / No error (D)  
(a) A (b) B  
(c) C (d) D
- 25.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
It is take a couple of minutes for the computer to boot up.  
(a) for the computer (b) to boot up.  
(c) a couple of minutes (d) It is take
- 26.** Parts of the following sentence are given as options. Identify the part that contains a grammatical error. If there is no error, select 'No error'.  
Once I run in the Sonoran Desert in Arizona after a huge rain event.  
(a) Once I run in  
(b) the Sonoran Desert in Arizona  
(c) No error  
(d) after a huge rain event.

27. The following sentence has been divided into parts. Select the part that contains the error.  
Sid is / bring the cake / for Ria's birthday.  
(a) bring the cake (b) for Ria's birthday  
(c) No error (d) Sid is
28. Select the most appropriate option to substitute the highlighted segment in the given sentence.  
While the general was speaking with Mildred, he receives a message that Butler had escaped.  
(a) receive a message (b) received a message  
(c) No substitution (d) is receiving a message
29. The following sentence has been divided into four segments. Identify the segment that contains a grammatical error.  
Looking at / clouds in the / sky, I think / it will raining.  
(a) Looking at (b) it will raining  
(c) clouds in the (d) sky, I think
30. The following sentence has been split into four segments. Identify the segment that contains an error.  
Will Ramya had completed that work by 2025?  
(a) by 2025 (b) that work  
(c) had completed (d) Will Ramya
31. Select the most appropriate synonym of the given word.  
Cruise  
(a) Bounce (b) Fall  
(c) Distance (d) Voyage
32. Select the most appropriate synonym of the given word.  
Fierce  
(a) Lame (b) Lavish  
(c) Strange (d) Furious
33. Select the most appropriate synonym of the given word.  
Extravagance  
(a) Simplicity (b) Love  
(c) Fortune (d) Self-indulgence
34. Select the most appropriate synonym of the given word.  
Antique  
(a) Ancient (b) New  
(c) Gothic (d) Modern
35. The following sentence has been divided into parts. One of them may contain an error. Select the part that contains the error.  
I had praying / to God / for your golden future.  
(a) No error (b) I had praying  
(c) to God (d) for your golden future
36. Choose the right answer to complete the sentence.  
We can't do anything if you \_\_\_\_ your mind.  
(a) have made up (b) had made up  
(c) will make up (d) make up
37. Improve the highlighted part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.  
Their appointment lasted for almost an hour.  
(a) lasting for (b) No improvement  
(c) last for (d) lastly for
38. The following sentence has been divided into parts. Select the part that contains the error.  
My brother / had being / cracking jokes.  
(a) My brother (b) had being  
(c) No error (d) cracking jokes
39. The following sentence has been divided into parts. Select the part that contains the error.  
The instructor is told / the students to solve / the problem within five minutes.  
(a) the problem within five minutes  
(b) the instructor is told  
(c) the students to solve  
(d) No error
40. Choose the word which best expresses the similar meaning of the given word PANACHE  
(a) Awkward (b) Flamboyance  
(c) Apathy (d) Dislike
41. Choose the word which best expresses the similar meaning of the given word EQUIVOCATION  
(a) uprightness (b) Honesty  
(c) Ambiguity (d) Certainty
42. Choose the word which best expresses the similar meaning of the given word ORNATE  
(a) Dull (b) Elegant  
(c) Unsophisticated (d) Callow
43. Select the most appropriate synonym of the given word.  
Solemn  
(a) Trivial (b) Dignified  
(c) Excited (d) Frivolous
44. Select the most appropriate synonym of the given word.  
Lacuna  
(a) Languor (b) Apathy  
(c) Hiatus (d) Misfortune
45. Fill in the blank with suitable verb.  
She \_\_\_\_\_ a speech in the function.  
(a) will be give (b) will does  
(c) will give (d) would have be giving

46. Select the most appropriate synonym of the given word.  
Squawk  
(a) Explore (b) Connote  
(c) Scream (d) Suggest
47. Parts of the following sentence are given as options. Identify the part that contains a grammatical error. If there is no error, select 'No error'.  
Ashwatthama, Drona's only son, has had developed a fondness for lavish living.  
(a) No error  
(b) Ashwatthama, Drona's  
(c) a fondness for lavish living.  
(d) only son, has had developed
48. Select the most appropriate synonym of the given word.  
FINAL  
(a) Allowed (b) Concluding  
(c) Former (d) Forbidden
49. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.  
More than 40 percent of the world's population lives in regions where water has becoming increasingly scarce.  
(a) has becoming increasingly scarce.  
(b) No error  
(c) lives in regions where water  
(d) More than 40 percent of the world's population
50. Identify the segment in the sentence which contains a grammatical error.  
I felt that I was be groomed for success in the world.  
(a) I was be groomed  
(b) No error  
(c) I felt that  
(d) for success in the world.
51. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.  
A guru is someone who does not charge you a fee because someone who is tied in greed couldn't release you.  
(a) A guru is someone who does not  
(b) No error  
(c) charge you a fee because someone  
(d) who is tied in greed couldn't release you.
52. Select the most appropriate option to substitute the highlighted segment in the given sentence.  
All the buses leaving between 10 p.m. and 5 a.m. has been cancelled.  
(a) were cancelled  
(b) No substitution required  
(c) were been cancelled  
(d) being cancelled
53. Fill in the blank with the most appropriate option.  
The accused has not \_\_\_ any guilt even after the court presented the evidence.  
(a) admit (b) admitted  
(c) admitting (d) admits
54. Out of the given alternatives given choose the most appropriate option.  
He saw me by chance and \_\_\_\_\_ the car.  
(a) will stop (b) stopped  
(c) stops (d) was stopping
55. Select the correct passive form of the given sentence.  
The child locked the shutters.  
(a) The shutters were locked by the child.  
(b) The shutters had been locked by the child.  
(c) The shutters are locked by the child.  
(d) The shutters would be locked by the child.
56. Select the correct passive form of the sentence.  
Susan writes recipes for the cookbook.  
(a) Recipes are write by Susan for the cookbook.  
(b) Recipes were written by Susan for the cookbook.  
(c) Recipes are being written by Susan for the cookbook.  
(d) Recipes are written by Susan for the cookbook.
57. Choose the option that is the correct passive form of the sentence.  
We had eaten the cake.  
(a) The cake is eaten by us.  
(b) The cake had been eaten by us.  
(c) The cake was eaten by us.  
(d) The cake will be eaten by us.
58. Select the option that expresses the given sentence in passive voice.  
It is time to revise the syllabi.  
(a) It is time for the syllabi to revise.  
(b) It was time for the syllabi to be revised.  
(c) It is time for the syllabi to be revised.  
(d) It has been time for the syllabi to revise.
59. Select the correct passive form of the given sentence.  
The police have apprehended the criminal.  
(a) The criminal had been apprehend by the police.  
(b) The criminal was apprehended by the police.  
(c) The criminal has been apprehended by the police.  
(d) The criminal had been apprehended by the police.
60. Choose the correct antonym for the below given word.  
Surplus  
(a) Absence (b) Excess  
(c) Shortage (d) Want



61. Choose the correct antonym for the below given word.  
Wonderful  
(a) Dreadful (b) Painful  
(c) Fearful (d) Beautiful
62. Select the most appropriate ANTONYM of the given word.  
Extrusion  
(a) Welcome (b) Exile  
(c) Suspension (d) Banish
63. Select the most appropriate ANTONYM of the given word.  
Haughty  
(a) Modest (b) Distracted  
(c) Transient (d) Ample
64. Select the most appropriate ANTONYM of the given word.  
Authentic  
(a) Meagre (b) Genuine  
(c) Notorious (d) Incredible
65. Select the option that expresses the given sentence in passive voice.  
Don't let Dylan fool you!  
(a) Do not be fooled by Dylan.  
(b) Do not ever be fooled by Dylan.  
(c) Do not be fool by Dylan.  
(d) Do not have been fooled by Dylan.
66. Select the option that expresses the given sentence in active voice.  
Let the door be shut.  
(a) You are requested to shut the door.  
(b) The door should be shut.  
(c) Let you shut the door.  
(d) Shut the door.
67. Describe how you will tell your mother that someone will repair the computer in passive voice.  
(a) The computer will repaired by someone.  
(b) The computer is repaired by someone.  
(c) The computer will be repaired by someone.  
(d) Someone will repair the computer.
68. Select the correct passive form of the given sentence.  
Can you read this book?  
(a) Can you have read this book?  
(b) Could this book have been read by you?  
(c) Can this book be read by you?  
(d) This book can be read by you.
69. Select the correct passive voice for the given sentence.  
Let her lead the team.  
(a) Let her team lead her.  
(b) The team should be led by her.  
(c) Let the team be led by her.  
(d) She should have led the team.
70. Select the most appropriate ANTONYM of the given word.  
Relay  
(a) Spread (b) Pass  
(c) Hold (d) Send
71. Select the most appropriate antonym of the given word.  
Sober  
(a) Unwell (b) Calm  
(c) Drunk (d) Straight
72. Select the most appropriate ANTONYM of the given word.  
OCCUPIED  
(a) Late (b) Vast  
(c) Free (d) New
73. Select the most appropriate ANTONYM of the given word.  
Devious  
(a) Crafty (b) Crooked  
(c) Dishonest (d) Sincere
74. Select the most appropriate ANTONYM of the given word.  
CENTRE  
(a) Clear (b) Mainstream  
(c) Periphery (d) Definite
75. Select the most appropriate antonym to substitute the bracketed word in the given sentence.  
They are virtually unimpeachable in the (unbiased), invariably correct reading of a race.  
(a) ceasing (b) prejudiced  
(c) captivity (d) stranger
76. Select the most appropriate ANTONYM of the given word.  
Constrict  
(a) Choke (b) Stretch  
(c) Cramp (d) Smite





77. Select the most appropriate ANTONYM of the given word.  
Taut  
(a) Solid (b) Tight  
(c) Slack (d) Strong
78. Select the option that expresses the given sentence in passive voice.  
Can you carry my bag upstairs?  
(a) Can your bag be carried upstairs by me?  
(b) Could your bag be carried upstairs by me?  
(c) Can my bag be carried upstairs by you?  
(d) Was my bag carried upstairs by you?
79. Select the correct passive voice form of the given sentence.  
My manager is assigning me a new project.  
(a) I will be assigning a new project to my manager.  
(b) My manager has assigned me a new project.  
(c) My manager is assigning me a new project.  
(d) I am being assigned a new project by my manager.
80. Select the most appropriate antonym of the given word.  
Wicked  
(a) Infernal (b) Admirable  
(c) Sarcastic (d) Dissent
81. Select the most appropriate antonym to substitute the bracketed word in the given sentence.  
An (unsullied) safety record swelled pride in Concorde's technical achievement as the years passed.  
(a) Undeified (b) Impeccable  
(c) Tarnished (d) Perfect
82. Select the appropriate antonym for the highlighted word.  
The new government's domestic policies could easily undermine the main foreign policy.  
(a) Enhance (b) Weaken  
(c) Spoil (d) Cripple
83. Select the most appropriate antonym to substitute the bracketed word in the given sentence. For years he pursued a (vendetta) against the Morris family.  
(a) harmony (b) tirade  
(c) conflict (d) traduce
84. Choose the word which expresses nearly the opposite meaning of the given word TURMOIL  
(a) Disturbance (b) Disorder  
(c) Calm (d) Bustle
85. Improve the highlighted part of the sentence. Choose 'No improvement' as an answer if the sentence is grammatically correct.  
There has been a noticeable fall in the number of children dying from malnutrition.  
(a) noticeable falling (b) noticeably falling  
(c) No improvement (d) noticeably falls
86. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.  
Peoples might confess just to get out of the interrogation room.  
(a) the interrogation room. (b) No error  
(c) Peoples might confess (d) just to get out of
87. Select the option that will improve the bracketed part of the sentence.  
(He spent many an hours playing the chess across) the city.  
(a) He had spent many an hours playing the chess across  
(b) He have spent many an hours playing the chess across  
(c) No improvement  
(d) He spent many an hour playing the chess across
88. Choose the correct option to fill in the blank:  
The \_\_\_\_\_ have been misplaced, so I cannot find my favorite pair.  
(a) scissors (b) scissor  
(c) pair of scissor (d) pair of scissors
89. The following sentence has been divided into parts. One of them contains an error. Select the part that contains the error from the given options.  
The Taj Mahal / is one of / the most beautiful / creation in the world.  
(a) creation in the world (b) The Taj Mahal  
(c) is one of (d) the most beautiful
90. Select the option that can be used as a one-word substitute for the given group of words.  
The love of man or mankind  
(a) Philology (b) Philanthropy  
(c) Phylactery (d) Philosophy
91. Select the option that can be used as a one-word substitute for the given group of words.  
One who gives money or help to another person or cause  
(a) Anarchist (b) Agnostic  
(c) Benefactor (d) Amateur
92. Select the option that can be used as a one-word substitute for the given group of words.  
A remedy to counteract the effects of poison  
(a) Antibody (b) Antidote  
(c) Antiseptic (d) Antibiotic

- 93.** Select the option that can be used as a one-word substitute for the given group of words.  
The state of being full or complete  
(a) Plunder (b) Plebiscite  
(c) Plenitude (d) Pliability
- 94.** Select the option that can be used as a one-word substitute for the highlighted group of words.  
Several literary pieces of the Old English period are written by authors whose names are not known.  
(a) Anomalies (b) Anonymous  
(c) Renowned (d) Undercover
- 95.** Select the option that will improve the highlighted part of the given sentence. In case no improvement is needed, select 'No improvement required'.  
Many a man has succumbed to his temptations.  
(a) men has  
(b) a men have  
(c) man has  
(d) No improvement required
- 96.** Identify the segment that contains a grammatical error. If there is no error, select 'No error'.  
Open your books at page tenth.  
(a) No error (b) Open your  
(c) page tenth. (d) books at
- 97.** Identify the segment in the sentence which contains a grammatical error.  
This story is quite interesting, but I have read much interesting stories than this.  
(a) much interesting stories than this.  
(b) but I have read  
(c) No error  
(d) This story is quite interesting
- 98.** Select the most appropriate option to fill in the blank.  
He was a brave \_\_\_\_ who served his country with honor and dedication.  
(a) men soldier (b) man's soldier  
(c) man soldier (d) men's soldier
- 99.** Select the option that will improve the highlighted part of the sentence. In case no improvement is needed, select 'No Improvement'.  
The little boy did many mischiefs in school.  
(a) performed many mischiefs  
(b) made much mischief  
(c) No Improvement  
(d) did much mischiefs
- 100.** Choose the correct option to fill in the blank:  
His \_\_\_\_\_ were sent to his parents by post.  
(a) belonging (b) belongings  
(c) belong (d) belonging's
- 101.** Identify the segment that contains a grammatical error. If there is no error, select 'No error'.  
We talked about writing a will, but it / was one of the best thing you never get / around to doing.  
(a) around to doing.  
(b) was one of the best thing you never get  
(c) No Error  
(d) We talked about writing a will, but it
- 102.** Find the part of the given sentence that has an error in it.  
The Event Horizon Telescope can help scientists analyse the shapes and behaviours of event horizons.  
(a) and behaviours of event horizons.  
(b) No error  
(c) The Event Horizon Telescope can  
(d) help scientists analyse the shapes
- 103.** Select the option that can be used as a one-word substitute for the given group of words.  
A person as a source of intellectual light or moral inspiration  
(a) Lurch (b) Luminary  
(c) Luminaire (d) Lunette
- 104.** Select the option that can be used as a one-word substitute for the given group of words.  
To dispute angrily  
(a) Wrench (b) Wreck  
(c) Wrangle (d) Wrack
- 105.** Select the word which means the same as the group of words given.  
A book or set of books giving information on many subjects or on many aspects of one subject and typically arranged alphabetically.  
(a) Glossary (b) Dictionary  
(c) Encyclopedia (d) Thesaurus
- 106.** Select the most appropriate one word to substitute the given group of words.  
Symbols of royalty  
(a) sceptre (b) relic  
(c) emblem (d) regalia
- 107.** Select the most appropriate one word to substitute the given group of words.  
A case for keeping a sword  
(a) sleeve (b) sheath  
(c) quiver (d) wrapper
- 108.** Select the most appropriate one word to substitute the given group of words.  
One who speaks for others  
(a) spokesperson (b) orator  
(c) verbose (d) talkative

- 109.** Select the word which means the same as the group of words given.  
A doctor who specializes in heart diseases  
(a) Urologist (b) Cardiologist  
(c) Nephrologist (d) Dermatologist
- 110.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
Your eldest sister / lives in / a big city, / does she?  
(a) does she (b) lives in  
(c) a big city (d) Your eldest sister
- 111.** Select the most appropriate option to fill in the blank.  
I am expected to follow all your instructions, \_\_\_\_?  
(a) am I (b) aren't I  
(c) isn't it (d) is it
- 112.** Select the most appropriate option that can substitute the highlighted segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.  
I imagine you have learnt a valuable lesson from this experience, didn't you?  
(a) did you?  
(b) No substitution required  
(c) have you?  
(d) haven't you?
- 113.** Select the most appropriate option to fill in the blank.  
The teacher assured: "You have completed your homework, \_\_\_\_\_?"  
(a) had you (b) hadn't you  
(c) haven't you (d) have you
- 114.** Identify the segment in the sentence which contains a grammatical error. If there is no error, select 'No error'.  
Every Saturday, your mother prepares a pudding, isn't she?  
(a) isn't she?  
(b) Every Saturday, your mother  
(c) prepares a pudding  
(d) No error
- 115.** Select the most appropriate meaning of the given idiom.  
Cat's paw  
(a) A person used as a tool by another  
(b) To attack someone  
(c) The most important attribute  
(d) Move at a fast pace
- 116.** Select the most appropriate meaning of the given idiom.  
In the limelight  
(a) The centre of attraction  
(b) A well kept secret  
(c) About to be successful  
(d) In a well lit up room
- 117.** Select the most appropriate meaning of the given idiom.  
Cold comfort  
(a) Very little satisfaction (b) Enjoyment in the hills  
(c) Very soothing (d) Unbearable weather
- 118.** Select the most appropriate meaning of the given idiom.  
Feast one's eyes on  
(a) Prepare a rare delicacy  
(b) Gaze at something with pleasure  
(c) Notice something alarming  
(d) Arrange a delicious meal
- 119.** Select the most appropriate meaning of the given idiom.  
To sit on the fence  
(a) Occupy a bench next to a boundary  
(b) Avoid taking sides  
(c) Take a high seat  
(d) Place something on a barrier
- 120.** Select the most appropriate option to fill in the blank.  
\_\_\_\_\_ I cannot understand is how you could walk so far.  
(a) What (b) Which  
(c) When (d) How
- 121.** The following sentence has been divided into parts. One of them contains an error.  
You and I / have submitted / your work / on time.  
(a) your work (b) on time  
(c) have submitted (d) You and I
- 122.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
My friend / who's leg / was fractured, / has recovered.  
(a) was fractured (b) who's leg  
(c) has recovered (d) My friend



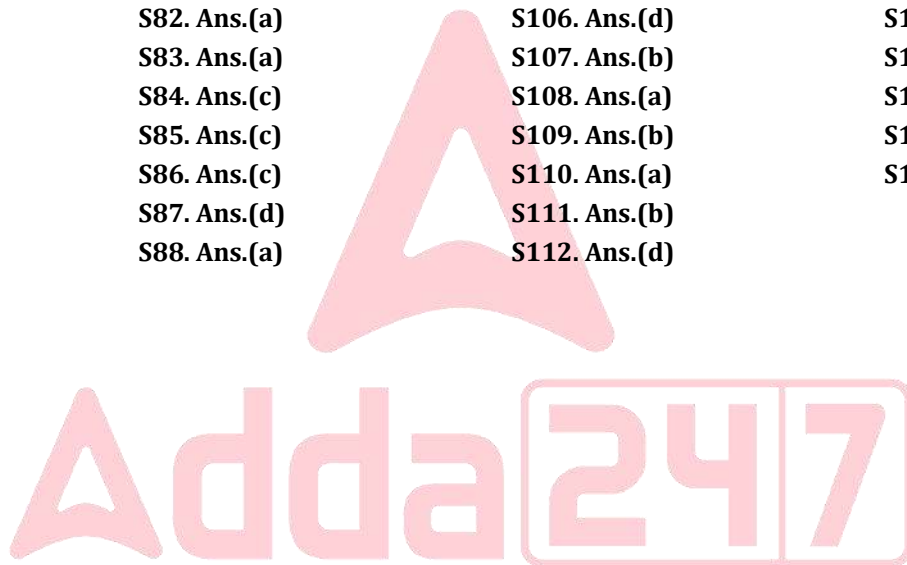
- 123.** Out of the given alternatives given choose the most appropriate option.  
I have spoken to a boy \_\_\_\_\_ father died of cancer last week.  
(a) Whose (b) Who  
(c) That (d) Which
- 124.** Select the most appropriate option that can substitute the highlighted segment in the given sentence.  
Whom was the person that you wanted me to contact there?  
(a) Whom is the person  
(b) No substitution required  
(c) Whom were the persons  
(d) Who is the person
- 125.** Select the most appropriate meaning of the idiom given in bold in the following sentence.  
She is green-eyed with his success.  
(a) afraid (b) worried  
(c) jealous (d) enthusiastic
- 126.** Select the most appropriate meaning of the given idiom.  
Charley horse  
(a) Very fast (b) Lucky  
(c) Cramp (d) Cunning
- 127.** Select the most appropriate meaning of the idiom given in bold in the following sentence.  
For the time being, the liberals seem to have carried the day.  
(a) unpopular (b) winning  
(c) popular (d) despised
- 128.** Select the most appropriate meaning of the given idiom.  
Dark horse  
(a) A person criticised (b) Loved person  
(c) An unexpected winner (d) A champion
- 129.** Select the most appropriate meaning of the given idiom.  
Be like chalk and cheese  
(a) Be absolutely lonely  
(b) Be absolutely rich  
(c) Be absolutely deceptive  
(d) Be absolutely different
- 130.** The following sentence has been split into four segments. Identify the segment that contains a grammatical error.  
I find that / I get myself tired / very easily / these days.  
(a) these days (b) I find that  
(c) I get myself tired (d) very easily
- 131.** Select the most appropriate meaning of the given idiom.  
Charley horse  
(a) Very fast (b) Lucky  
(c) Cramp (d) Cunning
- 132.** Select the most appropriate meaning of the given idiom.  
To put someone's back up  
(a) To flatter someone (b) To irritate someone  
(c) To help someone (d) To deceive someone
- 133.** In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of Idiom/Phrase.  
In ones and twos  
(a) To count resources (b) Large margin  
(c) By unfair means (d) In small numbers
- 134.** Parts of the following sentence are given as options. Identify the segment that contains a grammatical error.  
He won't come to school tomorrow, won't he?  
(a) He won't come (b) tomorrow  
(c) to school (d) won't he

## Solutions

- |                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|
| <b>S1. Ans.(b)</b>  | <b>S11. Ans.(d)</b> | <b>S21. Ans.(a)</b> | <b>S31. Ans.(d)</b> |
| <b>S2. Ans.(a)</b>  | <b>S12. Ans.(a)</b> | <b>S22. Ans.(d)</b> | <b>S32. Ans.(d)</b> |
| <b>S3. Ans.(c)</b>  | <b>S13. Ans.(a)</b> | <b>S23. Ans.(c)</b> | <b>S33. Ans.(d)</b> |
| <b>S4. Ans.(c)</b>  | <b>S14. Ans.(d)</b> | <b>S24. Ans.(d)</b> | <b>S34. Ans.(a)</b> |
| <b>S5. Ans.(b)</b>  | <b>S15. Ans.(c)</b> | <b>S25. Ans.(d)</b> | <b>S35. Ans.(b)</b> |
| <b>S6. Ans.(c)</b>  | <b>S16. Ans.(d)</b> | <b>S26. Ans.(a)</b> | <b>S36. Ans.(a)</b> |
| <b>S7. Ans.(b)</b>  | <b>S17. Ans.(a)</b> | <b>S27. Ans.(a)</b> | <b>S37. Ans.(b)</b> |
| <b>S8. Ans.(d)</b>  | <b>S18. Ans.(b)</b> | <b>S28. Ans.(b)</b> | <b>S38. Ans.(b)</b> |
| <b>S9. Ans.(d)</b>  | <b>S19. Ans.(d)</b> | <b>S29. Ans.(b)</b> | <b>S39. Ans.(b)</b> |
| <b>S10. Ans.(a)</b> | <b>S20. Ans.(a)</b> | <b>S30. Ans.(c)</b> | <b>S40. Ans.(b)</b> |



S41. Ans.(c)	S65. Ans.(a)	S89. Ans.(a)	S113. Ans.(c)
S42. Ans.(b)	S66. Ans.(d)	S90. Ans.(b)	S114. Ans.(a)
S43. Ans.(b)	S67. Ans.(c)	S91. Ans.(c)	S115. Ans.(a)
S44. Ans.(c)	S68. Ans.(c)	S92. Ans.(b)	S116. Ans.(a)
S45. Ans.(c)	S69. Ans.(c)	S93. Ans.(c)	S117. Ans.(a)
S46. Ans.(c)	S70. Ans.(c)	S94. Ans.(b)	S118. Ans.(b)
S47. Ans.(d)	S71. Ans.(c)	S95. Ans.(d)	S119. Ans.(b)
S48. Ans.(b)	S72. Ans.(c)	S96. Ans.(c)	S120. Ans.(a)
S49. Ans.(a)	S73. Ans.(d)	S97. Ans.(a)	S121. Ans.(a)
S50. Ans.(a)	S74. Ans.(c)	S98. Ans.(c)	S122. Ans.(b)
S51. Ans.(d)	S75. Ans.(b)	S99. Ans.(b)	S123. Ans.(a)
S52. Ans.(a)	S76. Ans.(b)	S100. Ans.(b)	S124. Ans.(d)
S53. Ans.(b)	S77. Ans.(c)	S101. Ans.(b)	S125. Ans.(c)
S54. Ans.(b)	S78. Ans.(c)	S102. Ans.(a)	S126. Ans.(c)
S55. Ans.(a)	S79. Ans.(d)	S103. Ans.(b)	S127. Ans.(b)
S56. Ans.(d)	S80. Ans.(b)	S104. Ans.(c)	S128. Ans.(c)
S57. Ans.(b)	S81. Ans.(c)	S105. Ans.(c)	S129. Ans.(d)
S58. Ans.(c)	S82. Ans.(a)	S106. Ans.(d)	S130. Ans.(c)
S59. Ans.(c)	S83. Ans.(a)	S107. Ans.(b)	S131. Ans.(c)
S60. Ans.(c)	S84. Ans.(c)	S108. Ans.(a)	S132. Ans.(b)
S61. Ans.(a)	S85. Ans.(c)	S109. Ans.(b)	S133. Ans.(d)
S62. Ans.(a)	S86. Ans.(c)	S110. Ans.(a)	S134. Ans.(d)
S63. Ans.(a)	S87. Ans.(d)	S111. Ans.(b)	
S64. Ans.(d)	S88. Ans.(a)	S112. Ans.(d)	





## Quantitative Aptitude

### PERCENTAGE

**Basics:** Some commonly used percentage which can be easily converted into simple fractions.

$50\% = \frac{1}{2}$	$33\frac{1}{3}\% = \frac{1}{3}$	$66\frac{2}{3}\% = \frac{2}{3}$	$25\% = \frac{1}{4}$	$75\% = \frac{3}{4}$	$6\frac{1}{4}\% = \frac{1}{16}$
$20\% = \frac{1}{5}$	$40\% = \frac{2}{5}$	$60\% = \frac{3}{5}$	$80\% = \frac{4}{5}$	$16\frac{2}{3}\% = \frac{1}{6}$	$6\frac{2}{3}\% = \frac{1}{15}$
$33\frac{1}{3}\% = \frac{2}{6}$	$66\frac{2}{3}\% = \frac{4}{6}$	$83\frac{1}{3}\% = \frac{5}{6}$	$14\frac{2}{7}\% = \frac{1}{7}$	$28\frac{4}{7}\% = \frac{2}{7}$	$133\frac{1}{3}\% = \frac{4}{3}$
$12.5\% = \frac{1}{8}$	$37\frac{1}{2}\% = \frac{3}{8}$	$62.5\% = \frac{5}{8}$	$87.5\% = \frac{7}{8}$	$112.5\% = \frac{9}{8}$	$120\% = \frac{6}{5}$
$11\frac{1}{9}\% = \frac{1}{9}$	$22\frac{1}{9}\% = \frac{2}{9}$	$44\frac{4}{9}\% = \frac{4}{9}$	$55\frac{5}{9}\% = \frac{5}{9}$	$88\frac{8}{9}\% = \frac{8}{9}$	$125\% = \frac{5}{4}$
$9\frac{1}{11}\% = \frac{1}{11}$	$18\frac{2}{11}\% = \frac{2}{11}$	$36\frac{4}{11}\% = \frac{4}{11}$	$45\frac{5}{11}\% = \frac{5}{11}$	$90\frac{10}{11}\% = \frac{10}{11}$	$150\% = \frac{3}{2}$

#### Concept 1 Some Important Rules of Percentage:

- $(a + b)\%$  of  $x = a\%$  of  $x + b\%$  of  $x$
- $(a + b)\%$  of  $(x + y) = a\%$  of  $(x + y) + b\%$  of  $(x + y)$
- $\text{Percentage increase} = \frac{\text{Increase in Quantity}}{\text{Original Quantity}} \times 100$
- $\text{Percentage decrease} = \frac{\text{Decrease in Quantity}}{\text{Original Quantity}} \times 100$
- If any number is first increased by  $a\%$  and then decreased by  $a\%$  then net change will always be equal to  $\frac{a^2}{100}\%$

#### Concept 2 – Successive Percentage:

- If  $x\%$  and  $y\%$  change occurs successively, then overall change%  
 $\left[ x + y + \left( \frac{xy}{100} \right) \right] \%$
- If  $x\%$ ,  $y\%$ ,  $z\%$  change occurs successively, then overall change%  
 $\left[ x + y + z + \frac{(xy + yz + zx)}{100} + \frac{(xyz)}{10000} \right] \%$

#### Concept 3- Price, Consumption & Expenditure

##### Basic Formula:

**Price × Consumption = Expenditure**

If expenditure is constant, then: **Price  $\propto$  1 / Consumption**

This means — if price increases, consumption must decrease to keep expenditure the same, and vice versa.

#### Concepts based on Income, Expenditure and Savings:

Income = Expenditure + Savings

If income of 'B' is ' $x\%$ ' more than that of 'A', then income of 'B' = Income of A  $\times \{1 + (x/100)\}$

If income of 'B' is ' $x\%$ ' less than that of 'A', then income of 'B' = Income of A  $\times \{1 - (x/100)\}$

#### Concepts based on Population:

- When the present population of a town is 'X' and it increased/decreased at the rate of 'R%' each year, then the population of town after 'n' years -

$$\text{Population after n years} = X \times \left( 1 \pm \frac{R}{100} \right)^n$$

- When the present population of a town is 'X' and it increased/decreased at the rate of 'R'% each year, then the population of town 'n' years ago:  
Population n years ago =  $\frac{X}{\left(1 \pm \frac{R}{100}\right)^n}$
- When the present population of a town is 'A' and it increased/decreased at different rates of x%, y% and z% successively in next three years, then the population of town after three years.  
Population of town =  $A \times \left(1 \pm \frac{x}{100}\right) \times \left(1 \pm \frac{y}{100}\right) \times \left(1 \pm \frac{z}{100}\right)$
- When the present population of a town is 'A' and it increased by x%, decreased by y% and increased by z% in next three years respectively, then the population of town after three years.  
Population of town =  $A \times \left(1 + \frac{x}{100}\right) \times \left(1 - \frac{y}{100}\right) \times \left(1 + \frac{z}{100}\right)$

### Concepts based on Election:

#### ◆ 1. Votes Cast and Not Cast

- Concept: A percentage of total voters cast their votes. The rest did not vote.
- Formula: **Votes cast** =  $\frac{\text{Percentage of votes cast}}{100} \times \text{Total voters}$   
**Votes not cast** = Total voters - Votes cast

#### ◆ 2. Valid and Invalid Votes

- Concept: Out of the votes cast, a certain percentage may be invalid.
- Formula: **Valid Votes** =  $\left(\frac{\text{Valid \%}}{100}\right) \times \text{Votes Cast}$   
**Invalid votes** = Votes cast - Valid votes

#### ◆ 3. Winner Margin Based on Valid Votes

- Concept: Two candidates receive a percentage of valid votes; the winner gets more.
- Formula: **Vote Margin** =  $\left(\frac{\text{Difference in \% of Valid Votes}}{100}\right) \times \text{Valid Votes}$

#### ◆ 4. Finding Total Voters from Given Percentages and Margin

- Reverse Calculation Concept:
  - Use the vote margin and percentage difference to work back and find the total votes or total voters.
- Formula: **Valid votes** =  $\frac{\text{Vote margin} \times 100}{\text{Percentage difference}}$

#### ◆ 5. Percentage-based Comparison of Candidates

- You may be asked:
  - What % more votes did A get than B?
  - What is the ratio of A's votes to B's?
- Formulas: **%More** =  $\frac{A's \text{ votes} - B's \text{ votes}}{B's \text{ votes}} \times 100$   
**Ratio** =  $\frac{A's \text{ votes}}{B's \text{ votes}}$

### Concepts based on Student Passing and Failure:

Sl. No.	Concept	Explanation / Formula	Example / Use
1	Passing Marks	Passing Marks = $(P/100) \times M$ ( $P$ = required %, $M$ = max marks)	If passing % is 40 and max marks is 500 → Passing Marks = $(40/100) \times 500 = 200$
2	Failing by x marks	Marks Obtained = Passing Marks - x	Student fails by 15 marks, passing marks = 200 → Obtained = 185
3	Passing by y marks	Marks Obtained = Passing Marks + y	Student passes by 20 marks, passing marks = 200 → Obtained = 220
5	Finding Maximum Marks (M)	Use: $(P/100) \times M \pm \text{margin} = \text{Given marks}$	A gets 25% and fails by 30 marks → $(25/100) \times M + 30 = \text{Passing Marks}$
6	Finding Passing %	Use: Passing Marks = $A \pm \text{margin} = \text{marks of student}$ Use equations to find %	If A fails by 10 and B passes by 20, difference = 30, helps find A
7	Conversion between Marks and %	$\% = (\text{Obtained} / \text{Max Marks}) \times 100$ $\text{Marks} = (\% \times \text{Max}) / 100$	A scores 270 out of 600 → $\% = (270/600) \times 100 = 45\%$
8	Reverse Problems	Given % and margin, use reverse % to find M	A fails by 10 marks at 40% → 40% of M = 260 ⇒ M = 650

## PERCENTAGE & Ratio Proportion

### Concepts based on Commission, Income Tax:

**Commission:** It is a fee paid to an agent or salesperson for facilitating a sale.

**Formula (Simple):**  $\text{Commission} = (\text{Rate} \times \text{Total Sales}) / 100$

**Commission on Profit:** If commission is based on profit:  $\text{Commission} = (\text{Rate} \times \text{Profit}) / 100$

**Total Earnings**    **Total Income** = Salary + Commission

<b>Types of Commission</b>	1. <b>Fixed Commission</b> – Constant regardless of sales 2. <b>Variable Commission</b> – Changes based on sales slab or profit
<b>Taxable Income</b>	Taxable Income = Total Income – Exemptions – Deductions
<b>Tax Paid</b>	Tax Paid = Tax Rate $\times$ (Taxable Income in that slab)
<b>Net Income (After Tax)</b>	Net Income = Gross Income – Income Tax

### Concepts based on Ratio Proportion (Age & Number Based):

Concept	Key Point to Remember
1. Present Age Ratio	Let ages be: $a \times k$ and $b \times k$ (based on given ratio)
2. Age Difference	The difference in ages <b>always remains constant</b> over time
3. Future or Past Age Problems	Add/subtract same number of years to both ratios before comparing
4. Cross Multiplication	Use cross multiplication to solve equations involving ratio after 'x' years
5. Sum of Ages	Total Age = Sum of parts = $(a + b + c \dots) \times \text{common multiple } (k)$
6. Age = Present $\pm$ Years	Age after n years = Present age + n Age n years ago = Present age – n
7. Watch for Tricky Language	Words like 'after', 'before', 'twice the age', 'thrice as old' change framing
8. Frame Equations Carefully	Use "age + years" or "age – years" while maintaining the ratio correctly
9. Use one variable (x or k)	Convert ratios to <b>multiples of a variable</b> for easy substitution
10. Read units of age carefully	Check if the age is given in <b>years, months or a combination</b> (rare cases)

## Ratio Proportion


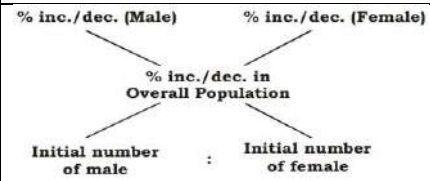
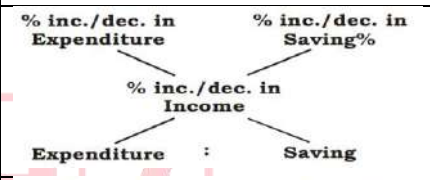
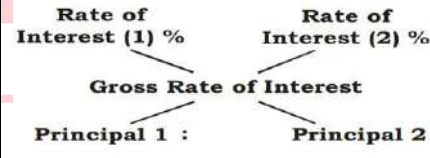
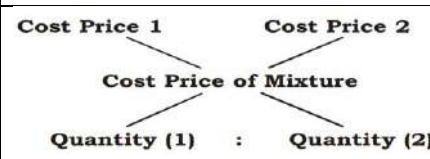
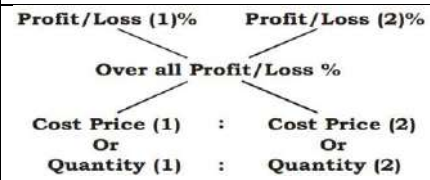
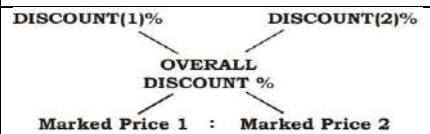
### Concepts based on Coin:

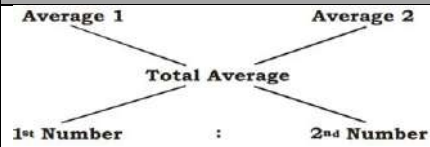
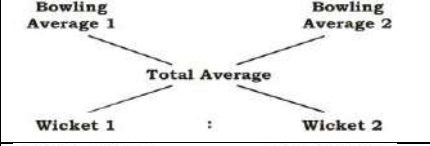

S.No.	Concept	Explanation	Example
1	<b>Basic Ratio of Number of Coins</b>	Ratio given is based on <b>number of coins</b> , not value.	₹1:₹2:₹5 coins = 3:2:1 $\rightarrow$ Values = $3 \times 1 + 2 \times 2 + 1 \times 5 = ₹12$
2	<b>Ratio Based on Value</b>	Ratio given is based on <b>value</b> , must convert to number of coins using: Value $\div$ Denomination	Value ratio 1:4:5 $\rightarrow$ ₹1x, ₹4x, ₹5x $\rightarrow$ No. of coins = x, 2x, x $\rightarrow$ Ratio = 1:2:1
3	<b>Total Number of Coins Given</b>	Use total parts of ratio to find coins of each denomination: Coins = (Ratio $\div$ Total Ratio) $\times$ Total Coins	₹1:₹2:₹5 = 2:3:5, Total = 100 $\rightarrow$ Total parts = 10 $\rightarrow$ ₹1 coins = 20, ₹2 = 30, ₹5 = 50
4	<b>Total Value of Coins Given</b>	Use weighted sum formula: Total Value = (Qty $\times$ Denomination) for each coin	Ratio = 3:2:1, Total value = ₹360 $\rightarrow 3x + 4x + 5x = 12x = 360 \Rightarrow x = 30 \rightarrow$ Coins = 90, 60, 30
5	<b>Difference-Based Questions</b>	Use difference in value or count to form equations and solve for ratio parts.	Ratio of ₹1:₹2 = 3:4, Value difference = ₹10 $\rightarrow 8x - 3x = 5x = 10 \Rightarrow x = 2 \Rightarrow$ ₹1 coins = 6, ₹2 = 8
6	<b>Mixture or Replacement Type</b>	When coin counts are added/removed, resulting in a new ratio; use ratio-change equation.	₹1:₹2 = 2:5; add 10 ₹1 coins $\rightarrow$ New ratio = 4:5 $\Rightarrow (2x + 10)/5x = 4/5 \Rightarrow$ solve for x

## Mean Proportion, Third Proportion, fourth Proportion:

Concept	Definition	Given Terms	Required Proportion	Formula Used	Example
Mean Proportion	If $a : x = x : b$ , then $x$ is called the <b>mean proportion</b> between $a$ and $b$ .	$a$ and $b$	Mean ( $x$ )	$x = \sqrt{a \times b}$	Find mean proportion between 4 and 9 $\rightarrow x = \sqrt{(4 \times 9)} = \sqrt{36} = 6$
Third Proportion	If $a : b = b : x$ , then $x$ is called the <b>third proportion</b> to $a$ and $b$ .	$a$ and $b$	Third ( $x$ )	$x = (b^2) / a$	Find third proportion of 4 and 8 $\rightarrow x = (8 \times 8) / 4 = 16$
Fourth Proportion	If $a : b = c : x$ , then $x$ is called the <b>fourth proportion</b> to $a, b, c$ .	$a, b$ , and $c$	Fourth ( $x$ )	$x = (b \times c) / a$	Find fourth proportion of 2, 4, 6 $\rightarrow x = (4 \times 6) / 2 = 12$

## Mixture and Allegation:


Topic	Concept	Shortcut / Use of Allegation
Mixture	Mixing two quantities with known ratios to get a final ratio or price	
Percentage (Population)	% change in male & female population given, along with total % change	
Percentage (Income)	% change in income, expenditure, savings given	
Simple Interest	Two schemes with different interest rates and one total amount after interest	
Profit & Loss (CP based)	Cost prices of two items & SP of mixture + profit/loss % given	
Profit & Loss (Profit %)	Profit % from two items & overall profit % given	
Discount	Two discount %s on parts of a marked price & net discount % given	

Topic	Concept	Shortcut / Use of Allegation
Average	Average of two groups & overall average given	
Bowler's Average	Bowling average before and in one innings, and final average given	
Time & Distance	Two speeds for equal or unequal distances, and average speed given	

## Unit Digit:

Concept	Explanation	Example
<b>Unit Digit</b>	The digit in the one's place of a number.	Unit digit of <b>237</b> is <b>7</b> .
<b>Unit Digit of Powers</b>	Follows a cyclic pattern depending on the base.	Unit digit of $21=22^1=221=2$ , $22=42^2=422=4$ , $23=82^3=823=8...$
<b>Cyclic Patterns</b>	Most digits (1-9) have repeating cycles in their powers.	$2 \rightarrow \{2,4,8,6\}$ (Cycle length = 4)
<b>Shortcut Method</b>	Divide power by cycle length & find remainder $\rightarrow$ use remainder to find unit digit.	Find unit digit of $7457^{45}$ : Cycle of 7 = $\{7,9,3,1\}$ , $45 \bmod 4 = 1 \rightarrow$ Ans: <b>7</b>
<b>Special Cases</b>	Some numbers (like 5, 6) always end in the same digit for all powers.	$5n5^n$ ends in <b>5</b> , $6n6^n$ ends in <b>6</b> .

## Factors:

Concept	Explanation	Example
<b>Factor/Divisor</b>	A number that divides another number exactly (no remainder).	Factors of <b>12</b> : 1, 2, 3, 4, 6, 12
<b>Total No. of Factors</b>	Use prime factorization: Add 1 to each exponent and multiply.	$12=22 \times 3112=2^2 \times 3^112=22 \times 31 \rightarrow (2+1)(1+1) = 6$ factors
<b>Sum of Factors</b>	Use formula with prime factorization.	$12=22 \times 3112=2^2 \times 3^112=22 \times 31 \rightarrow (1+2+4)(1+3) = 7 \times 4 = 28$
<b>Even/Odd Factors</b>	Even $\rightarrow$ include only factors with at least one 2; Odd $\rightarrow$ exclude all 2s.	Odd factors of 36 = factors of $32=1,3,93^2=1,3,932=1,3,9$
<b>Perfect Square Check</b>	A number is a perfect square if all exponents in its prime factorization are even.	$36=22 \times 3236=2^2 \times 3^236=22 \times 32 \rightarrow$ Perfect square 
<b>Co-prime Numbers</b>	Two numbers having only 1 as their common factor.	(8, 15) are co-prime $\rightarrow$ GCD = 1
<b>Highest Common Factor (HCF)</b>	Greatest number that divides both numbers.	HCF of 12 and 18 = <b>6</b>
<b>Least Common Multiple (LCM)</b>	Smallest number divisible by both numbers.	LCM of 4 and 6 = <b>12</b>



## No of Zeros:

Concept	Formula / Rule	Explanation / Example
Trailing zeros in $n!$	$\left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor \frac{n}{125} \right\rfloor + \dots$	Count of 5s in prime factorization of $n!$ : $10 = 2 \times 5$ , but 2s are always more, so count 5s. Eg: Trailing zeros in $100! = 20 + 4 = 24$
Trailing zeros in a power $a^b$	Count of 10s in $a^b$	Prime factorize $a$ , find min(power of 2, power of 5) in result
Trailing zeros in a number like 1000	Count number of zeros at the end	Eg: 1000 $\rightarrow$ 3 trailing zeros
Zeros in decimal	Depends on denominator of fraction	Eg: $1/10 = 0.1$ (1 zero), $1/100 = 0.01$ (2 zeros)
Ending zeros in product of numbers	Count net power of 10 in the product	Eg: $2^3 \times 5^4 \rightarrow \min(3,4) = 3 \rightarrow 3$ zeros

## Remainder Theorem:

Type of Division	Formula / Concept	Example
$f(a)$ is remainder when polynomial $f(x)$ is divided by $x - a$	Remainder = $f(a)$	Eg: Remainder when $f(x) = x^2 + 3x + 2$ divided by $x - 2$ is $f(2) = 4 + 6 + 2 = 12$
$a^n \bmod b$ when $a$ and $b$ are coprime	Use Euler's Theorem: $a^{\phi(b)} \equiv 1 \bmod b$	Eg: $7^{100} \bmod 10$ : $\phi(10)=4 \rightarrow 7^4 \equiv 1 \bmod 10 \rightarrow 7^{100} \equiv 1^{25} = 1$
$a^n \bmod b$ for small values	Use cyclicity / patterns	Eg: $3^n \bmod 4 \rightarrow 3, 1, 3, 1 \dots$ pattern of 2
Divisibility of large numbers	Break number using modulo	Eg: Find remainder when 111...111 (15 times) is divided by 9: Since sum of digits = 15 $\rightarrow$ remainder = 6
Division of powers like $2^{20} \bmod 7$	Use cyclicity of powers	Powers of 2 mod 7: 2, 4, 1 (repeat every 3) $\rightarrow 20 \bmod 3 = 2 \rightarrow$ answer is $2^2 = 4$
Special case: $a^n - b^n$ divisible by $a - b$	Always divisible	Eg: $7^5 - 3^5$ divisible by $7 - 3 = 4$

## Divisibility Rules:

Divisor	Divisibility Rule	Example
2	If the number ends in 0, 2, 4, 6, or 8.	134 is divisible by 2 (ends in 4).
3	If the sum of the digits is divisible by 3.	$123 \rightarrow 1+2+3=6 \rightarrow$ divisible by 3.
4	If the last <b>two digits</b> form a number divisible by 4.	316 is divisible by 4 ( $16 \div 4 = 4$ ).
5	If the number ends in <b>0 or 5</b> .	475, 900 both end in 5 or 0.
6	If the number is divisible by <b>both 2 and 3</b> .	132 is even and $1+3+2=6$ (div. by 3).
7	Double the last digit, subtract from the rest; if result is divisible by 7.	203: $20 - 6 = 14 \rightarrow$ divisible by 7.
8	If the last <b>three digits</b> form a number divisible by 8.	$1216 \rightarrow 216 \div 8 = 27$ .
9	If the sum of the digits is divisible by 9.	$729 \rightarrow 7+2+9=18 \rightarrow$ divisible by 9.
10	If the number ends in <b>0</b> .	370, 800 end in 0.
11	Alternating sum of digits is divisible by 11 (e.g. +, -, +, - ...).	$121 \rightarrow 1-2+1 = 0 \rightarrow$ divisible by 11.

Divisor	Divisibility Rule	Example
12	If the number is divisible by both <b>3 and 4</b> .	240: $2+4+0=6$ (div. by 3), 40 div. by 4.
13	Multiply last digit by 9, subtract from rest. If result divisible by 13.	637: $63 - (7 \times 9) = 63 - 63 = 0 \rightarrow$ OK.
14	If the number is divisible by <b>2 and 7</b> .	196 is even and divisible by 7.
15	If the number is divisible by <b>3 and 5</b> .	225 is div. by 3 ( $2+2+5=9$ ) and ends 5.
16	If the last <b>4 digits</b> form a number divisible by 16.	$65472 \rightarrow 5472 \div 16 = 342$ .
17	Subtract $5 \times$ last digit from the rest. Repeat if needed.	$221 \rightarrow 22 - 5 \times 1 = 17 \rightarrow$ divisible.
18	If the number is divisible by <b>2 and 9</b> .	$198 \rightarrow$ even, $1+9+8=18 \rightarrow$ divisible.
19	Multiply last digit by 2, add to rest. If divisible by 19.	$133 \rightarrow 13 + (2 \times 3) = 13 + 6 = 19 \rightarrow$ OK.
20	If the number ends in <b>00, 20, 40, 60, or 80</b> .	560 ends in 60 $\rightarrow$ divisible by 20.

## Time and Work: Work and Efficiency Concepts

Concept	Formula / Explanation	Example / Note
<b>Work</b>	Work = Time $\times$ Efficiency	If A does 5 units/day for 6 days, Work = $5 \times 6 = 30$ units
<b>Efficiency</b>	Efficiency = Work / Time	If work is 60 units and A takes 10 days, Efficiency = 6 units/day
<b>Time</b>	Time = Work / Efficiency	If work = 48 units, efficiency = 6 units/day, Time = 8 days
<b>Total Work</b>	Total Work = LCM of individual times	If A takes 6 days, B takes 8 days, Total Work = LCM(6,8) = 24 units
<b>Combined Efficiency</b>	A's Eff + B's Eff = Total Eff	If A = 4 units/day, B = 6 units/day, together = 10 units/day
<b>Efficiency Ratio (based on time)</b>	Efficiency $\propto 1/\text{Time} \Rightarrow E_1 : E_2 = T_2 : T_1$	If A takes 5 days, B takes 10 days $\Rightarrow E_1 : E_2 = 10:5 = 2:1$
<b>Work Ratio (based on efficiency)</b>	Work done $\propto$ Efficiency $\times$ Time	Use to split wages/amounts based on contribution
<b>Men, Days, Work</b>	$M_1 \times D_1 = M_2 \times D_2$ (when work is same)	Used when number of men and days change
<b>One day's work</b>	1 day's work = $1 / \text{total days}$	If A finishes in 10 days, 1 day work = $1/10$
<b>Total work from 1 day's work</b>	Total Work = 1 day's work $\times$ Total Days	Reverse of above
<b>A is 'x%' more efficient than B</b>	Let B's eff = 100, then A = $100+x \Rightarrow$ Ratio = A:B = $(100+x):100$	If A is 25% more efficient $\Rightarrow$ Ratio = 125:100 = 5:4
<b>A is 'x%' less efficient than B</b>	A = $100-x \Rightarrow$ Ratio = A:B = $(100-x):100$	If A is 20% less $\Rightarrow$ Ratio = 80:100 = 4:5
<b>Alternate Work Days</b>	Use unit method or LCM, consider number of days each person works	Alternate day working is solved step-wise
<b>Pipe &amp; Cistern as Negative Work</b>	Leakage = negative efficiency	If pipe fills 10 units/day and leak empties 2, net = 8 units/day
<b>Work Sharing Based on Efficiency</b>	Share $\propto$ Efficiency $\times$ Time worked	For unequal working durations
<b>Inversely Proportional Time</b>	Time $\propto 1 / \text{Efficiency}$	Time taken is inversely proportional to speed or efficiency

## Concepts, Formulas & Shortcuts

Concept / Topic	Details / Explanation	Formula / Key Point
<b>1. Basic Work Formula</b>	Work is directly proportional to time and efficiency.	$\text{Work} = \text{Time} \times \text{Efficiency}$
<b>2. Unit Work Method</b>	Total work is considered as 1 unit (or LCM of days if needed).	Use unitary method: If A completes in 10 days, A's 1 day work = $1/10$
<b>3. Time Taken to Complete Work</b>	If A can do a piece of work in 'x' days.	$\text{Work done/day} = 1/x \Rightarrow \text{Total Time} = 1 \div \text{Work done/day}$
<b>4. Combined Work</b>	If A can do a work in x days and B in y days.	$(A + B)\text{'s 1 day work} = 1/x + 1/y$ $\text{Time} = xy / (x + y)$
<b>5. Efficiency and Time Relation</b>	More efficiency means less time.	$\text{Efficiency} \propto 1 / \text{Time}$
<b>6. Ratio of Work and Time</b>	Compare work done by different people.	$\text{Time}_1 / \text{Time}_2 = \text{Efficiency}_2 / \text{Efficiency}_1$
<b>7. Work Done in 'n' Days</b>	If A's 1 day work is $1/x$ , work done in n days = $n/x$	$\text{Total Work Done} = \text{Days} \times \text{Efficiency}$
<b>8. Remaining Work</b>	Total work - work done = Remaining work	Can use unit work method or LCM
<b>9. A leaves the work after n days</b>	Handle work in parts: work done with A + rest by others	Break the problem into phases
<b>10. Men, Women, and Children</b>	Use efficiency ratio (e.g., M:W:C = 4:3:2)	Convert all to a single unit for comparison
<b>11. LCM Method</b>	Take LCM of individual days to assume total work	Makes calculation easier
<b>13. Work and Wages</b>	$\text{Wages} \propto \text{Work Done}$ (not time)	$\text{Total Wages} \times (\text{Person's Work} / \text{Total Work})$
<b>14. Unequal Working Days (Wages)</b>	If people work different days, calculate work individually	Assign wages in ratio of work done
<b>15. Alternate Working Days</b>	A & B work alternately (e.g., A-B-A...)	Count days and multiply by individual 1 day work
<b>16. Negative Work (Leaking Pipes / Spoilers)</b>	If B undoes A's work, subtract	$\text{Net work} = \text{A's work} - \text{B's work}$
<b>17. Work Completion %</b>	To find part of work completed or left	$\text{Work done} = (\text{No. of days} \times 1 \text{ day work})$

## Work and Wages Specific Concepts

Case	Explanation	Formula / Example
<b>Equal Wages</b>	All do equal work	Divide equally
<b>Unequal Efficiency</b>	More efficient person gets more wage	$\text{Wages} \propto \text{Work Done}$
<b>Different Time Periods</b>	Different days of work	$\text{Wages} \propto (\text{Days} \times \text{Efficiency})$
<b>Ratio-Based Wages</b>	If A:B:C work ratio = 2:3:5	Divide total wages in 2:3:5
<b>Wages with Partial Work</b>	If total work = 60 units A: 20 units, B: 40 units	$\text{A's Wage} = (20/60) \times \text{Total Wage}$

## Time and Work: Man-Day Based

S.No.	Concept	Explanation / Formula	Example / Note
1.	<b>Work and Time Relationship</b>	More men $\rightarrow$ less time; More time $\rightarrow$ more work	$Work \propto Men \times Days$
2.	<b>Basic Formula</b>	$Work = Men \times Days \times Hours$ (if hourly rate given)	If 5 men do a work in 4 days, total work = $5 \times 4 = 20$ man-days
3.	<b>Combined Work Rate</b>	A's 1-day work + B's 1-day work = (A + B)'s 1-day work	If $A = 1/10$ , $B = 1/15$ , together = $1/10 + 1/15 = 1/6$
4.	<b>Total Work in Units</b>	If A completes in x days, then total work = x units	Used to avoid fractions
5.	<b>Work Efficiency Ratio</b>	If $A : B = \text{efficiency ratio}$ , then Time ratio = $1 : \text{efficiency}$	If A is twice as efficient as B $\rightarrow$ Time ratio = $1 : 2$
6.	<b>More Men, Less Time</b>	$M_1 \times D_1 = M_2 \times D_2$ (if work constant)	$Men \times Days = \text{Constant}$
7.	<b>A and B together, but A leaves after some days</b>	Use A + B's rate $\times$ days + B's rate $\times$ remaining days	Useful for replacement problems
8.	<b>Inversely Proportional Rule</b>	Work is constant $\rightarrow$ Men and Days are inversely proportional	$M_1 : M_2 = D_2 : D_1$
9.	<b>Negative Work (Leakage, Destruction)</b>	Net work = Work done - Work undone	Pipes filling and leakage
10.	<b>LCM Method</b>	Assume total work as LCM of days taken by individuals	Simplifies fraction-based calculations
11.	<b>One finishes a fraction, rest completes</b>	Find part done, remaining part and respective time	Very common in SSC exams

## Alternate Days Working Concept

Type of Question	Example Scenario	How to Approach
1. A starts, B next, alternate till completion	A can do a work in 6 days, B in 12 days. They work alternately starting with A. In how many days will the work be completed?	Find A's and B's 1-day work. Add both for 2-day cycle. Repeat till total work is done. If work left after full cycles, assign last day accordingly.
2. Total work given, who works on last day?	Work is 20 units. A does 4 units/day, B does 2. A starts alternately. Who works on last day?	Find how much work is done in each 2-day cycle (A+B), divide total work, check remaining. Remaining work tells who works last.
3. B starts instead of A	B starts first, works alternate days with A. Who finishes last?	Same logic as above, but reverse the sequence. Start cycle with B.
4. Work completed in N days, how many days did A and B work?	A and B work on alternate days starting with A. Total work done in 7 days. How many days did each work?	Count A's and B's days in sequence: A works on odd days, B on even. Split 7 days accordingly: A = 4 days, B = 3 days.
5. Unequal Efficiency / Units Given	A does 5 units/day, B does 3 units/day. A starts, they work alternately. Total work = 35 units. Find days needed.	2-day work = $A+B = 8$ units. Divide 35 by 8. After full cycles, assign leftover work to A or B as per day.

## Pipe and Cistern

Concept	Formula / Explanation	Remarks
1. One Pipe Filling a Tank	If a pipe can fill a tank in <b>x hours</b> , then part filled in 1 hour = $\frac{1}{x}$	Inverse relation of time and work
2. One Pipe Emptying a Tank	If a pipe can empty a tank in <b>y hours</b> , then part emptied in 1 hour = $\frac{1}{y}$	Negative work
3. Two Pipes Filling Together	If Pipe A fills in <b>x hours</b> and B in <b>y hours</b> : Work done in 1 hour = $\frac{1}{x} + \frac{1}{y}$ Total time = $\frac{(xy)}{(x+y)}$	Use LCM method for complicated values
4. One Filling, One Emptying Together	If A fills in <b>x hours</b> and B empties in <b>y hours</b> : Work done in 1 hour = $\frac{1}{x} - \frac{1}{y}$ (if filling > emptying)	Result must be positive to ensure tank is filled
5. Time taken when both pipes fill tank and one pipe is closed after some time	Work done = Pipe A's work for full time + Pipe B's work for partial time Use: <b>(Part = Rate <math>\times</math> Time)</b>	Solve in parts
6. Leak in a Cistern	Let pipe fill in <b>x hours</b> and with leak, it fills in <b>y hours</b> : Leak's emptying time = $\frac{1}{(\frac{1}{x} - \frac{1}{y})}$	Leak reduces effective filling rate
7. Cistern empties due to leak only	If a full cistern empties in <b>x hours</b> due to a leak, leak's rate = $-\frac{1}{x}$	Negative rate
8. Pipes opened at different times	Work = Sum of (Rate $\times$ Time) for each interval	Break into intervals
9. Tank filled in fractions	If $\frac{1}{2}$ tank is filled in <b>x hours</b> , use proportion: Total time = <b>x <math>\times</math> 2</b>	Proportional calculation
10. Equal Efficiency	If two pipes of equal efficiency fill tank in <b>t hours</b> : Individual time = <b>2t</b>	Combine rate = $2 \times$ individual rate

## Speed Time & Distance (Average Speed)

Topic	Formula / Concept	Explanation
Basic Formula	Speed = Distance / Time	Use this to find any one of speed, distance, or time if the other two are known.
Units Conversion	1 km = 1000 m 1 hour = 60 minutes = 3600 seconds	Useful for converting units as needed.
	1 km/hr = $(\frac{5}{18})$ m/sec 1 m/sec = $(\frac{18}{5})$ km/hr	To convert speed units.
Average Speed (general)	Average Speed = Total Distance / Total Time	Used when total distance and total time are known.
Two Equal Distances	Average Speed = $(2 \times S_1 \times S_2) / (S_1 + S_2)$	Used when the distance is the same but speed is different for each leg.
Different Distances	Average Speed = $(D_1 + D_2) / ((D_1/S_1) + (D_2/S_2))$	General formula for two parts with different distances and speeds.
If time difference is given	Distance = $(S_1 \times S_2 / (S_2 - S_1)) \times$ Time difference	Useful when two persons travel same distance at different speeds, and time difference is given.



## Speed Time & Distance: Relative Speed

Concept	Formula / Explanation	Example
1. Relative Speed (Same Direction)	Relative Speed = Speed <sub>1</sub> - Speed <sub>2</sub>	Two trains at 60 km/hr and 40 km/hr in the same direction $\Rightarrow$ Relative Speed = <b>20 km/hr</b>
2. Relative Speed (Opposite Direction)	Relative Speed = Speed <sub>1</sub> + Speed <sub>2</sub>	Two trains at 60 km/hr and 40 km/hr in opposite directions $\Rightarrow$ Relative Speed = <b>100 km/hr</b>
3. Time to Cross Each Other (Two Bodies Moving)	Time = Distance between bodies / Relative Speed	Two trains of length 120 m and 80 m moving opposite at 30 m/s and 10 m/s: Total distance = 200 m Relative speed = 40 m/s $\Rightarrow$ Time = 200/40 = <b>5 sec</b>
4. Overtaking / Meeting Time (Relative Speed)	Use relative speed depending on direction	Two bikes, 60 km/hr and 40 km/hr, same direction: Distance = 100 km $\Rightarrow$ Time = 100 / (60-40) = <b>5 hr</b>
5. Average Speed (Same Distance)	Avg Speed = $2ab / (a + b)$ , where a and b are two different speeds for equal distance	Speed to go = 60 km/hr, return = 40 km/hr: Avg speed = $2 \times 60 \times 40 / (60 + 40) = 4800 / 100 =$ <b>48 km/hr</b>

## Problems on Train

Concept	Formula	Explanation	Example
1. Train crossing a pole	Time = Length of train / Speed	Pole is point-sized - only train's length matters.	180 m train at 60 km/h $\rightarrow 60 \times 5 / 18 = 16.67$ m/s $\rightarrow$ Time = 180/16.67 $\approx$ <b>10.8 sec</b>
2. Train crossing a platform	Time = (Train length + Platform length) / Speed	Train must cover own length + platform.	Train = 120m, Platform = 180m, Speed = 54 km/h $\rightarrow$ Speed = 15 m/s $\rightarrow$ Time = (120+180)/15 = <b>20 sec</b>
3. Two trains crossing each other (same direction)	Time = $(L_1 + L_2) / (S_1 - S_2)$	Relative speed when trains move in same direction.	Train A = 150m, 60 km/h; Train B = 100m, 40 km/h $\rightarrow$ Speed diff = 20 km/h = 5.56 m/s $\rightarrow$ Time = (150+100)/5.56 $\approx$ <b>45 sec</b>
4. Two trains crossing each other (opposite direction)	Time = $(L_1 + L_2) / (S_1 + S_2)$	Relative speed when trains move in opposite direction.	Train A = 180m, 72 km/h; Train B = 120m, 54 km/h $\rightarrow$ Total speed = 126 km/h = 35 m/s $\rightarrow$ Time = (180+120)/35 = <b>8.57 sec</b>
5. Train crossing a man (same/opposite direction)	Time = Length of train / Relative speed	Man has speed. Use relative speed concept.	Train = 180m, 72 km/h; Man = 6 km/h, same dir $\rightarrow$ Speed = 66 km/h = 18.33 m/s $\rightarrow$ Time = 180/18.33 $\approx$ <b>9.8 sec</b>
6. Length of train	Length = Speed $\times$ Time (in m/s $\times$ sec)	Direct multiplication if time and speed known.	Speed = 20 m/s, Time = 12 sec $\rightarrow$ Length = $20 \times 12 =$ <b>240 m</b>
7. Average Speed	Avg. Speed = $(2 \times S_1 \times S_2) / (S_1 + S_2)$	Only for same distance with two speeds.	60 km/h & 90 km/h $\rightarrow$ Avg. = $(2 \times 60 \times 90) / (60 + 90) =$ <b>72 km/h</b>

## Race

Concept	Formula / Description	Example
<b>Head start (Distance)</b>	If A beats B by d meters, it means B runs D - d meters when A runs D.	A covers 100 m, B covers 90 m $\Rightarrow$ A beats B by 10 m
<b>Time-based lead</b>	If A beats B by t seconds, calculate who is faster based on their time to finish total race	Compare total times to complete race
<b>Ratio of speeds</b>	If A beats B by d meters in a D-meter race: $\text{Speed}_A / \text{Speed}_B = D / (D - d)$	Use when distance difference is known
<b>Equal Time, Different Distances</b>	Ratio of speeds = Ratio of distances	A covers 100 m, B covers 80 m in same time $\Rightarrow$ Speed A : Speed B = 5:4
<b>Equal Distance, Different Time</b>	Ratio of speeds = Inverse of time ratio	If A takes 10 min, B takes 12 min $\Rightarrow$ Speed A : B = 6:5
<b>Circular track (Meeting Point)</b>	If two people run around a circle of length L: Meeting time = L / Relative Speed	Adjust relative speed based on direction
<b>Catch-up time (A chasing B)</b>	Time = Distance gap / Relative Speed	For overtaking or closing the distance

## Boats and Streams

Type	Formula	Explanation
<b>Downstream Speed</b>	Downstream = Boat speed + Stream speed	Water aids the motion
<b>Upstream Speed</b>	Upstream = Boat speed - Stream speed	Water opposes the motion
<b>Speed of Boat in Still Water (B)</b>	$B = (\text{Downstream} + \text{Upstream}) / 2$	Average of downstream and upstream speeds
<b>Speed of Stream (S)</b>	$S = (\text{Downstream} - \text{Upstream}) / 2$	Half the difference between downstream and upstream
<b>Time-based formula</b>	Time = Distance / Speed Use separate downstream & upstream speeds where applicable	Always check whether the question is about up/down/both directions

## Simple Interest

Category	Details
<b>Basic Concept</b>	Simple Interest is the interest calculated on the original principal only, for a specified time period.
<b>Formula</b>	$SI = (P \times R \times T) / 100$
<b>Variables</b>	P = Principal (initial amount) R = Rate of Interest per annum T = Time (in years) SI = Simple Interest A = Total Amount (P + SI)
<b>Amount Formula</b>	$A = P + SI = P \times (1 + RT/100)$
<b>Time in Months/Days</b>	For months: T = number of months / 12 For days: T = number of days / 365 (or 360 in banking questions)

## Compound Interest

S.No.	Topic / Concept	Formula / Explanation	Notes / Tips
1	Compound Interest (CI)	$CI = A - P$	A = Final Amount, P = Principal
2	Amount (A) annually compounded	$A = P(1 + R/100)^n$	R = rate %, n = time in years
3	Amount compounded half-yearly	$A = P(1 + R/200)^{2n}$	Multiply time by 2, divide rate by 2
4	Amount compounded quarterly	$A = P(1 + R/400)^{4n}$	Multiply time by 4, divide rate by 4
5	Compound Interest (CI)	$CI = P[(1 + R/100)^n - 1]$	Direct CI formula
6	Difference between CI and SI (for 2 years)	$Diff = P \times (R/100)^2$	Only valid for 2 years
7	Shortcut for 3-year CI - SI difference	$Diff = P \times R^2(300 + R)/100^3$	Only valid for 3 years
8	Population Growth using CI	$Population = P(1 + R/100)^n$	R = growth rate %
9	Depreciation using CI formula	$Value = P(1 - R/100)^n$	R = depreciation %
10	Different rate for different years	$A = P(1 + R_1/100)(1 + R_2/100)...$	Use successive formula
11	Time to double money (approx.)	$T = 72 / R$	Rule of 72 (Shortcut)
12	CI with successive years	$CI = P \times R_1/100 + P \times R_2/100 + P \times (R_1 \times R_2)/100^2$	For 2 successive years
13	Successive increase shortcut	$Net \% = x + y + (xy/100)$	Apply when rate changes

## Simple and Compound Interest (Mixed)

S.No.	Concept / Type	Formula / Explanation	Usage / Exam Tip
1	CI vs SI for 2 years	$Difference = P \times (R/100)^2$	Useful shortcut when time = 2 years
2	CI vs SI for 3 years (shortcut)	$Difference = P \times R^2(300 + R)/100^3$	Direct formula for quick solving
3	When CI = SI	Only happens when R = 0% or T = 1 year	Conceptual question often asked
4	Time when SI and CI difference known	$T = 2 \rightarrow \text{Use } P = Diff \times 100^2 / R^2$	Reverse use of 2-year shortcut formula
5	Finding rate (R) from SI and CI difference	$R = \sqrt{(100 \times Diff / P)}$	Valid only for 2 years

## Practice Questions

1. The price of fuel decreases by 55%, 10% and 20% in three successive months, but increases by 65% in the fourth month. What is the percentage increase/decrease in the price of fuel in the fourth month as compared to its original price?  
(a) Increases by 51.62% (b) Increases by 48.43%  
(c) Decreases by 46.54% (d) Decreases by 50.53%
2. What will be the difference between the sale price (in ₹) of a book with a marked price ₹1,500 under the following discount schemes?  
(i) Two successive discounts of 20% each  
(ii) Two successive discounts of 30% and 10%  
(a) 12 (b) 15  
(c) 18 (d) 20
3. The price (per litre) of petrol increases by 50%. By what percent should its consumption be reduced such that the expenditure on it increases by 14% only?  
(a) 77% (b) 76%  
(c) 29% (d) 24%
4. After spending 10% on clothes, 2% on books, 5% on purchasing gifts for husband and 4% on others, Rani has a balance of ₹5,135. How much money (in ₹) was there with her initially?  
(a) 6,450 (b) 6,400  
(c) 6,390 (d) 6,500
5. When the price of rice increased by 32%, a family reduced its consumption such that the expenditure on it was only 10% more than before. If 5.4 kg rice was consumed initially, then the new consumption of rice is:  
(a) 4 kg (b) 4.2 kg  
(c) 4.5 kg (d) 5 kg
6. A man spends 20% of his monthly salary on the rent of his house. If every month he also spends Rs.600 on his conveyance and Rs.3,500 on his grocery and saves the remaining Rs.500, his monthly salary is:  
(a) Rs. 5,250 (b) Rs. 5,000  
(c) Rs. 5,500 (d) Rs. 5,750
7. A man makes a monthly payment equal to 15% of his monthly salary towards debt repayment. He spends 75% of the remaining salary and saves Rs. 425. His monthly salary is:  
(a) Rs. 1,800 (b) Rs. 2,400  
(c) Rs. 2,200 (d) Rs. 2,000
8. A man receives Rs.6,500 per month as salary. He saves 10% of his salary every month. His expenditure per month is:  
(a) Rs.4,900 (b) Rs.5,100  
(c) ₹5,850 (d) Rs.5,000
9. The population of Goa increases by 10% every year for two years and then decreases by 10% every year for 2 Years. If the population just before 4 years was 1,00,000 what was after four years?  
(a) 98050 (b) 97020  
(c) 97010 (d) 98010
10. The population of a village is 25,000. One fifth are females and the rest are males. 5% of males and 40% of females are uneducated. What percentage on the whole are educated?  
(a) 75% (b) 88%  
(c) 55% (d) More than one of the above
11. In an election between two candidates, the candidate who gets 35% of the votes polled is defeated by 15,900 votes. What is the total number of votes polled?  
(a) 45,000 (b) 35,000  
(c) 43,000 (d) 53,000
12. In an election, Candidate M received 67% of the votes, and Candidate N received 33% of the votes. If the total votes were 10,000, find the difference in the number of votes received by each candidate.  
(a) 3500 (b) 3000  
(c) 4200 (d) 3400
13. In an election, a candidate got 65% of the votes and won by a margin of 900 votes. Find the total number of votes.  
(a) 3500 (b) 4000  
(c) 3000 (d) 2500
14. In an examination, a student secures 205 marks and fails by 5 marks. If the minimum passing marks are 35%, then the maximum marks of the examination are:  
(a) 900 (b) 600  
(c) 450 (d) 300



15. A candidate scores 25% marks and fails by 68 marks, while another candidate, who scores 50% marks, gets 42 marks more than the minimum required marks to pass the examination. Find the maximum marks for the examination.  
(a) 410 (b) 440  
(c) 430 (d) 400
16. In an examination, a student secures 205 marks and fails by 5 marks. If the minimum passing marks are 35 %, then the maximum marks of the examination are:  
(a) 900 (b) 600  
(c) 450 (d) 300
17. A company pays its salesmen a commission of 8% of the total sales. and gives a bonus of 2% on sales above Rs25,000. if the salesman after deducting his commission 65800 is deposited in the company, then. Find the total sales (approx.) made by the salesman.  
(a) 64012 Rs. (b) 68060 Rs.  
(c) 73111 Rs. (d) 74045 Rs.
18. If the income tax is increased by 17%, the net income is decreased by 8%. Find the rate of income tax?  
(a) 32% (b) 24%  
(c) 28% (d) 36%
19. The ratio between Sumit's and Prakash's age at present is 2 : 3. Sumit is 6 years younger than Prakash. The ratio of Sumit's age to Prakash's age after 6 years will be?  
(a) 2: 3 (b) 1: 2  
(c) 4: 3 (d) 3: 4
20. Divide ₹4,800 among Ram, Shyam and Kartik in the ratio of 4 : 8 : 3. Find the amount received by Shyam.  
(a) ₹1,850 (b) ₹1,680  
(c) ₹2,270 (d) ₹2,560
21. In 420 coins there are coins of Rs. 1, 50 paise and 25 paise. If their values in this sequence are in the ratio of 4 : 6 : 10, then what will be the number of one rupee coin?  
(a) 90 (b) 300  
(c) 30 (d) 20
22. A child has 1-rupee coins and 2-rupee coins. The ratio of number of 1-rupee coins and 2-rupee coins is 4:3. If he has an amount of Rs.30, then what is the amount (in Rs.) of 2- rupee coin does he have?  
(a) 10 (b) 12  
(c) 16 (d) 18
23. A bag contains Rs. 840 in the form of 2 rupee, 5 rupee and 10 rupees coins. The number of coins of 2 rupee, 5 rupee and 10 rupee are in the ratio of 5 : 7 : 6. What is the total number of coin in the bag?  
(a) 132 (b) 158  
(c) 144 (d) 102
24. A sum of ₹7,560 is divided between A, B and C such that the ratio of the share of A to the combined share of B and C is 5 : 9 and the ratio of the share of C to the combined share of A and B is 3 : 7. What is the share of B?  
(a) ₹2,482 (b) ₹2,592  
(c) ₹2,590 (d) ₹2,480
25. A, B and C rent a pasture. A puts 5 oxen for 4 months, B puts 8 oxen for 5 months and C puts 10 oxen for 3 months for grazing. If the rent of the pasture is ₹180, then how much must B pay as his share of rent?  
(a) ₹80 (b) ₹75  
(c) ₹72 (d) ₹70
26. The mean proportion of  $\frac{a^2}{b^3}$  and  $\frac{9b^2}{4a^3}$  is \_\_\_\_.  
(a)  $\frac{9}{\sqrt{ab}}$  (b)  $\frac{3}{2\sqrt{ab}}$   
(c)  $\frac{3}{2(ab)}$  (d)  $\frac{9}{4(ab)}$
27. The fourth proportional of 64, 80 and 88 is:  
(a) 110 (b) 100  
(c) 120 (d) 90
28. If p is the fourth proportion to 4, 9 and 8, and q is the third proportional of p and 30, then find the mean proportional between 32 and q.  
(a) 40 (b) 35  
(c) 36 (d) 42
29. Find the third proportion to 36 and 48.  
(a) 36 (b) 54  
(c) 64 (d) 48
30. If the third proportion of 3 and x is 27 and the third proportion of 2 and y is 8, then find x : y.  
(a) 4 : 5 (b) 7 : 9  
(c) 9 : 4 (d) 3 : 7
31. How much pure alcohol (in ml) must be added to 500 ml of a 12% solution to make its strength 20%?  
(a) 30 (b) 50  
(c) 40 (d) 60
32. A mixture contains alcohol and water in the ratio 4 : 7. If it contains 9 litres more water than alcohol, then find the quantity of water in the mixture.  
(a) 24 litres (b) 21 litres  
(c) 20 litres (d) 18 litres
33. In a 60-liter mixture of milk and water, the water content is 40%. How many litres of water should be added to increase the water content to 60%?  
(a) 25 litres (b) 30 litres  
(c) 15 litres (d) 20 litres



34. The ratio of alcohol and water in solution A is 3 : 5 and it is 7 : 3 in solution B. Six litres of A and 5 litres of B are mixed in a vessel and one litre water is also added to this mixture. What is the ratio of alcohol and water in the resulting mixture?  
(a) 23 : 25 (b) 22 : 23  
(c) 21 : 22 (d) 23 : 29
35. A vessel contains a solution of acid and water in the ratio 5 : 7. When 9 litres of the solution are taken out and the vessel is filled with equal quantity of acid, the ratio of acid and water in the vessel becomes 9 : 7. How many litres of solution was there in the vessel, initially?  
(a) 36 (b) 24  
(c) 30 (d) 42
36. The digit in the unit's place of 230230 is:  
(a) 8 (b) 6  
(c) 4 (d) 2
37. The digit at unit's place of the number  $(1570)^2 + (1571)^2 + (1572)^2 + (1573)^2$  is :  
(a) 4 (b) 1  
(c) 2 (d) 3
38. What is the remainder when  $(x^{17}+1)$  is divided by  $(x+1)$  ?  
(a) x (b) x-1  
(c) 0 (d) 1
39. What is the sum of the divisors of 484 that are perfect squares?  
(a) 610 (b) 125  
(c) 13 (d) 35
40. Calculate the total numbers of prime factors in the expression  $9^{11} \times 5^7 \times 7^5 \times 3^2 \times 17^2$   
(a) 35 (b) 36  
(c) 37 (d) 38
41. If a 9-digit number  $9834x97y49834$  is divisible by 88, then what is the maximum possible value of  $(3x+2y)(3x+2y)$ ?  
(a) 34 (b) 27  
(c) 31 (d) 37
42. Let x be the least number of 5 digits, which when divided by 28, 40, 42 and 48, leaves remainder 6 in each case and x is divisible by 246. What is the sum of the digits of x?  
(a) 15 (b) 14  
(c) 12 (d) 13
43. If two numbers are each divided by the same divisor, the remainders are, respectively, 5 and 6. If the sum of the two numbers is divided by the same divisor, the remainder is 4. The divisor is:  
(a) 5 (b) 3  
(c) 7 (d) 9
44. Find the number of zeroes in  $129!$   
(a) 31 (b) 33  
(c) 35 (d) 37
45. Find the last 3 digits of  $8991 \times 16003 \times 761001 \times 3705983$ .  
(a) 379 (b) 389  
(c) 439 (d) 459
46. The mean proportional between 2.8 and 0.7 is:  
(a) 1.4 (b) 1.8  
(c) 1.9 (d) 1.2
47. A mixture contains milk and water in the ratio 7 : 6. If 21 litres of water is added to the mixture, milk and water in the mixture becomes equal. Find the quantity of milk in the mixture. (In litres)  
(a) 157 (b) 147  
(c) 162 (d) 152
48. Three numbers are in the ratio 5 : 7 : 9, and their LCM is 1260. What is the difference between the largest and the smallest number?  
(a) 20 (b) 32  
(c) 16 (d) 24
49. In a division sum, the divisor is 4 times the quotient and 8 times the remainder. If the remainder is 3, then the dividend is:  
(a) 141 (b) 96  
(c) 147 (d) 144
50. On dividing a certain number by 459, we get 19 as remainder. What will be the remainder, when the same number is divided by 17?  
(a) 13 (b) 2  
(c) 11 (d) 1
51. The greatest number of four digits that is divisible by 30, 36, 45 and 75 is:  
(a) 9936 (b) 9990  
(c) 9900 (d) 9930
52. If m and n are the two digits of the number 1798mn such that this number is divisible by 70, then  $(m + n)$  is equal to:  
(a) 4 (b) 1  
(c) 2 (d) 3
53. If a 8-digit number  $43x259y2$  is divisible by 88, then the largest possible value of  $(5x+2y)$  is:  
(a) 56 (b) 52  
(c) 63 (d) 64
54. A seven digit number  $7x59448$  is divisible by 72. What is the value of x?  
(a) 4 (b) 6  
(c) 7 (d) 8

55. Find the value of  $k$  in the 6-digit number  $1k3k49$  such that the number is divisible by 33.  
(a) 5 (b) 8  
(c) 9 (d) 2
56. A can finish a work in 150 days and B can do the same work in 225 days. Working together, they will complete the same work in how many days?  
(a) 92 (b) 90  
(c) 88 (d) 86
57. Mitansh and Nasib together can do a piece of work in 48 days and Otto can do it in 144 days. In how many days will Mitansh, Nasib and Otto can do it together?  
(a) 30 (b) 32  
(c) 34 (d) 36
58. Working together A, B and C can complete a work in 12 days. All the three worked together for 2 days and then C left. The remaining work was completed by A and B together in 15 days. In how many days can C alone complete the original work?  
(a) 30 (b) 36  
(c) 40 (d) 42
59. A can do a piece of work in 15 days, while B can do the same piece of work in 10 days. The time taken by both of them to do the same work together will be :  
(a) 12 days (b) 8 days  
(c) 6 days (d) 3 days
60. X, Y and Z can do a work in 24 days, 5 days and 12 days, respectively. In how many days can they do the same work if they work together?  
(a) 4 days (b)  $3\frac{1}{13}$  days  
(c)  $\frac{1}{24}$  days (d)  $\frac{7}{24}$  days
61. A labour gets Rs. 4800 for 16 days' work. How many days should he work to get Rs.8400?  
(a) 25 days (b) 28 days  
(c) 30 days (d) 32 days
62. The amount of money earned on a job is directly proportional to the number of hours worked. If ₹324 is earned in 6 hours, then how much money (in ₹) will be earned in 29 hours of work?  
(a) ₹1,676 (b) ₹1,566  
(c) ₹1,655 (d) ₹1,585
63. P and Q can do a work in 12 days and 9 days, respectively. They both worked together and earned Rs. 63,000. The share of P (in Rs. ) is:  
(a) 21,000 (b) 36,000  
(c) 9,000 (d) 27,000
64. If 56 workers earn ₹4,050 in 5 days, how much will 48 workers earn in 14 days?  
(a) ₹5,968 (b) ₹6,128  
(c) ₹9,720 (d) ₹9,980
65. Fifteen persons working 12 hours a day earn ₹18,000 per week. How many rupees will 18 persons working 9 hours a day earn per week?  
(a) ₹ 16,020 (b) ₹ 12,600  
(c) ₹ 12,060 (d) ₹ 16,200
66. Seven persons working for 8 hours a day can complete a work in 13 days. When they work  $6\frac{1}{2}$  hours a day and 9 more persons are brought to work, then in how many days will the work be completed?  
(a) 6 (b) 9  
(c) 7 (d) 8
67. A certain number of men can finish a piece of work in 40 days. If there were 4 men less, it would take 4 days more for the same work to be finished. How many men were there initially?  
(a) 42 (b) 38  
(c) 36 (d) 44
68. 3 men, 4 women and 6 children working together can finish a piece of work in 7 days. If each woman works twice as much as a man does, and each child does half as much as a man does, how many women, working together, can finish the work in 7 days?  
(a) 9 (b) 8  
(c) 7 (d) 10
69. 6 men can complete a work in 10 days. They start the work and after 2 days 2 men leave. In how many days will the work be completed by the remaining men?  
(a) 12 (b) 8  
(c) 7 (d) 9
70. If 35 persons can do a work in 6 days, then in how many days the same work will be done by 15 persons ?  
(a) 14 (b) 12  
(c) 10 (d) 8
71. Ratnesh and Vinnet worked on alternate days, starting with Ratnesh. The entire work got completed in  $54\frac{3}{4}$  days. If Ratnesh alone can finish the work in 48 days, then in how many days can vinnet alone do the work?  
(a) 60 (b) 64  
(c) 66 (d) 62
72. A work can be finished in a day by 20 men, or by 30 women, or by 50 boys. 2 men and 5boys work on alternate days and 6 women work on all days. If men work on the first day,the work is finished in \_\_\_\_ days.  
(a)  $4\frac{1}{3}$  (b)  $3\frac{1}{4}$   
(c)  $4\frac{1}{4}$  (d)  $3\frac{1}{3}$

73. Rani and Adya, working separately, can finish a task in 12 days and 16 days, respectively. They work in stretches of one day alternately. If Rani starts working first, then the task will be completed in  
(a)  $12\frac{1}{3}$  days (b)  $13\frac{2}{3}$  days  
(c)  $13\frac{1}{3}$  days (d)  $12\frac{2}{3}$  days
74. A and B can do a piece of work separately in 10 days and 8 days, respectively. If they work alternately and A begins the work, in how many days will the work be completed?  
(a) 8 (b) 10  
(c) 12 (d) 9
75. Sarthak and Mohan are working on alternate days in a workshop. Sarthak can complete the work in 20 days while Mohan can finish in 25 days. Sarthak works on the 1st day, Mohan on the 2nd day, and so on. How much time (in days) will they take on alternate basis?  
(a)  $22\frac{1}{3}$  (b)  $22\frac{1}{5}$   
(c) 23 (d)  $20\frac{1}{5}$
76. Raj and Rajat can finish a piece of work in 30 days and 40 days respectively. Raj started the work alone. After how many days should Rajat join him so that the work is finished in 24 days?  
(a) 12 days (b) 14 days  
(c) 16 days (d) 10 days
77. The wages of 10 workers for a six-day week are ₹1,200. What is the one-day wage of one worker?  
(a) ₹28 (b) ₹20  
(c) ₹24 (d) ₹16
78. If 6 men working 8 hours a day earn Rs 1680 per week, then 9 men working 6 hours a day will earn per week:  
(a) Rs 1680 (b) Rs 1920  
(c) Rs 2680 (d) Rs 1890
79. Working separately, A and B can complete a work in 15 days and 18 days, respectively. If A starts the work and they work on alternate days, one on each day, then in how many days will the work be completed?  
(a)  $15\frac{2}{3}$  (b)  $17\frac{1}{3}$   
(c)  $18\frac{2}{3}$  (d)  $16\frac{1}{3}$
80. Mohan and Anuj working separately can complete a piece of work in 12 and 15 days, respectively. If they work on alternate days, with Anuj beginning the work, in how many day(s) will the work be completed?
- (a)  $10\frac{1}{4}$  (b)  $13\frac{2}{5}$   
(c)  $11\frac{1}{4}$  (d)  $13\frac{2}{3}$
81. Pipe A can fill a tank in 153 minutes and Pipe B can empty the same tank in 306 minutes. If both pipes are opened together, how many minutes will it take to fill the empty tank?  
(a) 304 (b) 310  
(c) 306 (d) 308
82. 15 buckets are needed to fill a tank in 45 minutes. How long will it take for only 5 buckets of the same type to fill that tank?  
(a) 125 minutes (b) 135 minutes  
(c) 140 minutes (d) 130 minutes
83. Pipe A can fill a tank in 4 hours, while pipe B can empty it in 6 hours. If both the pipes are opened together, then the portion of tank filled in 70 minutes will be:  
(a)  $\frac{7}{72}$  (b)  $\frac{9}{70}$   
(c)  $\frac{7}{64}$  (d)  $\frac{9}{68}$
84. Pipe A and B can fill a tank in 18 hours and 27 hours, respectively. A and B are opened alternately for one hour each, starting with B in first hour. In how many hours will the tank be filled completely?  
(a) 21 (b) 22  
(c)  $21\frac{2}{3}$  (d)  $21\frac{3}{5}$
85. One pipe can fill a tank four times as fast as another pipe. If together the two pipes can fill the tank in 48 minutes, the slower pipe alone will be able to fill the tank in:  
(a) 192 minutes (b) 288 minutes  
(c) 240 minutes (d) 144 minutes
86. An airplane covers a distance of 1st 1500 km in 2.5 hours and another 900 kms in 3.5 hours. What is its average speed in km/hr?  
(a) 450 km/hr. (b) 400 km/hr.  
(c) 350 km/hr. (d) 300 km/hr.
87. A car travels 80 km at the speed of 20 km/h and the next 30 km at the speed of 30 km/h. What is its average speed?  
(a) 20 km/h (b) 22 km/h  
(c) 40 km/h (d) 30 km/h
88. A bus covers the first 70 km of its journey in 40 minutes and the remaining 60 km in 30 minutes. The average speed of the bus, in km/h, is:  
(a)  $109\frac{3}{7}$  (b)  $106\frac{5}{7}$   
(c)  $91\frac{2}{7}$  (d)  $111\frac{3}{7}$

89. A bus covers the first 50 km of its journey in 40 minutes and covers the remaining 75 km in 40 minutes. What is the average speed (in km/h) of the bus?  
 (a)  $101\frac{1}{4}$  (b)  $105\frac{3}{4}$   
 (c)  $93\frac{3}{4}$  (d)  $95\frac{1}{4}$
90. A drives at the rate of 45 km/h and reaches its destination 4 minutes late. If speed is 60 km/h, A reaches 5 minutes early. The distance traveled by A is:  
 (a) 24 km (b) 21 km  
 (c) 27 km (d) 30 km
91. A car travelling at a speed of 70 km/h overtakes a bus travelling in the same direction and leaves it 170 m behind in 18 seconds. What is the speed (in km/h) of the bus?  
 (a) 40 (b) 36  
 (c) 42 (d) 45
92. The driver of a car driving at 76 km/h locates a bus 150 m ahead of him going in the same direction. After 30 seconds, the bus is 120 m behind the car. What is the speed (in km/h) of the bus ?  
 (a) 43.6 (b) 42.5  
 (c) 42.2 (d) 41.8
93. A police travelling at 65 km/h is chasing a thief who is 1200 m away from him and is travelling at 41 km/h. Find the time taken by the policeman to catch the thief.  
 (a) 1 min (b) 3 min  
 (c) 2 min (d) 4 min
94. A policeman is chasing a thief at a speed of 12 km/h, and the thief is running at a speed of 8 km/h. If the policeman started 30 minutes late, find the time taken by the policeman to catch the thief.  
 (a) 120 minutes (b) 60 minutes  
 (c) 90 minutes (d) 100 minutes
95. A thief is noticed by a policeman from a distance of 500m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 17km/h and 20 km/h, respectively. What is the distance between them after 8 minutes?  
 (a) 100m (b) 180m  
 (c) 200m (d) 150m
96. A train 120 meters long is running at a speed of 60 km/h. It crosses a bridge in 24 seconds. What is the length of the bridge (in meters)?  
 (a) 520 (b) 480  
 (c) 280 (d) 400
97. Two trains 230 m and 270 m long are running in opposite directions at speeds of 42 km/h and 48 km/h, respectively. They cross each other in:  
 (a) 22 seconds (b) 20 seconds  
 (c) 25 seconds (d) 30 seconds
98. A train 348 m long is running at a speed of 36 km/hr. It crosses a bridge in 50 seconds. What is the length of the bridge?  
 (a) 176 m (b) 152 m  
 (c) 146 m (d) 103 m
99. A train, 364 meters long, passes a pole in 26 seconds. Find the speed of the train in meters per second.  
 (a) 14 m/sec (b) 11 m/sec  
 (c) 13 m/sec (d) 15 m/sec
100. A train starts from a place S at 10:00 a.m. and arrives at another place T at 1:30 p.m. on the same day. If the speed of the train is 35 m/s, then what will be the distance covered by the train?  
 (a) 450 km (b) 484 km  
 (c) 576 km (d) 441 km
101. The distance from Chandigarh to Amritsar is covered in 4.5 hours at a speed of 50 km/hr. By how much should the speed (in km/hr) be increased to save 30 minutes of travel time?  
 (a) 6.75 (b) 6  
 (c) 6.5 (d) 6.25
102. A man takes 5 hours 45 minutes in walking to a certain place and riding back. He would have taken 2 hours more by walking both the ways. The time he would take to ride both the ways is:  
 (a) 4 hours (b) 3 hours 15 minutes  
 (c) 3 hours 45 minutes (d) 2 hours 45 minutes
103. The speed ratio of A and B is 2 : 3. If A takes 30 minutes more than B to reach a destination, then in how many hours will B reach the destination?  
 (a)  $\frac{9}{2}$  (b) 2  
 (c)  $\frac{7}{2}$  (d) 1





- 104.** Two trains C and D starts moving from stations R and S respectively towards each other. Trains take 4 hours 16 minutes and 3 hours 45 minutes to reach S and R respectively after they meet each other. If the speed of train C is 60 km/hr, then what is the speed of the train D?  
(a) 64 km/hr (b) 72 km/hr  
(c) 48 km/hr (d) 56 km/hr
- 105.** A fast train takes 1 hour less than a slow train for a journey of 96 km. If the speed of the slow train is 8 km/h less than that of the fast train, then find the speeds of the fast train and slow train respectively.  
(a) 26 km/h, 34 km/h (b) 32 km/h, 24 km/h  
(c) 34 km/h, 28 km/h (d) 12 km/h, 14 km/h
- 106.** A boatman rows 2 km in 10 mins, along the stream and 12 km in 2 hours against the stream. What is the speed of the stream?  
(a) 4 km/h (b) 3.5 km/h  
(c) 3 km/h (d) 2.5 km/h
- 107.** A boat covers 24 km upstream and 36 km downstream in 10 hours, and 36 km upstream and 24 km downstream in 12 hours. The speed of the current is:  
(a) 33/13 km/h (b) 26/9 km/h  
(c) 24/7 km/h (d) 25/8 km/h
- 108.** Tarun gives Hari a head-start of 60 seconds in a 2400 m race and still beats him by 40 seconds. If the speed of Hari is 6 m/s, find the speed of Tarun.  
(a) 8.5 m/s (b) 7.5 m/s  
(c) 8 m/s (d) 7 m/s
- 109.** In a 200-m race, if A gives B a head start of 35 m, then A wins the race by 20 sec. Alternatively, if A gives B a head start of 55 m, the race ends in a dead heat. How long does A take to run 200 m?  
(a) 150 sec (b) 165 sec  
(c) 145 sec (d) 155 sec
- 110.** In a 3000 m race, if vehicle A gives vehicle B a start of 400 m, then vehicle A wins the race by 10 s. If vehicle A gives vehicle B a start of 750 m, then the race ends in a dead heat. How long does vehicle A take to run 3000 m?  
(a) 90.5 s (b) 100 s  
(c) 64.3 s (d) 92.5 s
- 111.** A person invested ₹50,000, partly at 10% and the rest at 12% per annum at simple interest. At the end of two years, the total interest received was ₹11,640. How much is the first and the second part of the investment?  
(a) ₹9,000; ₹41,000 (b) ₹31,000; ₹19,000  
(c) ₹20,000; ₹30,000 (d) ₹10,000; ₹40,000
- 112.** In how many years will ₹2,500 be invested at the rate of 12% per annum simple interest, which amounts to ₹4,900?  
(a) 4 (b) 6  
(c) 8 (d) 2
- 113.** A sum on simple interest at the rate of 5% per annum amounts to ₹4,160 in 6 years. Find the sum.  
(a) ₹2,900 (b) ₹2,800  
(c) ₹3,200 (d) ₹3,100
- 114.** Amit invests a sum of ₹5400 and Gopal invests a sum of ₹9400 at the same rate of simple interest per annum. If, at the end of 6 years, Gopal gets ₹960 more interest than Amit, then find the rate of interest per annum (in percentage).  
(a) 6 (b) 3  
(c) 4 (d) 2
- 115.** Find the simple interest when: (In Rs.) Principal = Rs. 4190, rate 5% p.a. and time = 12 years  
(a) 2514 (b) 2214  
(c) 2414 (d) 2314
- 116.** The effective annual rate of interest corresponding to 12% per annum payable quarterly, is (correct to two decimal places):  
(a) 13.25% (b) 12.75%  
(c) 12.55% (d) 13.75%
- 117.** At an annual interest rate of 8%, the compound interest on a newly invested sum for 2 years is ₹1331.20. What is the new principal (invested amount)?  
(a) ₹8000 (b) ₹9000  
(c) ₹6000 (d) ₹8500
- 118.** A sum of money doubles itself at a certain rate of compound interest (compounded annually) in 5 years. In how many years will it become 16 times of itself at the same rate of compound interest?  
(a) 20 years (b) 25 years  
(c) 30 years (d) 36 years
- 119.** The compound interest on a sum of ₹ 16000 for 3 years at 5% per annum, compounded annually, is :  
(a) ₹2518 (b) ₹2520  
(c) ₹2522 (d) ₹2524
- 120.** A sum on compound interest at a certain rate becomes ₹9,680 in 2 years and ₹11,712.80 in 4 years. What is the rate of interest?  
(a) 20% (b) 10%  
(c) 40% (d) 30%
- 121.** If at same rate of interest, in 2 years, the simple interest is Rs. 40 and compound interest is Rs. 56, then what is the principal (in Rs.)?  
(a) 25 (b) 18  
(c) 29 (d) 20



- 122.** If at same rate of interest, in 2 years, the simple interest is ₹40 and compound interest is ₹65, then what is the principal (in ₹)?  
 (a) 11 (b) 16  
 (c) 20 (d) 9
- 123.** When difference between compound and simple interest for three years is ₹228 at 4% interest per annum, the principal is ₹\_\_\_\_  
 (a) 46875 (b) 48075  
 (c) 47295 (d) 46300
- 124.** If an increase of 40% is observed on an amount in 4 years at simple interest, what will be the compound interest on ₹80,000 after 4 years at the same rate of interest?  
 (a) ₹39,724 (b) ₹29,728  
 (c) ₹17,128 (d) ₹37,128
- 125.** The compound interest accrued on a sum of ₹4400 at the end of 2 years is ₹1,119.36. What would be the simple interest on the same at the same rate for double the time?  
 (a) ₹2,211 (b) ₹2,121  
 (c) ₹2,122 (d) ₹2,112
- 126.** What annual instalment will discharge a debt of ₹10,192 due in 3 years at 10% simple interest?  
 (a) ₹3,044.48 (b) ₹3,088.48  
 (c) ₹3,144.48 (d) ₹3,188.48
- 127.** What annual instalment will discharge a debit of Rs. 5,664 in 4 years at 12% simple interest?  
 (a) Rs. 1,230 (b) Rs. 1,210  
 (c) Rs. 1,200 (d) Rs. 1,220
- 128.** What annual installment will discharge a debt of ₹5,460 due in 5 years at 10% simple interest per annum?  
 (a) ₹1,200 (b) ₹910  
 (c) ₹1,092 (d) ₹950
- 129.** A person borrowed Rs. 2,000 at 5% annual simple interest repayable in 3 equal annual installments. What will be the annual installment?  
 (a) Rs.  $730 \frac{10}{63}$  (b) Rs.  $840 \frac{9}{61}$   
 (c) Rs.  $640 \frac{11}{63}$  (d) Rs.  $250 \frac{10}{63}$
- 130.** The amount of debt that will be discharged by 5 equal monthly instalments of ₹1,845 each, at the rate of 48% simple interest per annum, is:  
 (a) ₹9,468 (b) ₹9,048  
 (c) ₹9,936 (d) ₹9,963
- 131.** Amit invests a sum of ₹5400 and Gopal invests a sum of ₹9400 at the same rate of simple interest per annum. If, at the end of 3 years, Gopal gets ₹840 more interest than Amit, then find the rate of interest per annum (in percentage).  
 (a) 5 (b) 7  
 (c) 9 (d) 6
- 132.** A certain sum is lent on simple interest at 4% p.a. for 3 years, 8% p.a. for the next 4 years, and 12% p.a. beyond 7 years. If for a period of 11 years, the simple interest obtained is ₹ 27,600, the sum is (in ₹):  
 (a) 28,000 (b) 25,000  
 (c) 30,000 (d) 32,000
- 133.** A person took a loan of ₹1,200 on simple interest for as many years as the rate of interest. If he paid ₹432 as interest at the end of the loan period, what was the rate of interest per annum?  
 (a) 9% (b) 8%  
 (c) 5% (d) 6%
- 134.** Ramesh lent some amount of money at 12% simple interest and an equal amount of money at 15% simple interest, each for 2 years. If his total interest was ₹ 675, the amount lent was (lent at 12%):  
 (a) ₹1,150 (b) ₹1,550  
 (c) ₹1,350 (d) ₹ 1,250
- 135.** A sum of ₹ 66,550 is taken on loan. This is to be paid back in two equal instalments. If the rate of interest is 20% compounded annually, find the value of each instalment.  
 (a) ₹42,560 (b) ₹44,550  
 (c) ₹40,550 (d) ₹ 43,560



## Solutions

S1. Ans.(c)	S35. Ans.(a)	S69. Ans.(a)	S103. Ans.(d)
S2. Ans.(b)	S36. Ans.(c)	S70. Ans.(a)	S104. Ans.(a)
S3. Ans.(d)	S37. Ans.(a)	S71. Ans.(b)	S105. Ans.(b)
S4. Ans.(d)	S38. Ans.(c)	S72. Ans.(d)	S106. Ans.(c)
S5. Ans.(c)	S39. Ans.(a)	S73. Ans.(b)	S107. Ans.(d)
S6. Ans.(d)	S40. Ans.(d)	S74. Ans.(d)	S108. Ans.(c)
S7. Ans.(d)	S41. Ans.(a)	S75. Ans.(b)	S109. Ans.(c)
S8. Ans.(c)	S42. Ans.(a)	S76. Ans.(c)	S110. Ans.(c)
S9. Ans.(d)	S43. Ans.(c)	S77. Ans.(b)	S111. Ans.(a)
S10. Ans.(b)	S44. Ans.(a)	S78. Ans.(d)	S112. Ans.(c)
S11. Ans.(d)	S45. Ans.(d)	S79. Ans.(d)	S113. Ans.(c)
S12. Ans.(d)	S46. Ans.(a)	S80. Ans.(b)	S114. Ans.(c)
S13. Ans.(c)	S47. Ans.(b)	S81. Ans.(c)	S115. Ans.(a)
S14. Ans.(b)	S48. Ans.(c)	S82. Ans.(b)	S116. Ans.(c)
S15. Ans.(b)	S49. Ans.(c)	S83. Ans.(a)	S117. Ans.(a)
S16. Ans.(b)	S50. Ans.(b)	S84. Ans.(c)	S118. Ans.(a)
S17. Ans.(c)	S51. Ans.(c)	S85. Ans.(c)	S119. Ans.(c)
S18. Ans.(a)	S52. Ans.(d)	S86. Ans.(b)	S120. Ans.(b)
S19. Ans.(d)	S53. Ans.(c)	S87. Ans.(b)	S121. Ans.(a)
S20. Ans.(d)	S54. Ans.(d)	S88. Ans.(d)	S122. Ans.(b)
S21. Ans.(c)	S55. Ans.(a)	S89. Ans.(c)	S123. Ans.(a)
S22. Ans.(d)	S56. Ans.(b)	S90. Ans.(c)	S124. Ans.(d)
S23. Ans.(c)	S57. Ans.(d)	S91. Ans.(b)	S125. Ans.(d)
S24. Ans.(b)	S58. Ans.(b)	S92. Ans.(a)	S126. Ans.(b)
S25. Ans.(a)	S59. Ans.(c)	S93. Ans.(b)	S127. Ans.(c)
S26. Ans.(b)	S60. Ans.(b)	S94. Ans.(b)	S128. Ans.(b)
S27. Ans.(a)	S61. Ans.(b)	S95. Ans.(a)	S129. Ans.(a)
S28. Ans.(a)	S62. Ans.(b)	S96. Ans.(c)	S130. Ans.(d)
S29. Ans.(c)	S63. Ans.(d)	S97. Ans.(b)	S131. Ans.(b)
S30. Ans.(c)	S64. Ans.(c)	S98. Ans.(b)	S132. Ans.(c)
S31. Ans.(b)	S65. Ans.(d)	S99. Ans.(a)	S133. Ans.(d)
S32. Ans.(b)	S66. Ans.(c)	S100. Ans.(d)	S134. Ans.(d)
S33. Ans.(b)	S67. Ans.(d)	S101. Ans.(d)	S135. Ans.(d)
S34. Ans.(a)	S68. Ans.(c)	S102. Ans.(c)	

## General Awareness

### History

#### Advent of Europeans:

European Power	Arrival (Year)	First Settlement	Key Personality	Important Battles/Events
Portuguese	1498	Calicut (Vasco da Gama)	Albuquerque	- Captured <b>Goa (1510)</b> - Introduced tobacco, pineapple - First to arrive
Dutch	1605	Masulipatnam	Pieter Both	- Established VOC (1602) - Defeated in <b>Battle of Bedara (1759)</b>
British	1600 (EIC formed)	Surat (1613)	Thomas Roe, Robert Clive	- <b>Battle of Plassey (1757)</b> - <b>Battle of Buxar (1764)</b> - Gained Bengal rights
French	1664	Pondicherry (1674)	Dupleix, Lally	- <b>Carnatic Wars (1746-63)</b> - Lost in <b>Third Carnatic War (1763)</b>
Danish	1616	Tranquebar (Tamil Nadu)	Ove Gjedde	- Settled at Serampore - Sold colonies to British in <b>1845</b>

#### Quick Facts for SSC:

- **First to come:** Portuguese (1498)
- **Last to leave:** Portuguese (Goa, 1961)
- **First factory by British:** Surat (1613)
- **British supremacy:** After **Plassey (1757)** and **Buxar (1764)**
- **French decline:** After **Third Carnatic War (1763)**
- **Dutch exit:** After **Battle of Bedara (1759)**
- **Danish exit:** Sold possessions in **1845**

#### Major Wars in Indian History

War	Year(s)	Fought Between	Result / Outcome
1st Carnatic War	1746-1748	British vs French	French captured Madras; ended by Treaty of Aix-la-Chapelle
2nd Carnatic War	1749-1754	British (Clive) vs French (Dupleix)	British gained influence in South India
3rd Carnatic War	1756-1763	British vs French	British victory; French lost political hold in India
1st Anglo-Mysore War	1767-1769	British vs Hyder Ali	Treaty of Madras; no clear winner
2nd Anglo-Mysore War	1780-1784	British vs Hyder Ali & Tipu Sultan	Treaty of Mangalore; status quo maintained
3rd Anglo-Mysore War	1790-1792	British vs Tipu Sultan	Treaty of Seringapatam; Tipu ceded half territory
4th Anglo-Mysore War	1799	British vs Tipu Sultan	Tipu Sultan killed; Mysore annexed
1st Anglo-Sikh War	1845-1846	British vs Sikh Empire (after Ranjit Singh)	Treaty of Lahore; British gained Jullundur
2nd Anglo-Sikh War	1848-1849	British vs Sikh Rebels	Punjab annexed by the British
1st Anglo-Afghan War	1839-1842	British vs Afghans	British retreat; military disaster
2nd Anglo-Afghan War	1878-1880	British vs Afghans	Treaty of Gandamak; British regained influence
3rd Anglo-Afghan War	1919	British India vs Afghanistan	Afghanistan's independence recognized

## Major Socio-Religious Reform Movements in India

Movement / Organization	Year	Founder / Leader	Main Objective / Focus
Brahmo Samaj	1828	Raja Ram Mohan Roy	- Opposed idol worship, caste system, sati - Promoted monotheism & women's rights
Arya Samaj	1875	Swami Dayanand Saraswati	- Vedas are supreme - Against idol worship, child marriage - Promoted Shuddhi
Ramakrishna Mission	1897	Swami Vivekananda	- Based on teachings of Ramakrishna Paramhansa - Social service & spiritual unity
Theosophical Society	1875 (US), 1879 (India)	Madame Blavatsky, Annie Besant	- Revival of Hindu philosophy, support for Indian self-rule
Aligarh Movement	1875	Sir Syed Ahmad Khan	- Modern education for Muslims - Founded Aligarh Muslim University
Ahmadiyya Movement	1889	Mirza Ghulam Ahmad	- Reform within Islam, opposed jihad, supported modern education
Young Bengal Movement	1830s	Henry Louis Vivian Derozio	- Radical, westernized ideas - Promoted liberty, equality, rationalism
Prarthana Samaj	1867	Atmaram Pandurang, later R.G. Bhandarkar	- Reform Hinduism - Opposed caste & rituals, promoted monotheism
Satya Shodhak Samaj	1873	Jyotiba Phule	- Upliftment of lower castes - Opposed Brahmanical dominance, promoted women's rights
Sri Narayana Dharma Paripalana (SNDP)	1903	Sri Narayana Guru	- Social equality in Kerala - "One caste, one religion, one God for mankind"
Servants of India Society	1905	Gopal Krishna Gokhale	- Social reform through education, health, and welfare work

## Important Sessions of Indian National Congress

The **Indian National Congress (INC)** was founded in **1885** by **A.O. Hume** to provide a platform for Indian voices in governance. It later became the **principal organization** leading India's struggle for **freedom from British rule**.

Year	Place	President	Significance / Resolution
1885	Bombay	W.C. Bonnerjee	1st Session; 72 delegates attended
1907	Surat	Rash Behari Ghosh	<b>Split</b> between Moderates and Extremists (Surat Split)
1916	Lucknow	Ambica Charan Mazumdar	<b>Lucknow Pact</b> between INC and Muslim League
1917	Calcutta	Annie Besant	First <b>woman president</b> of INC
1920	Nagpur	C. Vijayaraghavachariar	<b>Adoption of Non-Cooperation Movement</b> under Gandhi's influence
1924	Belgaum	Mahatma Gandhi	Only session presided by <b>Mahatma Gandhi</b>
1925	Kanpur	Sarojini Naidu	First <b>Indian woman president</b> of INC
1927	Madras	M.A. Ansari	Demand for <b>Complete Independence</b> raised by Jawaharlal Nehru

Year	Place	President	Significance / Resolution
1929	Lahore	Jawaharlal Nehru	<b>Poorna Swaraj (Complete Independence)</b> declared 26 Jan 1930 to be celebrated as <b>Independence Day</b>
1931	Karachi	Vallabhbhai Patel	Resolution on <b>Fundamental Rights and National Economic Program</b>
1938	Haripura	Subhas Chandra Bose	Focus on <b>economic planning</b> through National Planning Committee
1939	Tripuri	Subhas Chandra Bose (re-elected)	Bose resigned; <b>Rajendra Prasad</b> became acting president
1946	Meerut	J.B. Kripalani	Last session before independence; supported <b>Cabinet Mission Plan</b>

## Revolt of 1857:

Aspect	Details
<b>Date</b>	Started on <b>10 May 1857</b> in <b>Meerut</b>
<b>Main Cause (Immediate)</b>	<b>Use of greased cartridges</b> in Enfield rifles — rumoured to be made of cow and pig fat, offensive to both Hindus and Muslims
<b>Political Causes</b>	<ul style="list-style-type: none"> <li>- Doctrine of Lapse (introduced by Lord Dalhousie)</li> <li>- Annexation of Indian states</li> <li>- Disrespect for native rulers and titles</li> </ul>
<b>Economic Causes</b>	<ul style="list-style-type: none"> <li>- Exploitative land revenue policies (e.g., Permanent Settlement, Mahalwari)</li> <li>- Destruction of traditional industries</li> <li>- Peasant hardships</li> </ul>
<b>Military Causes</b>	<ul style="list-style-type: none"> <li>- Discrimination in promotions and salary</li> <li>- Indians barred from higher ranks</li> <li>- Use of sepoys outside India without extra pay</li> </ul>
<b>Social &amp; Religious Causes</b>	<ul style="list-style-type: none"> <li>- Spread of Christian missionary activities</li> <li>- Abolition of traditional practices (Sati, child marriage)</li> <li>- Fear of forced conversions</li> </ul>
<b>Major Centres of Revolt and leaders</b>	<ul style="list-style-type: none"> <li>• Delhi – <b>Bahadur Shah Zafar</b> – General John Nicholson, Lieutenant Hudson</li> <li>• Kanpur – <b>Nana Sahib</b> – General Henry Havelock, later Colin Campbell</li> <li>• Lucknow – <b>Begum Hazrat Mahal</b> – Henry Lawrence (initially), later Colin Campbell</li> <li>• Jhansi – <b>Rani Lakshmibai</b> – General Hugh Rose</li> <li>• Bareilly – <b>Khan Bahadur Khan</b> – Sir Colin Campbell</li> <li>• Gwalior – <b>Tantia Tope</b> – General Hugh Rose</li> <li>• Arrah (Bihar) – <b>Kunwar Singh</b> – William Taylor, Vincent Eyre</li> <li>• Meerut – <b>Mangal Pandey</b> – General William Hewitt, later General Wilson</li> </ul>
<b>Suppression of Revolt</b>	Brutal retaliation by the British; Delhi recaptured in <b>September 1857</b> ; revolt ended by <b>mid-1858</b>
<b>Consequences of the Revolt</b>	<ul style="list-style-type: none"> <li>- End of East India Company's rule</li> <li>- Beginning of <b>British Crown rule</b> (Queen Victoria's Proclamation in 1858)</li> </ul>
<b>Changes After Revolt</b>	<ul style="list-style-type: none"> <li>- Viceroy appointed (Lord Canning was the first)</li> <li>- Army reorganized to reduce Indian share</li> <li>- Policies became more cautious towards Indians</li> </ul>



### Partition of Bengal and activities during that period:

Event/Aspect	Details
<b>Date of Partition</b>	October 16, 1905
<b>Initiated by</b>	Lord Curzon, the then Viceroy of India
<b>Reason Stated by British</b>	Administrative convenience — Bengal was too large (80 million people) to govern efficiently.
<b>Actual British Motive</b>	"Divide and rule" — To weaken the nationalist movement by dividing Hindus and Muslims.
<b>Regions Affected</b>	- <b>Western Bengal (Hindu majority)</b> : Bihar, Orissa, and western Bengal. - <b>Eastern Bengal and Assam (Muslim majority)</b> : included Dacca, Chittagong, etc.
<b>Capital of New Province (East Bengal &amp; Assam)</b>	Dacca (now Dhaka)
<b>Swadeshi Movement (1905-1911)</b>	- Boycott of British goods - Promotion of Indian-made goods - Mass mobilization, especially by students, women, and the intelligentsia
<b>Key Leaders in Anti-Partition Movement</b>	- Bal Gangadhar Tilak, Bipin Chandra Pal, Lala Lajpat Rai, Surendranath Banerjee, Rabindranath Tagore
<b>Tagore's Role</b>	- Composed songs (e.g., <i>Amar Sonar Bangla</i> ) - Promoted Raksha Bandhan among Hindus and Muslims as a symbol of unity
<b>National Education Movement</b>	Set up indigenous institutions (e.g., Bengal National College), promoting Indian values and rejecting British-controlled education
<b>Muslim League Formation</b>	December 30, 1906 — British encouraged formation of <b>All India Muslim League</b> to counterbalance INC and nationalist movement
<b>Annulment of Partition</b>	Announced on December 12, 1911 (Delhi Durbar); implemented in 1912.
<b>New Capital</b>	Shifted from Calcutta to <b>Delhi</b> in 1911 to reduce Bengali influence
<b>Aftermath</b>	- Rise in communal politics - Hindu-Muslim divide deepened - Foundation laid for Muslim separatism

### Emergence of Mahatma Gandhi in India & Movements Led by Him

Aspect	Details
<b>Returned to India</b>	1915 (from South Africa, after 21 years)
<b>Initial Mentor in India</b>	Gopal Krishna Gokhale
<b>Early Work in India</b>	- Toured India to understand the real conditions - Promoted use of Khadi and village industries
<b>Famous movements led by him in South Africa</b>	Tolstoy Farm Establishment (1910), Natal Indian Congress (NIC) 1894

### Major Movements Led by Mahatma Gandhi

Movement	Year(s)	Place/Scope	Cause/Issue	Outcome/Impact
<b>Champaran Satyagraha</b>	1917	Bihar	Indigo farmers' exploitation	British forced to abolish the oppressive system
<b>Kheda Satyagraha</b>	1918	Gujarat	Farmers demanded tax relief after crop failure	Tax was suspended; Gandhi gained more support among peasants
<b>Ahmedabad Mill Strike</b>	1918	Ahmedabad, Gujarat	Dispute over wages between workers and mill owners	Gandhi used <i>hunger strike</i> ; mill owners had to settle fairly

Movement	Year(s)	Place/Scope	Cause/Issue	Outcome/Impact
Rowlatt Satyagraha	1919	Nationwide	Protest against Rowlatt Act (arbitrary arrest without trial)	Led to <b>Jallianwala Bagh Massacre</b> ; first nationwide movement
Non-Cooperation Movement	1920–1922	All India	Jallianwala Bagh tragedy, Khilafat issue, dissatisfaction with British rule	Mass resignation from jobs/titles; ended after <b>Chauri Chaura</b> incident (1922)
Salt Satyagraha (Dandi March)	1930	Dandi, Gujarat (All India later)	Protest against British salt law	Massive participation; symbolic defiance of British rule
Civil Disobedience Movement	1930–1934	All India	Extension of Salt Satyagraha to broader defiance (taxes, laws)	Partial success; Gandhi-Irwin Pact signed in 1931; movement withdrawn and revived multiple times
Gandhi-Irwin Pact	1931	Delhi (Agreement)	Truce between Gandhi and British Government	Congress agreed to suspend Civil Disobedience; Gandhi participated in Round Table Conference
Quit India Movement	1942	All India	Demand for immediate British withdrawal during World War II	<b>“Do or Die”</b> slogan; mass arrests including Gandhi

### Quit India Movement:

Aspect	Details
Name of the Movement	Quit India Movement (also known as <i>Bharat Chhodo Andolan</i> )
Date Launched	8 August 1942
Place of Launch	Bombay (now Mumbai), at the Gowalia Tank Maidan (August Kranti Maidan)
Launched By	Indian National Congress
Leader of the Movement	Mahatma Gandhi
Gandhi's Slogan	<i>"Do or Die"</i>
Reason for Launch	<ul style="list-style-type: none"> <li>- Failure of the Cripps Mission (1942)</li> <li>- Growing resentment against British rule</li> <li>- Demanding immediate independence</li> </ul>
Congress Resolution	Passed at the <b>All India Congress Committee</b> session on 8 August 1942, demanding British withdrawal from India
Main Demands	<ul style="list-style-type: none"> <li>- End British rule in India immediately</li> <li>- Let Indians form their own government</li> </ul>
Nature of Movement	Mass civil disobedience and non-violent protest; later turned violent in some parts due to lack of leadership after arrests
Government Response	<ul style="list-style-type: none"> <li>- Massive crackdown</li> <li>- Congress leaders arrested (including Gandhi, Nehru, Patel, Azad)</li> <li>- Press banned, public gatherings outlawed</li> </ul>
Key Leaders Arrested	<ul style="list-style-type: none"> <li>- Mahatma Gandhi</li> <li>- Jawaharlal Nehru</li> <li>- Sardar Vallabhbhai Patel</li> <li>- Maulana Azad</li> <li>- Rajendra Prasad</li> </ul>
Gandhi's Place of Detention	Aga Khan Palace, Pune
Duration	August 1942 to 1944 (active mostly in 1942)

Aspect	Details
<b>Parallel Governments</b>	Set up in some places (e.g., Ballia in UP by Chittu Pandey, Satara in Maharashtra, Tamluk in Bengal)
<b>Role of Women &amp; Youth</b>	Active participation from women like Aruna Asaf Ali, Usha Mehta (ran secret radio), and many students and youth
<b>Impact</b>	<ul style="list-style-type: none"> <li>- United Indians against colonial rule</li> <li>- British realized they couldn't govern without Indian support</li> <li>- Set tone for independence</li> </ul>
<b>Final Outcome</b>	Though suppressed violently, the movement became a turning point and laid groundwork for independence in 1947

### Tripartite Struggle:

Aspect	Details
<b>What is the Tripartite Struggle?</b>	A prolonged struggle for control over <b>Kannauj</b> in North India among three major powers during the 8th–10th centuries CE
<b>Main Contenders</b>	<ol style="list-style-type: none"> <li>1. <b>Gurjara-Pratiharas</b> (from western India)</li> <li>2. <b>Palas</b> (from eastern India/Bengal)</li> <li>3. <b>Rashtrakutas</b> (from Deccan)</li> </ol>
<b>Important Region of Conflict</b>	<b>Kannauj</b> – A symbol of imperial power in North India
<b>Period of Struggle</b>	Circa <b>750 CE to 1000 CE</b>
<b>Significance of Kannauj</b>	Politically and strategically important city; controlling Kannauj meant controlling northern India
<b>Founder of Pal Dynasty</b>	<b>Gopala</b>
<b>Famous Pala Ruler</b>	<b>Dharampala</b> – Took control of Kannauj and installed a puppet ruler
<b>Gurjara-Pratihara Leader</b>	<b>Nagabhata I</b> – repelled Arab invasions <b>Mihir Bhoja</b> – strong ruler who contested Kannauj
<b>Rashtrakuta Leader</b>	<b>Dhruva</b> and <b>Govinda III</b> – made successful campaigns towards North and occupied Kannauj briefly
<b>Result of the Struggle</b>	No clear victor; power kept shifting among the three Eventually <b>Pratihars gained upper hand</b>
<b>Impact on Indian Politics</b>	<ul style="list-style-type: none"> <li>- Led to political fragmentation</li> <li>- Weakened all three empires</li> <li>- Opened doors for regional powers</li> </ul>
<b>Cultural Impact</b>	Despite war, each dynasty contributed to <b>art, architecture, and literature</b>
<b>End of the Struggle</b>	By the <b>end of 10th century</b> , the struggle waned; new powers like <b>Cholas</b> and <b>Delhi Sultanate</b> rose later

### Delhi Sultanate:

Dynasty	Period	Important Rulers	Key Contributions / Events
<b>Mamluk (Slave)</b>	1206–1290	- Qutb-ud-din Aibak- Iltutmish- Razia Sultana	- Aibak built <i>Quwwat-ul-Islam Mosque</i> , laid foundation of <i>Qutub Minar</i> - Iltutmish introduced <b>Iqtadari system</b> and completed Qutub Minar- Razia Sultana: First and only <b>female ruler</b> of Delhi
<b>Khilji</b>	1290–1320	- Alauddin Khilji	- Introduced <b>market reforms</b> to control prices- Successfully <b>defeated Mongols</b> - Expanded empire to <b>South India</b> - Patronized <b>art and architecture</b>

Dynasty	Period	Important Rulers	Key Contributions / Events
<b>Tughlaq</b>	1320–1414	- Muhammad bin Tughlaq- Firoz Shah Tughlaq	- Muhammad bin Tughlaq introduced <b>token currency</b> (failed) and shifted capital to <b>Daulatabad</b> (unsuccessful)- Firoz Shah built <b>canals, madrasas, and public works</b> projects
<b>Sayyid</b>	1414–1451	- Khizr Khan	- Weak rulers who were <b>vassals of Timur (Tamerlane)</b> - Limited territory and influence- No major expansion or development
<b>Lodi</b>	1451–1526	- Bahlol Lodi- Sikandar Lodi- Ibrahim Lodi	- Last <b>Afghan dynasty</b> in India- Sikandar Lodi developed <b>Agra</b> as a cultural center- <b>Ibrahim Lodi</b> defeated by <b>Babur</b> in the <b>First Battle of Panipat (1526)</b> , marking end of Sultanate

## Vijaynagar Empire

Aspect	Details
<b>Founded In</b>	1336 CE
<b>Founders</b>	Harihara I and Bukka Raya I (Sangama Dynasty)
<b>Capital</b>	Vijayanagara (modern Hampi, Karnataka)
<b>Purpose of Foundation</b>	To resist Muslim invasions and protect Hindu culture in South India
<b>Dynasties</b>	1. Sangama 2. Saluva 3. Tuluva 4. Aravidu
<b>Greatest Ruler</b>	Krishnadeva Raya (Tuluva dynasty)
<b>Reign of Krishnadeva Raya</b>	1509–1529 CE
<b>Military Strength</b>	Strong cavalry, usage of elephants, fortifications
<b>Administration</b>	Centralized monarchy, Nayankara system (feudatory chiefs called Nayakas)
<b>Language &amp; Literature</b>	Telugu, Sanskrit, Kannada, Tamil literature flourished
<b>Famous Books</b>	Amuktamalyada (Krishnadeva Raya), Rajatarangini (historical work)
<b>Architecture</b>	Dravidian style temples (e.g., Vittala Temple, Hampi)
<b>Foreign Visitors</b>	Niccolò de Conti, Abdur Razzaq, Domingo Paes, Barbosa
<b>Decline Reason</b>	Defeated in <b>Battle of Talikota (1565)</b> by Deccan Sultanates

## Bahamani Kingdom

Aspect	Details
<b>Founded In</b>	1347 CE
<b>Founder</b>	Ala-ud-Din Bahman Shah (Hasan Gangu)
<b>Capital(s)</b>	Gulbarga (original), shifted to Bidar
<b>Important Rulers</b>	Muhammad Shah I, Firuz Shah Bahmani, Humayun Shah, Mahmud Gawan (PM)
<b>Famous Prime Minister</b>	<b>Mahmud Gawan</b> – Scholar and reformer, strengthened central authority
<b>Administrative Reforms</b>	- Provincial divisions (taraf system) - Revenue reforms - Madrasas & promotion of Persian education
<b>Conflict With</b>	Vijayanagar Empire (multiple wars for territory)
<b>Architecture</b>	Indo-Islamic style; Persian influence; buildings in Gulbarga and Bidar; Mahmud Gawan Madrasa in Bidar
<b>Decline</b>	Political infighting, execution of Mahmud Gawan, fragmentation into 5 Deccan Sultanates in 1518

## The 5 Deccan Sultanates (Post-Bahamani)

Sultanate	Capital	Notable Rulers	Architectural Contributions
<b>Bijapur</b>	Bijapur (Karnataka)	Yusuf Adil Shah, Ibrahim Adil Shah II	<b>Gol Gumbaz</b> (whispering dome), Ibrahim Rauza, Jama Masjid
<b>Golconda</b>	Hyderabad (Telangana)	Quli Qutb Shah, Muhammad Quli Qutb Shah	<b>Charminar</b> , Golconda Fort, Qutb Shahi tombs
<b>Ahmadnagar</b>	Ahmadnagar (Maharashtra)	Malik Ahmad Nizam Shah, Burhan Nizam Shah	Farah Bagh, tombs at Ahmednagar, Chand Bibi's fort
<b>Berar</b>	Ellichpur (Maharashtra)	Fathullah Imad-ul-Mulk	Less architectural activity; known for Islamic calligraphy and modest regional structures
<b>Bidar</b>	Bidar (Karnataka)	Qasim Barid I (Barid Shahi dynasty founder)	<b>Bidar Fort</b> , Barid Shahi tombs, Rangin Mahal

## Bhakti and Sufi Movements

Aspect	Bhakti Movement	Sufi Movement
<b>Origin</b>	South India (7th–8th century), spread to North India in 15th century	Arab world (8th century), India by 11th–12th century
<b>Main Idea</b>	Devotion to a personal god; emotional and spiritual connection	Love and devotion to God (Allah); mystical Islamic path
<b>Language Used</b>	Regional languages (Hindi, Marathi, Tamil, Kannada, etc.)	Persian, Urdu, local dialects
<b>Prominent Saints</b>	Ramanuja, Kabir, Tulsidas, Meera Bai, Ravidas, Namdev, Chaitanya	Khwaja Moinuddin Chishti, Nizamuddin Auliya, Sheikh Salim Chishti
<b>Key Features</b>	<ul style="list-style-type: none"> <li>- Monotheism</li> <li>- Against caste system</li> <li>- Inner purity &amp; devotion</li> </ul>	<ul style="list-style-type: none"> <li>- Inner spirituality</li> <li>- Music (Qawwali)</li> <li>- Against materialism</li> </ul>
<b>Philosophy Schools</b>	Nirguna Bhakti (Kabir, Nanak – formless God) Saguna Bhakti (Meera, Tulsidas – God with form)	Chishti, Suhrawardi, Qadiri, Naqshbandi orders
<b>Texts / Writings</b>	Bhajans, Dohas, Ramcharitmanas (Tulsidas), Bijak (Kabir)	Malfuzat (discourses), Qawwalis, Fawa'id-ul-Fuad
<b>Impact on Society</b>	<ul style="list-style-type: none"> <li>- Upliftment of lower castes</li> <li>- Use of local languages</li> <li>- Hindu-Muslim unity</li> </ul>	<ul style="list-style-type: none"> <li>- Religious tolerance</li> <li>- Communal harmony</li> <li>- Spread of Islam with Indian traditions</li> </ul>

## Mughals

S.No.	Mughal Emperor	Reign (AD)	Key Contributions & Policies	Major Wars / Events	Cultural & Architectural Achievements
<b>1</b>	<b>Babur</b>	1526–1530	- Founded Mughal Empire - Introduced artillery in India	- First Battle of Panipat (1526) – Defeated Ibrahim Lodi - Battle of Khanwa (1527) vs Rana Sanga	Wrote <i>Baburnama</i> in Turkish
<b>2</b>	<b>Humayun</b>	1530–1540 1555–1556	- Weak ruler- Lost to Sher Shah Suri- Regained throne with Persian help	- Battle of Chausa (1539) - Battle of Kannauj (1540) - Died after falling from stairs	Built Dinpanah (Delhi); patron of Persian culture



S.No.	Mughal Emperor	Reign (AD)	Key Contributions & Policies	Major Wars / Events	Cultural & Architectural Achievements
3	Akbar	1556-1605	- Expanded empire widely- Introduced <b>Mansabdari System, Din-i-Ilahi, Sulh-i-Kul</b> - Abolished Jizya	- Second Battle of Panipat (1556) vs Hemu- Conquests: Gujarat, Bengal, Rajputana, Deccan	Fatehpur Sikri, Buland Darwaza, Akbarnama by Abul Fazl
4	Jahangir	1605-1627	- Continued Akbar's policies- Strong justice system- Allowed British to trade	- Rebellion by son Khusrav - Captured Rana Amar Singh of Mewar	Shalimar Garden (Kashmir), patron of painting
5	Shah Jahan	1628-1658	- Peak of Mughal architecture- Stable administration- Decline in military focus	- Fought Deccan campaigns - War of succession among sons (Dara, Aurangzeb)	<b>Taj Mahal</b> , Red Fort, Jama Masjid, Peacock Throne
6	Aurangzeb	1658-1707	- Orthodox Sunni Muslim- Re-imposed Jizya- Expanded to south India- Longest ruler	- Battles with Marathas (Shivaji) - Revolts: Jats, Satnamis, Sikhs, Rajputs	Built Badshahi Mosque (Lahore), Bibi Ka Maqbara
7	Bahadur Shah I	1707-1712	- Tried to consolidate empire- Peace with Rajputs and Marathas	- Decline of central authority began	None significant
8	Later Mughals	1712-1857	- Weak rulers- Empire disintegrated- symbolic under British control	- Nadir Shah (1739) and Ahmad Shah Abdali (1757) invasions- 1857: Bahadur Shah Zafar deported to Rangoon	Zafar: poet; Red Fort used by British

## Marathas

S.No.	Ruler	Reign Period	Key Contributions / Achievements	Major Wars / Events	Important Notes
1	Shivaji Maharaj	1674-1680 (Coronation)	- Founder of Maratha Empire- Introduced <b>Ashta Pradhan Council</b> , forts, disciplined army	- Fought Mughals, Bijapur- Treaty of Purandar (1665)- Escaped from Agra (1666)	Coronated in 1674 at Raigad; known for guerrilla warfare and administration
2	Sambhaji	1681-1689	- Son of Shivaji- Continued resistance against Aurangzeb	- Captured and executed by Aurangzeb in 1689	Strong-willed leader but faced betrayal
3	Rajaram	1689-1700	- Continued struggle after Sambhaji- Shifted base to Ginjee Fort	- Deccan wars with Aurangzeb	Fought from South; kept Maratha movement alive
4	Tarabai (Regent)	1700-1707	- Wife of Rajaram- Ruled as regent for son Shivaji II	- Continued resistance against Mughals	Able administrator and military leader
5	Shahu Maharaj	1707-1749	- Grandson of Shivaji- Released by Mughals after Aurangzeb's death	- Won Battle of Khed against Tarabai (1707)- Appointed Baji Rao I as Peshwa	Empire expanded under Peshwa rule during his reign
6	Ramaraja (Nominal King)	1749-1777	- Puppet king under Peshwas	- Era dominated by powerful Peshwas	Based in Satara; no real power

## Peshwas (Prime Ministers) – De Facto Rulers After Shahu

S.No.	Peshwa Name	Term	Key Contributions / Notes	Major Events
1	Balaji Vishwanath	1713–1720	- First hereditary Peshwa- Laid foundation for Peshwa dominance	Treaty with Sayyid brothers
2	Baji Rao I	1720–1740	- Greatest Peshwa- Expanded Maratha Empire northward - Never lost a battle	Defeated Nizam; won Battle of Palkhed (1728)
3	Balaji Baji Rao (Nanasaheb)	1740–1761	- Empire reached greatest extent- Weak leadership at Panipat	<b>Third Battle of Panipat (1761)</b> vs Abdali – Massive defeat
4	Madhav Rao I	1761–1772	- Restored Maratha power after Panipat disaster	Revived administration, economy, and military
5	Narayan Rao	1772–1773	- Murdered in conspiracy by uncle Raghunath Rao	Shortest reign
6	Raghunath Rao (Claimant)	1773–1774 (Contested)	- British-supported claimant during First Anglo-Maratha War	Treaty of Surat (1775)
7	Madhav Rao II (Posthumous)	1774–1796	- Puppet Peshwa- Ruled under regency of Nana Fadnavis	First & Second Anglo-Maratha Wars
8	Baji Rao II	1796–1818	- Last Peshwa- Defeated by British in Third Anglo-Maratha War	Exiled to Bithoor after defeat (1818); end of Peshwa rule

## Chola Empire

Category	Details
Time Period	9th to 13th century CE
Founder	<b>Vijayalaya Chola</b> (mid-9th century CE)
Capital Cities	<b>1. Thanjavur (Tanjore) 2. Gangaikonda Cholapuram</b>
Language & Culture	Tamil language; Shaivism major religion; tolerant to Vaishnavism and Buddhism
Important Rulers	<ul style="list-style-type: none"> <li>• <b>Rajaraja I (985–1014 CE)</b> – Expanded empire, built Brihadeshwara Temple</li> <li>• <b>Rajendra I (1014–1044 CE)</b> – Naval expeditions to SE Asia</li> <li>• <b>Kulottunga I</b> – Trade reforms and temple patronage</li> </ul>
Territorial Extent	South India, Sri Lanka, Maldives, Andaman-Nicobar, and Southeast Asia (Srivijaya kingdom – Sumatra)
Administration	Centralized monarchy; <b>village self-governance (ur &amp; sabha)</b> ; local bodies had <b>autonomy in revenue and justice</b>
Economy & Trade	Thriving maritime trade with China, Southeast Asia, Arabia; major exports: <b>spices, textiles, pearls</b>
Literature	Flourishing Tamil literature; support to Saiva and Vaishnava Bhakti poets (e.g., <b>Appar, Sundarar</b> )
Major Temples Built	<ol style="list-style-type: none"> <li>1. <b>Brihadeshwara Temple</b> (Thanjavur) – by Rajaraja I</li> <li>2. <b>Gangaikonda Cholapuram Temple</b> – by Rajendra I</li> <li>3. <b>Airavatesvara Temple</b> (Darasuram) – by Rajaraja II</li> </ol>
Architectural Style	<b>Dravidian style</b> with large vimanas (temple towers), gopurams (gateways), and granite sculptures

Category	Details
UNESCO World Heritage Sites	<b>Great Living Chola Temples:</b> Brihadeshwara, Gangaikonda Cholapuram, Airavatesvara
Temple Features	<ul style="list-style-type: none"> <li>• Tall vimanas (e.g., 66m at Brihadeshwara)</li> <li>• Massive stone sculptures</li> <li>• Bronze casting (e.g., Nataraja idol)</li> </ul>
Notable Art Contribution	Chola <b>bronze sculptures</b> (esp. Nataraja – cosmic dancer); advanced lost-wax casting technique
Decline	Weakened by Pandya rise and Hoysala conflict; Delhi Sultanate invasion (Malik Kafur, 1311 CE) ended the dynasty

## Important South Indian Dynasties – Medieval Period

Dynasty	Time Period	Capital	Founders / Key Rulers	Key Achievements	Temples / Architecture
Cholas	9th–13th century CE	Thanjavur, Gangaikonda Cholapuram	Vijayalaya Chola, Rajaraja I, Rajendra I	Strong navy, overseas expeditions to SE Asia, village administration system	Brihadeshwara Temple, Gangaikonda Cholapuram, Airavatesvara Temple; Dravidian style; bronze sculptures
Pallavas	6th–9th century CE	Kanchipuram	Simhavishnu, Mahendravarman I, Narasimhavarman I (Mamalla)	Patrons of architecture and Sanskrit-Tamil culture; constant conflicts with Chalukyas	Shore Temple & Pancha Rathas (Mahabalipuram), Rock-cut temples; beginning of Dravidian temple architecture
Chalukyas	6th–12th century CE	Badami (Early), Kalyani (Later)	Pulakeshin I (Early), Vikramaditya VI (Later)	Fought with Pallavas and Rashtrakutas; introduced Vesara style architecture	Cave Temples of Badami, Virupaksha Temple at Pattadakal (UNESCO); Vesara style
Rashtrakutas	8th–10th century CE	Manyakheta (Malkhed)	Dantidurga, Govinda III, Amoghavarsha I	Ruled large parts of Deccan; patrons of literature and art	Kailasa Temple at Ellora (Rock-cut, monolithic marvel); Sanskrit & Kannada literary works
Hoysalas	11th–14th century CE	Dwarasamudra (Halebidu)	Nripa Kama II, Vishnuvardhana	Known for intricate temple sculpture; patrons of Kannada literature	Chennakesava Temple (Belur), Hoysaleswara Temple (Halebidu); intricate soapstone carvings
Vijayanagara	1336–1646 CE	Hampi	Harihara I & Bukka I (Sangama dynasty)	Last great Hindu empire of South India; resisted Muslim invasions; administrative excellence	Vittala Temple (stone chariot), Virupaksha Temple; Hampi (UNESCO site); blend of Indo-Islamic-Dravidian styles

## Stone Age (Complete Overview)

Category	Details
<b>Definition</b>	The Stone Age is the prehistoric period when humans primarily used stone tools. It marks the beginning of human history.
<b>Major Divisions</b>	<ol style="list-style-type: none"> <li><b>Paleolithic Age</b> (Old Stone Age)</li> <li><b>Mesolithic Age</b> (Middle Stone Age)</li> <li><b>Neolithic Age</b> (New Stone Age)</li> </ol>
<b>Timeline</b>	<ul style="list-style-type: none"> <li>Paleolithic: <b>2 million – 10,000 BCE</b></li> <li>Mesolithic: <b>10,000 – 8,000 BCE</b></li> <li>Neolithic: <b>8,000 – 1,000 BCE</b></li> </ul>
<b>Tool Material</b>	<ul style="list-style-type: none"> <li>Paleolithic: Crude stone tools</li> <li>Mesolithic: Microliths (small tools)</li> <li>Neolithic: Polished stone tools</li> </ul>
<b>Tool Usage</b>	Used for hunting, cutting, scraping, and digging.
<b>Discovery of Fire</b>	Discovered in <b>Paleolithic Age</b> – used for cooking, protection, and warmth.
<b>Art and Culture</b>	<ul style="list-style-type: none"> <li>Bhimbetka cave paintings (MP)</li> <li>Engravings on stones</li> <li>Religious practices in Neolithic Age</li> </ul>
<b>Food Habits</b>	<ul style="list-style-type: none"> <li>Paleolithic: Hunter-gatherers</li> <li>Mesolithic: Semi-nomadic, fishing</li> <li>Neolithic: Agriculture and domestication</li> </ul>
<b>Settlements</b>	<ul style="list-style-type: none"> <li>Paleolithic: Nomadic</li> <li>Mesolithic: Temporary shelters</li> <li>Neolithic: Permanent mud-brick houses</li> </ul>
<b>Animal Domestication</b>	Began in <b>Neolithic Age</b> – dog, sheep, goat, cattle.
<b>Start of Agriculture</b>	Started in <b>Neolithic Age</b> – wheat and barley cultivation.
<b>Pottery</b>	<ul style="list-style-type: none"> <li>Absent in Paleolithic</li> <li>Began in late Mesolithic</li> <li>Fully developed in Neolithic Age</li> </ul>
<b>Burial Practices</b>	Present in <b>Neolithic Age</b> – graves with goods, indicating belief in afterlife.
<b>Cave Art (India)</b>	<b>Bhimbetka (Madhya Pradesh)</b> – red and white cave paintings depicting animals and humans.
<b>Transition to Metal Age</b>	Around <b>2000 BCE</b> , began the <b>Chalcolithic Age</b> (use of copper + stone tools).

## 🔑 Important Stone Age Sites in India

Age	Site	State	Significance
<b>Paleolithic</b>	Bhimbetka	Madhya Pradesh	Rock shelters, cave paintings (UNESCO site)
	Hunsgi	Karnataka	Lower Paleolithic tools
	Pahalgam	Jammu & Kashmir	Early stone tools
<b>Mesolithic</b>	Bagor	Rajasthan	Largest Mesolithic site in India
	Sarai Nahar Rai	Uttar Pradesh	Evidence of semi-nomadic culture
<b>Neolithic</b>	Mehrgarh (Now in Pakistan)	Balochistan region	Earliest evidence of farming & domestication
	Burzahom	Jammu & Kashmir	Pit dwellings, bone tools
	Chirand	Bihar	Neolithic settlement with rice cultivation
	Mahagara	Uttar Pradesh	Evidence of cattle domestication
	Maski	Karnataka	Neolithic habitation and tools



## Quick Revision Facts (SSC Oriented)

Fact	Answer
First tool-using hominid	Homo habilis
Discovery of fire	Paleolithic Age
First animal domesticated	Dog
First crops cultivated	Wheat and barley
First permanent settlements	Neolithic Age
Site with earliest cave paintings	Bhimbetka (MP)
Mesolithic site with microlith tools	Bagor (Rajasthan)
Neolithic site with pit dwellings	Burzahom (J&K)
Start of metal use (Copper + Stone tools)	Chalcolithic Age (~2000 BCE)

## Indus Valley Civilization

Category / Aspect	Details
Alternate Names	Harappan Civilization / Bronze Age Civilization
Time Period	2500 BCE – 1750 BCE (Mature Phase)
Discovered By	Daya Ram Sahni (Harappa, 1921) and R.D. Banerjee (Mohenjo-daro, 1922)
Geographical Extent	Northwest India and Pakistan – Punjab, Sindh, Gujarat, Rajasthan, Haryana
Major Rivers	Indus, Ravi, Sutlej, Ghaggar-Hakra, Saraswati (now dried)
Total Sites Excavated (India)	Over 1,400 sites; 900+ in India
Nature of Civilization	Urban, well-planned, drainage-based civilization
Important Cities	Harappa, Mohenjo-daro, Dholavira, Lothal, Kalibangan, Rakhigarhi, Banawali, Surkotada
City Planning	Grid pattern – roads at right angles
Drainage System	Covered underground drains with inspection holes
Building Material	Burnt bricks and sun-dried bricks
Great Bath	Mohenjo-daro – ritual bathing tank
Granaries	Harappa and Mohenjo-daro – used for grain storage
Dockyard	Lothal (Gujarat) – man-made dockyard indicating sea trade
Stadium	Dholavira (Gujarat) – had a stadium-like structure
Fire Altars	Kalibangan (Rajasthan) – evidence of fire worship
Largest Site (India)	Rakhigarhi (Haryana)
Smallest Site	Allahdino (Sindh, Pakistan)
Society	Peaceful, no evidence of kings or palaces
Main Occupations	Agriculture, trade, pottery, bead-making, seal carving
Agriculture	Crops: Wheat, barley, peas, sesame, cotton (first in world)
Domesticated Animals	Ox, buffalo, goat, sheep, elephant, dog (no confirmed horse evidence)
Trade	Internal and external – traded with Mesopotamia (Sumerians)
Currency	No coins; barter system
Weighing System	Binary & decimal systems; cubical stone weights

Category / Aspect	Details
Pottery	Wheel-made red and black pottery
Ornaments	Gold, silver, copper, semi-precious stones; worn by men and women
Toys & Tools	Terracotta toys, marbles, carts, tools of stone, bronze, and copper
Script	Pictographic, written right to left (sometimes bidirectional); still undeciphered
Religion	Mother goddess, proto-Shiva (Pashupati seal), animal & tree worship (Peepal); no temples or idols
Burial Practices	Complete burial, urn burial, symbolic burial; grave goods suggest belief in afterlife
Dancing Girl (Bronze)	Mohenjo-daro – metallic figurine, confident pose, right hand on hip
Priest King (Steatite)	Mohenjo-daro – dignified bearded male figure
Terracotta Figurines	Harappa & Mohenjo-daro – animals, toys, mother goddess statues
Water Reservoir	Dholavira – earliest known water conservation structure
Ploughed Field	Kalibangan – first evidence of agricultural field
First Site Discovered	Harappa (1921) by Daya Ram Sahni
Most Developed City	Mohenjo-daro
Port City	Lothal (Gujarat)
Use of Cotton	First in the world – Neolithic IVC
Trade Partner	Mesopotamia (Sumerians)

## VEDIC AGE (1500 BCE – 600 BCE)

Aspect	Early Vedic Period (1500–1000 BCE)	Later Vedic Period (1000–600 BCE)
Main Source	Rigveda (Oldest Veda)	Samaveda, Yajurveda, Atharvaveda, Brahmanas, Upanishads
Geographical Area	Punjab and Indo-Gangetic plains (Sapta Sindhu region)	Eastern Uttar Pradesh and Bihar (expansion towards Ganga valley)
Polity	Tribal kingdoms (Jana), no strong kingship	Emergence of Mahajanapadas, stronger monarchies, hereditary kings
Popular Assemblies	Sabha (elderly) and Samiti (general) held political power	Decline of assemblies; kings gained authority
Society	Patriarchal, no rigid varna system, women had freedom (education, remarriage allowed)	Varna system became rigid, women's status declined
Economy	Pastoral economy, cows = wealth, limited agriculture	Agriculture became primary, iron tools improved farming
Trade	Barter system; internal trade	Emergence of coins (Nishka, Satamana), trade with distant regions
Religion	Nature worship: Indra (rain), Agni (fire), Varuna (cosmic order), Soma	Rise of rituals and sacrifices (yajnas), priestly dominance
Language	Vedic Sanskrit	Developed into Classical Sanskrit
Literature	Rigveda (hymns in praise of gods)	Brahmanas (ritual texts), Aranyakas, Upanishads (philosophy)
Status of Women	Education (e.g., Lopamudra, Gargi, Apala), could attend sabha	Declined: no right to education or property; child marriages rise
Caste System	Flexible social groups (Brahmins, Kshatriyas, etc.)	Became rigid and hereditary, untouchability emerged
Occupation	Animal rearing, limited farming	Specialized professions emerged; agriculture and crafts advanced
Iron Use	Not known	Widespread use of iron tools (Krishna Ayas)

## IMPORTANT POINTS FOR SSC CGL

Key Fact	Detail
Oldest Veda	<b>Rigveda</b> – 1028 hymns in Sanskrit, mostly praise of gods
Sanskrit Grammarian (Later)	<b>Panini</b> (not in Vedic Age but asked in relation to language evolution)
Political Units	<b>Jana → Grama → Vish → Rashtra</b>
Important Kings	<b>Divodasa, Sudas</b> (Battle of Ten Kings or <i>Dasarajna</i> )
Battle of Ten Kings	Fought on river <b>Parushni (Ravi)</b>
Assembly decline	By <b>Later Vedic Period</b> , monarchy became stronger
Iron Age begins	In <b>Later Vedic Period</b> (called <i>Krishna Ayas</i> = black metal)

## BUDDHISM:

Aspect	Details
Founder	<b>Gautama Buddha</b> (Siddhartha), born in <b>563 BCE</b> at <b>Lumbini</b> (now in Nepal)
Father / Clan	<b>Shuddhodana</b> (chief of the <b>Shakya clan</b> ), capital <b>Kapilavastu</b>
Mother / Stepmother	<b>Maya Devi</b> (died 7 days after birth), <b>Mahaprajapati Gautami</b> (stepmother)
Wife and Son	<b>Yashodhara</b> (wife), <b>Rahul</b> (son)
Renunciation	At age <b>29</b> , after witnessing four sights (old age, disease, death, ascetic)
Enlightenment	At age <b>35</b> , under <b>Bodhi tree</b> at <b>Bodh Gaya</b> (on river Niranjana); became <b>Buddha</b>
First Sermon	At <b>Sarnath</b> (Deer Park), called <b>Dharmachakra Pravartana</b> (Turning the Wheel of Law)
Death (Mahaparinirvana)	At <b>Kushinagar</b> (Uttar Pradesh) at age <b>80</b> in <b>483 BCE</b>
Three Jewels (Triratna)	1. <b>Buddha</b> (The Enlightened One) 2. <b>Dhamma</b> (Teachings) 3. <b>Sangha</b> (Monastic Order)
Four Noble Truths	1. Suffering exists 2. Cause of suffering is desire 3. End of suffering is possible 4. Follow Eightfold Path
Eightfold Path (Ashtangika Marga)	Right View, Intention, Speech, Action, Livelihood, Effort, Mindfulness, Concentration
Five Precepts (Panchsheel)	No killing, no stealing, no lying, no intoxicants, no sexual misconduct
Important Councils	1st: <b>Rajgir (Ajatshatru)</b> 2nd: <b>Vaishali (Kalashoka)</b> 3rd: <b>Pataliputra (Ashoka)</b> 4th: <b>Kundalvan/Kashmir (Kanishka)</b>
Important Sects	1. <b>Hinayana</b> : Original, conservative 2. <b>Mahayana</b> : Worship Buddha as God 3. <b>Vajrayana</b> : Tantric practices
Scriptures (Tripitaka)	1. <b>Vinaya Pitaka</b> (monastic rules) 2. <b>Sutta Pitaka</b> (teachings) 3. <b>Abhidhamma Pitaka</b> (philosophy) – all in <b>Pali</b>
Symbols of Events	Birth – <b>Lotus &amp; Bull</b> Renunciation – <b>Horse</b> Enlightenment – <b>Bodhi Tree</b> Sermon – <b>Wheel (Dharmachakra)</b> Death – <b>Stupa</b>
Spread by	<b>Ashoka</b> (sent missionaries like <b>Mahendra &amp; Sanghamitra</b> to Sri Lanka)
Decline Reasons	Revival of Brahmanism, Rise of Bhakti movement, Corruption in Sangha, Loss of royal patronage
Important Monasteries	<b>Nalanda, Vikramshila, Takshashila, Vallabhi</b>

## QUICK FACTS FOR SSC CGL

Topic	Detail
Language of Early Buddhism	Pali
Buddha's real name	Siddhartha Gautama
Title "Tathagat" means	One who has attained truth
"Light of Asia"	Title given to Buddha
First image of Buddha	Appeared during Kushan rule (Mahayana period)
Major Buddhist Art	Gandhara & Mathura Schools
Buddha's preaching method	Simple dialogue & examples (no Sanskrit)

## JAINISM:

Aspect	Details
Founder (Traditional Belief)	<b>Rishabhdeva (Adinatha)</b> – 1st Tirthankara (mentioned in Rigveda & Bhagavat Purana)
Historical Founder	<b>Vardhamana Mahavira</b> – 24th and last Tirthankara
Birth of Mahavira	<b>540 BCE</b> at <b>Kundagrama</b> near Vaishali (Bihar) in <b>Ikshvaku</b> dynasty
Father / Mother	<b>Siddhartha</b> (king of Kundagrama), <b>Trishala</b> (sister of Lichchhavi king Chetaka)
Renunciation	At age <b>30</b> , became ascetic
Enlightenment (Kaivalya)	At age <b>42</b> , under a <b>Sal tree</b> at <b>Jrimbhikagrama</b>
Death (Mahaparinirvana)	At age <b>72</b> , in <b>468 BCE</b> at <b>Pavapuri (Bihar)</b>
Title Given	<b>Jina</b> (the conqueror), hence followers called <b>Jains</b>
Tirthankaras	Total <b>24</b> ; 1st: <b>Rishabhdeva</b> , 23rd: <b>Parshvanatha</b> , 24th: <b>Mahavira</b>
Parshvanatha (23rd)	Born in <b>Benaras</b> , lived ~250 years before Mahavira
Main Principles (Triratna)	1. <b>Right Faith (Samyak Darshana)</b> 2. <b>Right Knowledge (Samyak Jnana)</b> 3. <b>Right Conduct (Samyak Charitra)</b>
Five Vows (Mahavratas)	1. <b>Ahimsa</b> (Non-violence) 2. <b>Satya</b> (Truth) 3. <b>Asteya</b> (Non-stealing) 4. <b>Brahmacharya</b> (Celibacy) 5. <b>Aparigraha</b> (Non-possession)
Philosophy	<b>Atheistic</b> , believes in <b>karma</b> , <b>soul</b> , <b>moksha</b>
Scriptures	Called <b>Agamas</b> or <b>Siddhantas</b> , originally in <b>Ardhamagadhi Prakrit</b>
Important Concepts	<b>Syadvada</b> (relative truth), <b>Anekantavada</b> (pluralism of views), <b>Non-absolutism</b>
Sects	1. <b>Digambaras</b> (Sky-clad): no clothes, strict ascetics 2. <b>Shvetambaras</b> (White-clad): wear white robes
Women in Religion	<b>Shvetambaras</b> allow female monks, <b>Digambaras</b> do not
Symbols of Tirthankaras	Ex: Rishabhdeva – <b>Bull</b> , Mahavira – <b>Lion</b> , Parshvanatha – <b>Serpent</b>
Royal Patrons	<b>Chandragupta Maurya</b> (became Jain monk), <b>Kharavela (Kalinga)</b> , some Guptas
Council	<b>1st Jain Council</b> : Patliputra (300 BCE, Bhadrabahu), compilation of <b>Purvas</b> lost later
2nd Jain Council	<b>Valabhi (Gujarat)</b> , c. 512 CE – Canon finalized by Shvetambaras
Sacred Places	<b>Pavapuri</b> , <b>Shravanabelagola</b> , <b>Girnar</b> , <b>Mount Abu</b> , <b>Palitana</b> , <b>Rajgir</b>
Decline of Jainism	Strict asceticism, competition from Buddhism & Bhakti, limited royal support

## QUICK SSC CGL FACTS

Topic	Key Point
Jain Language	Ardhamagadhi (original scriptures), also Prakrit used
Jainism's Aim	Liberation of soul through <b>self-discipline</b> and <b>non-violence</b>
Mahavira's Symbol	<b>Lion</b>
Jain Text Preservation Site	<b>Valabhi</b> , during 2nd council
Syadvada	Doctrine of <b>sevenfold relative predication</b>
Important Statue	<b>Gommateshwara (Bahubali)</b> at <b>Shravanabelagola</b> , built by Chavundaraya
Mahavira's First Disciple	<b>Jamali</b> (also his son-in-law)

## Mahajanapadas- Comprehensive Overview

Feature	Details
Meaning of Mahajanapada	'Maha' = Great, 'Janapada' = foothold of a tribe/people; Great territorial states
Period	Circa 600 BCE – 345 BCE
Total Number	16 Mahajanapadas
Source Mention	Buddhist text <b>Anguttara Nikaya</b>
Political System	Two types: <b>Monarchies</b> and <b>Republics (Ganasanghas)</b>
Prominent Monarchies	Magadha, Kosala, Vatsa, Avanti
Prominent Republics	Vrijji (or Vajji), Malla, Shakya, Kamboja
Economic Base	Agriculture, trade, taxes on land and commerce
Capital Cities	Each Mahajanapada had its own capital
Religion Influence	Rise of Jainism and Buddhism during this period
Military Development	Standing armies and fortified capitals became common

## List of 16 Mahajanapadas

No.	Mahajanapada	Capital	Type	Modern Location
1	Anga	Champa	Monarchy	Parts of Bihar and Jharkhand
2	Magadha	Rajagriha / Pataliputra	Monarchy	South Bihar
3	Vajji (Vrijji)	Vaishali	Republic	North Bihar
4	Malla	Kusinara & Pava	Republic	Eastern Uttar Pradesh
5	Kasi	Varanasi	Monarchy	Eastern Uttar Pradesh
6	Kosala	Shravasti / Ayodhya	Monarchy	Central & Eastern Uttar Pradesh
7	Vatsa	Kausambi	Monarchy	Near Allahabad, Uttar Pradesh
8	Avanti	Ujjain / Mahishmati	Monarchy	Western Madhya Pradesh
9	Chedi	Suktimati	Monarchy	Bundelkhand region
10	Kuru	Indraprastha / Hastinapur	Monarchy	Delhi & Haryana region
11	Panchala	Ahichhatra / Kampilya	Monarchy	Western Uttar Pradesh
12	Matsya	Viratanagara	Monarchy	Jaipur region, Rajasthan
13	Surasena	Mathura	Monarchy	Western Uttar Pradesh
14	Assaka (Asmaka)	Potana / Paithan	Monarchy	Southern Maharashtra / Telangana
15	Gandhara	Taxila	Monarchy	Parts of Pakistan and Afghanistan
16	Kamboja	Rajapura	Republic	Northern Pakistan / Afghanistan border area



## Mauryan Empire (322 BCE – 185 BCE)

Aspect	Details
Founder	Chandragupta Maurya (322 BCE)
Capital	Pataliputra
Source Texts	Arthashastra (by Kautilya), Indica (by Megasthenes), Buddhist & Jain texts
Dynasty Duration	~137 years
Extent at its peak	From Afghanistan in NW to Karnataka in South and Bengal in East
Administration	Centralized, highly organized bureaucracy under Kautilya's guidance
Army	Standing army with infantry, cavalry, elephants, and navy
Revenue System	Land tax as main source; state control over resources
Provincial Administration	Provinces ruled by princes or governors
Decline Cause	Successors weak; financial burden; invasions; pushback after Ashoka's Dhamma

## Major Mauryan Rulers

Ruler	Reign	Notable Contributions
Chandragupta Maurya	322–297 BCE	Overthrew Nandas, founded Maurya dynasty; converted to Jainism
Bindusara	297–273 BCE	Conquered South India (except Kalinga); known as "Amitraghata" (Slayer of enemies)
Ashoka the Great	273–232 BCE	Kalinga War; embraced Buddhism; spread Dhamma; rock and pillar edicts
Dasaratha, Samprati etc.	232–185 BCE	Successors of Ashoka; relatively weak; last ruler Brihadratha assassinated by Pushyamitra Shunga

## Ashoka's Dhamma (धम्म)

Features	Explanation
Non-violence (Ahimsa)	Avoidance of war and animal sacrifice
Respect for elders and tolerance	Promoted religious harmony and social ethics
Welfare measures	Hospitals, roads, rest houses, veterinary clinics
Edict Inscriptions	Found in Brahmi script (north), Kharosthi (northwest), Greek & Aramaic
Edict Locations	Sanchi, Sarnath, Dhauili, Kalsi, Girnar, Shahbazgarhi, Kandahar

## Post-Mauryan Dynasties (After 185 BCE to ~300 CE)

Dynasty	Founder	Time Period	Capital	Key Rulers / Contributions	Religion/Art
Shunga	Pushyamitra Shunga	185–73 BCE	Pataliputra	Overthrew last Maurya king; revived Brahmanism; patronized Sanskrit drama (Kalidasa: <i>Malavikagnimitram</i> )	Supported Brahmanism; resisted Buddhism (as per texts)
Kanva	Vasudeva Kanva	73–28 BCE	Pataliputra	Minister of last Shunga king; weak dynasty, ended by Satavahanas	Supported Brahmanism
Satavahana	Simuka	~1st century BCE–3rd CE	Pratishthana (Paithan)	Gautamiputra Satakarni: resisted Shakas; promoted trade and Buddhism	Patronized Prakrit, Amaravati art, Buddhist stupas

Dynasty	Founder	Time Period	Capital	Key Rulers / Contributions	Religion/Art
Indo-Greek	Demetrius I (in India)	2nd BCE – 1st BCE	Taxila	Menander (Milinda): converted to Buddhism (text: <i>Milindapanha</i> )	Hellenistic influence; Greek coins; Gandhara art
Shaka (Western Kshatrapas)	Maues (or Chashtana)	1st BCE – 4th CE	Ujjain	Rudradaman I: Junagadh rock inscription in Sanskrit; repaired Sudarshana Lake	Used Sanskrit; mix of Iranian-Greek-Indian elements
Kushana	Kujula Kadphises	1st CE – 3rd CE	Peshawar, Mathura	Kanishka the Great: patron of Mahayana Buddhism; started Saka Era (78 CE); 4th Buddhist Council in Kashmir	Supported Gandhara & Mathura schools of art

### Gupta Empire Rulers & Key Facts (319 CE – 550 CE)

Ruler	Reign Period	Important Facts & Achievements
Sri Gupta (Founder)	~240–280 CE	Founded the Gupta dynasty; little known about his rule
Ghatotkacha	~280–319 CE	Son of Sri Gupta; ruled as Maharaja
Chandragupta I	319–335 CE	Assumed title of <i>Maharajadhiraja</i> (Great King of Kings); began the Gupta Era (319 CE)
Samudragupta	335–375 CE	<i>Napoleon of India</i> ; Allahabad Pillar Inscription by Harisena; military genius and poet
Chandragupta (Vikramaditya) II	375–415 CE	Defeated Shakas; patron of Kalidasa and Aryabhata; Ujjain as second capital
Kumaragupta I	415–455 CE	Founded <i>Nalanda University</i> ; performed Ashvamedha yajna
Skandagupta	455–467 CE	Repelled Hun invasions; last great Gupta ruler
Later Guptas	467–550 CE	Decline began due to Hun invasions and weak successors

### Other Important Facts of Gupta Period

Aspect	Details
Administration	Decentralized but efficient; provinces known as <i>Bhuktis</i> , districts as <i>Vishayas</i>
Coinage	Gold coins called <i>Dinaras</i>
Literature	Kalidasa's <i>Abhijnanasakuntalam</i> , <i>Meghadutam</i> ; Sanskrit revived
Science	Aryabhata (mathematician & astronomer); invention of zero
Art & Architecture	Ajanta caves, Dashavatara Temple (Deogarh), Iron Pillar (Mehrauli)
Religion	Flourishing of Hinduism; revival of Brahmanism; tolerance to Buddhism

### Sangam Age (circa 300 BCE – 300 CE)

Category	Details
Time Period	Approximately 300 BCE – 300 CE
Region	Tamilakam (present-day Tamil Nadu, Kerala, parts of Andhra Pradesh & Sri Lanka)
Meaning of 'Sangam'	Assembly or gathering of Tamil poets and scholars
Number of Sangams	Three (as per tradition)
Capital Cities	Madurai (Pandya), Uraiyur (Chola), Korkai (early Pandya), Vanji (Chera)
Dynasties Involved	Cheras, Cholas, Pandyas
Major Port Cities	Puhar (Kaveripattinam), Muziris, Tondi, Korkai
Literary Language	Tamil

Category	Details
<b>Religion</b>	Animism, Ancestor worship, later Hinduism, Jainism, and Buddhism
<b>Famous Sangam Works</b>	<b>Tolkappiyam</b> (grammar), <b>Ettuthogai</b> (Eight Anthologies), <b>Pattupattu</b> (Ten Idylls)
<b>Important Poets</b>	Kapilar, Avvaiyar, Nakkeerar, Parinar
<b>Social Structure</b>	Based on profession and clan; women held respectable positions
<b>Economy</b>	Agriculture (rice), trade (internal and external), handicrafts
<b>Major Trade Partners</b>	Roman Empire, Southeast Asia, Egypt, China
<b>Coins Used</b>	Roman coins, punch-marked Indian coins, gold and silver coins
<b>Military</b>	Maintained armies with elephants, cavalry, and infantry
<b>Sources of Information</b>	Tamil Sangam literature, Roman accounts (Pliny), inscriptions
<b>Decline</b>	Around 3rd century CE due to invasions and political instability
<b>Art and Culture</b>	Early Dravidian culture, emphasis on poetry, dance, and music
<b>Important Deities</b>	Murugan (war god), Mayon (early form of Vishnu), Kotravai (war goddess)

### 1. Chera Dynasty (Sangam Age)

Category	Details
<b>Territory</b>	Present-day Kerala and western Tamil Nadu
<b>Capital</b>	Vanji (Karur)
<b>Port Cities</b>	Muziris, Tondi
<b>Famous Kings</b>	Uthiyar Cheralathan, Nedunjeral Adan, Senguttuvan
<b>Senguttuvan's Fame</b>	Known for ' <b>Pattini cult</b> ' and building a temple for <b>Kannagi (pattini)</b>
<b>Trade</b>	Strong trade with Rome and West Asia
<b>Symbol</b>	Bow
<b>Literary References</b>	Described in <b>Pattupattu</b> , particularly <i>Pathitru pathu</i>
<b>Contribution</b>	Promoted Tamil poetry and maritime trade

### 2. Chola Dynasty (Sangam Age)

Category	Details
<b>Territory</b>	Central and northern parts of Tamil Nadu
<b>Capital</b>	Uraiyur
<b>Port Cities</b>	Puhar (Kaveripattinam), Arikamedu
<b>Famous Kings</b>	Karikala Chola (most famous), Nedunkilli
<b>Karikala's Achievement</b>	Constructed <b>Kallanai (Grand Anicut)</b> across river Kaveri
<b>Symbol</b>	Tiger
<b>Literary References</b>	Mentioned in <i>Pattinappalai</i> and <i>Porunaratrappadai</i>
<b>Contribution</b>	Infrastructure development, patronage to poets

### 3. Pandya Dynasty (Sangam Age)

Category	Details
<b>Territory</b>	Southern Tamil Nadu
<b>Capital</b>	Madurai
<b>Famous Kings</b>	Nedunjeliyan I, Mudukudumi Peruvazhuthi

Category	Details
Symbol	Fish
Patron of Literature	Actively supported <b>Tamil Sangams</b>
Literary References	Many poets associated with Pandyas, such as Avvaiyar, Nakkeerar
Trade	Active traders, especially in pearls
Contribution	Promoted Sangam Assemblies, literature, religious and educational activities

## Sangam Literature Classification

Category	Details
Tolkappiyam	Earliest Tamil grammar book; also discusses society, ethics, and love
Ettuthogai (Eight Anthologies)	Collection of 8 books of short poems (e.g., Ainkurunuru, Purananuru)
Pattupattu (Ten Idylls)	Long poems (e.g., Maduraikkanchi, Pattinappalai)
Pathinenkilkanakku	Eighteen Minor Works; mostly post-Sangam, but moralistic in nature
Silappadikaram	Epic attributed to Ilango Adigal; story of Kannagi, written after Sangam era
Manimekalai	Sequel to Silappadikaram, authored by Sattanar
Themes in Literature	<b>Akam</b> (love, private life) and <b>Puram</b> (war, public life)
Language	Classical Tamil

## Chalukyas of Ancient India

Category	Details
Dynasty Name	Chalukyas
Time Period	6th to 12th Century CE
Regions Ruled	Deccan region: Present-day Karnataka, Maharashtra, Andhra Pradesh
Founder (Badami Chalukyas)	Pulakeshin I (established rule around 543 CE at Badami)
Capital (Badami Chalukyas)	Vatapi (modern-day Badami) in Karnataka
Most Famous Ruler	Pulakeshin II
Pulakeshin II's Achievement	Defeated Harshavardhana on the banks of the Narmada River
Branches	1. <b>Eastern Chalukyas</b> of Vengi 2. <b>Western Chalukyas</b> of Kalyani
Eastern Chalukya Founder	Kubja Vishnuvardhana (brother of Pulakeshin II)
Capital (Eastern Chalukyas)	Vengi (in modern Andhra Pradesh)
Western Chalukya Founder	Tailapa II
Capital (Western Chalukyas)	Kalyani (modern Basavakalyan, Karnataka)
Religion	Primarily Hinduism (Shaivism & Vaishnavism); also supported Jainism, Buddhism
Architecture	Rock-cut cave temples at Badami, Aihole, Pattadakal
Art Style	Blend of Nagara (North) and Dravidian (South) styles
Important Temples	Durga Temple (Aihole), Virupaksha Temple (Pattadakal), Lad Khan Temple
Inscriptions	Aihole Inscription by Ravikirti (praises Pulakeshin II)
Literary Contributions	Patronage to Sanskrit and Kannada literature; notable poet: <b>Ravikirti</b>
Decline of Badami Chalukyas	Defeated by the Rashtrakutas in the 8th century CE
Chalukya-Rashtrakuta Rivalry	Prolonged conflict for control of the Deccan
Legacy	Great contributors to temple architecture, Deccan culture & governance

## Branches of Chalukyas – Summary Table

Branch	Founder	Capital	Region	Famous Ruler
Badami Chalukyas	Pulakeshin I	Badami	Karnataka	Pulakeshin II
Eastern Chalukyas	Kubja Vishnuvardhana	Vengi	Andhra Pradesh	Rajaraja Narendra
Western Chalukyas	Tailapa II	Kalyani	Karnataka & Maharashtra	Vikramaditya VI

## Geography

### Solar System

Aspect	Details
Sun	A medium-sized star, center of the Solar System, accounts for 99.86% of its mass
Planets (in order)	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
Terrestrial Planets	Mercury, Venus, Earth, Mars (solid & rocky)
Jovian (Gas Giant) Planets	Jupiter, Saturn, Uranus, Neptune
Largest Planet	Jupiter
Smallest Planet	Mercury
Hottest Planet	Venus (due to thick CO <sub>2</sub> atmosphere)
Coldest Planet	Neptune
Dwarf Planet	Pluto (demoted in 2006)
Number of Moons	Earth (1), Mars (2), Jupiter (79+), Saturn (83+), Uranus (27), Neptune (14)
Asteroid Belt	Between Mars and Jupiter
Kuiper Belt	Beyond Neptune; contains Pluto
Oort Cloud	Hypothetical shell of icy bodies surrounding the solar system
Rotation Direction	Most planets rotate counter-clockwise; Venus & Uranus rotate clockwise

### Longitude and Latitude

Term	Definition / Details
Latitude	Angular distance north or south of the Equator (0° to 90°)
Longitude	Angular distance east or west of the Prime Meridian (0° to 180°)
Equator	0° Latitude; divides Earth into Northern & Southern Hemispheres
Prime Meridian	0° Longitude; passes through Greenwich, UK
Tropic of Cancer	23.5° N; passes through India
Tropic of Capricorn	23.5° S
Arctic Circle	66.5° N
Antarctic Circle	66.5° S
International Date Line	~180° Longitude; zigzag line that separates calendar days
Total Longitudes	360 (180° E and 180° W)
Total Latitudes	181 (from 90° N to 90° S including Equator)
Each Longitude =	4 minutes of time difference
Earth rotates	360° in 24 hours = 15° per hour



## Earth's Interior

Layer	Details
<b>Crust</b>	Outermost layer, 5–70 km thick, made of silica and alumina (SIAL)
<b>Continental Crust</b>	Thicker, less dense, granitic composition
<b>Oceanic Crust</b>	Thinner, denser, basaltic composition
<b>Mantle</b>	Below crust (up to 2900 km), made of silicate rocks rich in magnesium (SIMA)
<b>Asthenosphere</b>	Upper part of mantle; semi-liquid & allows plate movement
<b>Core (Outer)</b>	Liquid, made of iron & nickel (NIFE), responsible for magnetic field
<b>Core (Inner)</b>	Solid due to immense pressure
<b>Temperature</b>	Increases $\sim 1^{\circ}\text{C}$ per 32 meters in depth
<b>Seismic Discontinuities</b>	Mohorovičić (crust–mantle), Gutenberg (mantle–core), Lehmann (outer–inner core)
<b>Radius of Earth</b>	$\sim 6371$ km

## Plate Tectonics

Term / Concept	Description / Example
<b>Lithosphere</b>	Rigid outer shell of Earth (crust + upper mantle)
<b>Tectonic Plates</b>	Large slabs of lithosphere that float on asthenosphere
<b>Major Plates</b>	Pacific, Eurasian, Indo-Australian, North American, South American, African, Antarctic
<b>Plate Boundaries</b>	Regions where plates interact
<b>Divergent Boundaries</b>	Plates move apart $\rightarrow$ Mid-ocean ridges (e.g., Mid-Atlantic Ridge)
<b>Convergent Boundaries</b>	Plates move towards each other $\rightarrow$ Mountains or trenches (e.g., Himalayas)
<b>Transform Boundaries</b>	Plates slide past each other (e.g., San Andreas Fault)
<b>Continental Drift Theory</b>	Proposed by Alfred Wegener; all continents were once a supercontinent (Pangaea)
<b>Sea-floor Spreading</b>	New crust forms at mid-ocean ridges, pushing plates apart
<b>Subduction Zone</b>	One plate sinks below another, causes earthquakes & volcanoes
<b>Ring of Fire</b>	Earthquake-prone zone around the Pacific Ocean

## Rocks

Type of Rock	Formation Process	Key Features	Examples	Additional Notes (SSC Specific)
<b>Igneous Rocks</b>	Cooling & solidification of molten magma (intrusive or extrusive)	<ul style="list-style-type: none"> <li>- Crystalline structure</li> <li>- No fossils</li> <li>- First formed rocks</li> <li>- Can be coarse or fine-grained</li> </ul>	<b>Granite</b> (intrusive), <b>Basalt</b> (extrusive)	<ul style="list-style-type: none"> <li>- <b>Basalt:</b> Dark, heavy, found in Deccan Plateau</li> <li>- <b>Granite:</b> Used in construction</li> <li>- No stratification or layering</li> </ul>
<b>Sedimentary Rocks</b>	Deposition, compaction, and cementation of sediments (mechanical, chemical or organic origin)	<ul style="list-style-type: none"> <li>- Layered (strata)</li> <li>- Often fossiliferous</li> <li>- Soft, porous</li> <li>- Shows bedding &amp; cross-bedding</li> </ul>	<b>Limestone, Sandstone, Shale, Chalk</b>	<ul style="list-style-type: none"> <li>- <b>Limestone:</b> Formed from shells, coral</li> <li>- <b>Shale:</b> Fine-grained, splits easily</li> <li>- Covers <math>\sim 75\%</math> of Earth's surface</li> </ul>

Type of Rock	Formation Process	Key Features	Examples	Additional Notes (SSC Specific)
<b>Metamorphic Rocks</b>	Alteration of pre-existing rocks under <b>heat, pressure, and chemically active fluids</b> (without melting)	<ul style="list-style-type: none"> <li>- Hard, compact</li> <li>- Often shows <b>banding, foliation, lineation</b></li> <li>- No fossils due to recrystallization</li> </ul>	<b>Marble</b> (from limestone), <b>Slate</b> (from shale), <b>Gneiss</b> , <b>Schist</b>	<ul style="list-style-type: none"> <li>- <b>Marble:</b> Crystalline, used in sculpture (Rajasthan)</li> <li>- <b>Slate:</b> Fine-grained, splits easily (roof tiles)</li> <li>- <b>Gneiss:</b> Shows banding (light &amp; dark minerals)</li> <li>- <b>Schist:</b> Shows foliation due to platy minerals</li> </ul>

### Additional Metamorphic Processes (Important for SSC)

Term	Meaning	Key Point / SSC Relevance
<b>Foliation</b>	Repetitive layering in metamorphic rocks due to pressure	Found in <b>slate, schist</b> – common exam term
<b>Banding</b>	Alternating dark and light mineral bands	Seen in <b>gneiss</b> – often asked in theory-based MCQs
<b>Lineation</b>	Linear alignment of minerals or structures	Indicates direction of stress during metamorphism
<b>Recrystallization</b>	Minerals re-form into new textures without melting	Common in <b>marble</b> – improves hardness and gloss
<b>Regional Metamorphism</b>	Large area, caused by mountain building (high pressure/temp)	Produces <b>slate, gneiss, schist</b>
<b>Contact Metamorphism</b>	Local, near magma intrusion (mainly heat)	Produces <b>marble, quartzite</b>

### Continents

Continent	Area (approx)	Population (approx)	Key Physical Features	Major Countries	SSC-Relevant Facts
<b>Asia</b>	44.58 million sq. km (1st)	~4.8 billion (1st)	Himalayas, Plateau of Tibet, Gobi Desert, Yangtze River	China, India, Japan, Russia	<ul style="list-style-type: none"> <li>✨ Largest &amp; most populous continent</li> <li>✨ Mt. Everest (8849 m) – world's highest peak</li> <li>✨ River Yangtze – longest in Asia</li> <li>✨ Countries like Russia and Turkey are transcontinental</li> </ul>
<b>Africa</b>	30.37 million sq. km (2nd)	~1.5 billion (2nd)	Sahara Desert, Nile River, Great Rift Valley, Congo Basin	Nigeria, Egypt, South Africa, Kenya	<ul style="list-style-type: none"> <li>✨ Sahara – world's largest hot desert</li> <li>✨ Nile – traditionally known as world's longest river</li> </ul>

Continent	Area (approx)	Population (approx)	Key Physical Features	Major Countries	SSC-Relevant Facts
					<ul style="list-style-type: none"> <li>✳ Equator passes through middle</li> <li>✳ Rich in natural resources (gold, diamonds)</li> </ul>
<b>North America</b>	24.71 million sq. km (3rd)	~600 million	Rocky Mountains, Great Plains, Mississippi River, Great Lakes	USA, Canada, Mexico	<ul style="list-style-type: none"> <li>✳ Panama Canal links to South America</li> <li>✳ Mississippi – major river</li> <li>✳ Niagara Falls – between US &amp; Canada</li> <li>✳ Longest land border: USA–Canada</li> </ul>
<b>South America</b>	17.84 million sq. km (4th)	~430 million	Andes Mountains, Amazon Rainforest, Atacama Desert	Brazil, Argentina, Colombia, Chile	<ul style="list-style-type: none"> <li>✳ Andes – longest mountain range</li> <li>✳ Amazon – largest river by volume</li> <li>✳ Atacama – driest desert</li> <li>✳ Angel Falls (Venezuela) – world's tallest waterfall</li> </ul>
<b>Antarctica</b>	14.2 million sq. km (5th)	~1,000 (scientific staff only)	Ice Sheets, Polar Plateau, Transantarctic Mountains	No permanent countries	<ul style="list-style-type: none"> <li>✳ Coldest, driest, windiest continent</li> <li>✳ 90% of world's ice, 70% of freshwater</li> <li>✳ No time zone, no permanent population</li> <li>✳ Surrounded by Southern Ocean</li> </ul>
<b>Europe</b>	10.18 million sq. km (6th)	~750 million	Alps, Ural Mountains, Danube River, North European Plain	Germany, France, UK, Italy, Ukraine	<ul style="list-style-type: none"> <li>✳ Separated from Asia by Ural Mountains</li> <li>✳ Industrially developed</li> <li>✳ Alps – highest mountain system</li> <li>✳ Danube – longest river in EU</li> </ul>
<b>Australia (Oceania)</b>	8.6 million sq. km (7th)	~42 million	Great Dividing Range, Great Barrier Reef, Outback Desert	Australia, New Zealand, Papua New Guinea	<ul style="list-style-type: none"> <li>✳ Smallest continent</li> <li>✳ Only continent that is also a country (Australia)</li> <li>✳ Great Barrier Reef – largest coral system</li> <li>✳ Least populated (excluding Antarctica)</li> </ul>

## Oceans

Ocean	Area (Approx)	Average Depth	Location & Boundaries	Key Features	SSC-Relevant Facts (Integrated)
Pacific Ocean	168.7 million sq. km (1st)	~4,280 m	Between Asia/Australia (west) and Americas (east)	<ul style="list-style-type: none"> <li>- <b>Largest &amp; deepest</b> ocean</li> <li>- Ring of Fire (volcano belt)</li> <li>- Home to coral reefs like <b>Great Barrier Reef</b></li> <li>- Most island-rich ocean</li> </ul>	<ul style="list-style-type: none"> <li>☀ <b>Mariana Trench</b> – Deepest point (11,034 m)</li> <li>☀ <b>Ocean with most islands</b> (Philippines, Micronesia)</li> <li>☀ <b>Kuroshio Current</b> – warm current near Japan</li> <li>☀ Rich in marine biodiversity and reefs</li> </ul>
Atlantic Ocean	85.1 million sq. km (2nd)	~3,646 m	Between Americas (west) and Europe/Africa (east)	<ul style="list-style-type: none"> <li>- <b>S-shaped</b> ocean</li> <li>- Mid-Atlantic Ridge (longest undersea mountain chain)</li> <li>- Important for trade</li> </ul>	<ul style="list-style-type: none"> <li>☀ <b>Gulf Stream</b> – warm current</li> <li>☀ <b>Busiest commercial ocean route</b></li> <li>☀ <b>Sargasso Sea</b> – no coastline</li> <li>☀ <b>Bermuda Triangle</b> lies here</li> </ul>
Indian Ocean	70.6 million sq. km (3rd)	~3,741 m	Bounded by Africa (west), Asia (north), Australia (east)	<ul style="list-style-type: none"> <li>- <b>Warmest ocean</b></li> <li>- Influences Indian monsoon</li> <li>- Busy oil trade route</li> </ul>	<ul style="list-style-type: none"> <li>☀ <b>Only ocean named after a country</b> (India)</li> <li>☀ <b>Sunda Trench</b> – Deepest point (7,725 m)</li> <li>☀ <b>Agulhas Current</b> (South Africa)</li> <li>☀ <b>Coral-rich</b> (Lakshadweep, Maldives)</li> <li>☀ <b>Key strategic route for oil trade</b></li> </ul>
Southern Ocean	21.9 million sq. km (4th)	~4,500 m	Surrounds Antarctica; south of 60°S latitude	<ul style="list-style-type: none"> <li>- <b>Coldest ocean</b></li> <li>- Covered with pack ice</li> <li>- Has <b>Antarctic Circumpolar Current</b></li> </ul>	<ul style="list-style-type: none"> <li>☀ <b>Circulates clockwise</b> around Antarctica</li> <li>☀ Influences global climate and heat distribution</li> <li>☀ No permanent population</li> <li>☀ <b>Recent recognition</b> (2000) as an ocean</li> </ul>

Ocean	Area (Approx)	Average Depth	Location & Boundaries	Key Features	SSC-Relevant Facts (Integrated)
Arctic Ocean	15 million sq. km (5th)	~1,205 m (Shallowest)	Surrounds North Pole; bordered by Europe, Asia, and North America	- Ice-covered most of the year - Rich in marine life and oil reserves	<ul style="list-style-type: none"> <li>☀️ <b>Smallest and shallowest</b> ocean</li> <li>☀️ <b>Northwest Passage</b> opens due to melting</li> <li>☀️ Major oil and gas deposits</li> <li>☀️ Plays a key role in <b>global temperature regulation</b></li> </ul>

### Geomorphology – Detailed Table for SSC CGL

Topic / Concept	Explanation	Key Examples / Features	SSC Exam Facts
<b>Geomorphology</b>	Study of landforms, their origin, evolution, and structure	Involves study of mountains, plateaus, plains, valleys, etc.	Frequently asked in SSC under Physical Geography
<b>Endogenic Forces</b>	Internal forces from within the Earth	Volcanism, Earthquakes, Diastrophism (folding, faulting)	Create mountains, rift valleys, island arcs
<b>Exogenic Forces</b>	External forces on Earth's surface	Weathering, erosion, deposition	Modify existing landforms, create valleys and dunes
<b>Weathering</b>	Disintegration of rocks without movement	Physical, chemical, biological	Weakens rocks before erosion; <b>no transport involved</b>
<b>Erosion</b>	Wearing away of earth's surface by natural agents	River, wind, glacier, sea	Erosion <b>removes</b> material and reshapes landforms
<b>Deposition</b>	Settling of eroded material	River delta, sand dunes, moraines	Forms <b>new landforms</b> like plains, deltas, beaches
<b>Diastrophism</b>	Large-scale deformation of Earth's crust	Folding (e.g. Himalayas), Faulting (e.g. Rift Valley)	Creates new landforms like block mountains, grabens
<b>Volcanism</b>	Movement of magma onto Earth's surface	Active, dormant, extinct volcanoes	Creates volcanic mountains (e.g. Mt. Fuji, Mauna Loa)
<b>Earthquake</b>	Sudden release of energy in Earth's crust	Measured by Richter Scale / Seismograph	Focus = origin point; Epicenter = point on surface
<b>Plate Tectonics</b>	Theory of movement of lithospheric plates	Convergent, Divergent, Transform boundaries	Explains formation of mountains, earthquakes, volcanoes
<b>Rock Cycle</b>	Continuous transformation between rock types	Igneous → Sedimentary → Metamorphic → back to Igneous	Basis of physical structure of Earth
<b>Mountains</b>	Large landforms that rise above surroundings	Fold (Himalayas), Block (Vosges), Volcanic (Mt. Kilimanjaro)	Fold mountains are <b>youngest and highest</b> (e.g. Himalayas)
<b>Plateaus</b>	Elevated flat-topped areas	Deccan Plateau, Colorado Plateau	Formed by volcanic or tectonic activity
<b>Plains</b>	Low, flat lands with fertile soil	Indo-Gangetic Plain	Result from sediment deposition by rivers
<b>Valleys</b>	Depressions between hills or mountains	V-shaped (river), U-shaped (glacier)	Indicates type of erosional agent
<b>Rift Valley</b>	Formed by faulting, where land sinks	East African Rift, Narmada Valley	Common in tectonically active zones



Topic / Concept	Explanation	Key Examples / Features	SSC Exam Facts
<b>Delta</b>	Triangular deposit at river mouth	Ganga-Brahmaputra Delta	Largest delta in the world; formed by deposition
<b>Moraine</b>	Deposits left by glaciers	Terminal, lateral, medial moraines	Common in glaciated regions like Himalayas
<b>Sand Dunes</b>	Wind-deposited mounds of sand	Found in deserts (Thar Desert)	Barchans are crescent-shaped dunes
<b>Karst Topography</b>	Landscape formed by chemical weathering of limestone	Stalactites, stalagmites, sinkholes	Found in areas like Meghalaya (India), Slovenia

## Landforms

Type of Landform	Formation Agent	Sub-Types / Features	Key Examples	SSC-Relevant Facts
<b>Mountains</b>	Endogenic (internal tectonic forces)	<ul style="list-style-type: none"> <li>- <b>Fold Mountains</b> (formed by compression)</li> <li>- <b>Block Mountains</b> (formed by faulting)</li> <li>- <b>Volcanic Mountains</b> (from volcanism)</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Fold:</b> Himalayas, Andes</li> <li>- <b>Block:</b> Vosges (France), Sierra Nevada (USA)</li> <li>- <b>Volcanic:</b> Mt. Kilimanjaro, Mt. Fuji</li> </ul>	<ul style="list-style-type: none"> <li>✳ Himalayas – youngest, highest</li> <li>✳ Aravallis – oldest fold mountains</li> <li>✳ Andes – longest mountain chain</li> </ul>
<b>Plateaus</b>	Uplift due to endogenic forces or lava flow	Elevated flat-topped areas; may be dissected or volcanic	<ul style="list-style-type: none"> <li>- Deccan Plateau (India)</li> <li>- Colorado Plateau (USA)</li> <li>- Tibet Plateau (world's highest)</li> </ul>	<ul style="list-style-type: none"> <li>✳ Tibet – "Roof of the World"</li> <li>✳ Deccan – formed by volcanic lava</li> <li>✳ Often rich in minerals</li> </ul>
<b>Plains</b>	Exogenic agents (rivers, wind, glaciers)	Flat and low-lying, fertile due to deposition	<ul style="list-style-type: none"> <li>- Indo-Gangetic Plain</li> <li>- Great Chinese Plain</li> </ul>	<ul style="list-style-type: none"> <li>✳ Most densely populated regions</li> <li>✳ Ideal for agriculture</li> <li>✳ Formed by alluvial deposition</li> </ul>
<b>Deserts</b>	Wind (Aeolian)	<ul style="list-style-type: none"> <li>- <b>Erg:</b> Sand seas</li> <li>- <b>Reg:</b> Stony deserts</li> <li>- <b>Dunes:</b> Barchans, Seif dunes</li> </ul>	<ul style="list-style-type: none"> <li>- Thar (India), Sahara (Africa), Gobi (Asia)</li> </ul>	<ul style="list-style-type: none"> <li>✳ Barchans: Crescent-shaped dunes</li> <li>✳ Found in rain shadow zones</li> </ul>
<b>Valleys</b>	Rivers or Glaciers	<ul style="list-style-type: none"> <li>- <b>V-shaped</b> (river)</li> <li>- <b>U-shaped</b> (glacier)</li> <li>- Rift Valleys (faulting)</li> </ul>	<ul style="list-style-type: none"> <li>- Ganga Valley (V-shaped)</li> <li>- Kashmir Valley (U-shaped)</li> <li>- Narmada Rift Valley</li> </ul>	<ul style="list-style-type: none"> <li>✳ Rift valleys = Block mountains &amp; faults</li> <li>✳ River valleys = Agricultural zones</li> </ul>
<b>Delta</b>	Deposition by rivers at mouth	Triangular or fan-shaped depositional land	<ul style="list-style-type: none"> <li>- Ganga-Brahmaputra Delta (India/Bangladesh)</li> <li>- Nile Delta</li> </ul>	<ul style="list-style-type: none"> <li>✳ Ganga-Brahmaputra: World's largest delta</li> <li>✳ Rich in sediments and biodiversity</li> </ul>
<b>Canyons / Gorges</b>	River erosion in hard rock areas	Deep, narrow valleys with steep sides	<ul style="list-style-type: none"> <li>- Grand Canyon (USA)</li> <li>- Kali Gandaki Gorge (Nepal)</li> </ul>	<ul style="list-style-type: none"> <li>✳ Kali Gandaki – deepest gorge</li> <li>✳ Shows river's erosional power</li> </ul>

Type of Landform	Formation Agent	Sub-Types / Features	Key Examples	SSC-Relevant Facts
<b>Glacial Landforms</b>	Glacier erosion and deposition	- Cirque, Arete, Horn, Moraines, Drumlin - Fjords (submerged glacial valleys)	- Moraines in Himalayas - Fjords in Norway	<ul style="list-style-type: none"> <li>✳ Moraines = glacial deposits</li> <li>✳ U-shaped valleys, Horn peaks (Matterhorn)</li> </ul>
<b>Karst Landforms</b>	Chemical weathering of limestone (carbonation)	Sinkholes, caves, stalactites, stalagmites	- Meghalaya (India), Slovenia, Karst Plateau	<ul style="list-style-type: none"> <li>✳ Features formed by underground water</li> <li>✳ Stalactites (ceiling), Stalagmites (floor)</li> </ul>
<b>Coastal Landforms</b>	Sea waves and tides	- Cliffs, sea caves, arches, stacks, beaches	- Marina Beach (India), Durdle Door (UK)	<ul style="list-style-type: none"> <li>✳ Formed by marine erosion/deposition</li> <li>✳ Constantly changing by wave action</li> </ul>
<b>Aeolian Landforms</b>	Wind erosion and deposition	Mushroom rocks, yardangs, dunes	- Thar Desert, Sahara Desert	✳ Wind is active in arid/semi-arid zones
<b>Lacustrine Landforms</b>	Formed in or around lakes	Lakes, oxbow lakes, lake terraces	- Dal Lake (India), Lake Victoria (Africa)	✳ Oxbow lakes = old river meanders

## Structure of the Atmosphere

Layer	Altitude Range	Key Characteristics	Importance
<b>Troposphere</b>	0 – 12 km	<ul style="list-style-type: none"> <li>- Weather phenomena occur here</li> <li>- Contains 75% of total atmospheric mass</li> <li>- Temperature decreases with height (6.5°C/km)</li> </ul>	<ul style="list-style-type: none"> <li>- Life exists here</li> <li>- Aircraft fly in lower troposphere</li> </ul>
<b>Stratosphere</b>	12 – 50 km	<ul style="list-style-type: none"> <li>- Contains Ozone layer</li> <li>- Temperature increases with height due to ozone absorption</li> </ul>	<ul style="list-style-type: none"> <li>- Protects Earth from UV radiation</li> <li>- Ideal for jet aircraft</li> </ul>
<b>Mesosphere</b>	50 – 80 km	<ul style="list-style-type: none"> <li>- Coldest layer</li> <li>- Temperature decreases with height</li> <li>- Meteors burn here</li> </ul>	<ul style="list-style-type: none"> <li>- Protects Earth from meteors</li> </ul>
<b>Thermosphere</b>	80 – 500 km	<ul style="list-style-type: none"> <li>- Temperature increases rapidly</li> <li>- Auroras occur</li> <li>- Space shuttles orbit here</li> </ul>	<ul style="list-style-type: none"> <li>- Radio communication is possible due to ionosphere</li> </ul>
<b>Exosphere</b>	500 km & beyond	<ul style="list-style-type: none"> <li>- Outer most layer</li> <li>- Very thin gases</li> <li>- Gradually merges with space</li> </ul>	<ul style="list-style-type: none"> <li>- Contains hydrogen and helium</li> </ul>

## Composition of Atmosphere (by Volume)

Gas	Percentage (%)	Role
<b>Nitrogen (N<sub>2</sub>)</b>	78.08%	Maintains pressure & dilutes oxygen
<b>Oxygen (O<sub>2</sub>)</b>	20.95%	Essential for respiration
<b>Argon (Ar)</b>	0.93%	Inert gas
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	0.04%	Controls Earth's temperature (greenhouse effect)
<b>Others (Ne, He, CH<sub>4</sub>, etc.)</b>	Trace	Affect climate, radio signals, etc.
<b>Water Vapour</b>	0–4% (variable)	Responsible for weather processes

## Atmospheric Pressure Zones

Zone	Latitude Range	Pressure Type	Winds Associated
Equatorial Low	0°	Low Pressure	Trade Winds
Subtropical High	30° N/S	High Pressure	Westerlies
Subpolar Low	60° N/S	Low Pressure	Polar Easterlies
Polar High	90° N/S	High Pressure	Polar Winds

## Atmospheric Phenomena & Instruments

Phenomenon / Term	Definition / Tool	Notes
Barometer	Measures atmospheric pressure	Mercury or aneroid
Hygrometer	Measures humidity	Used in weather stations
Rain Gauge	Measures rainfall	Simple cylinder type
Ozone Layer	Absorbs UV rays	Found in Stratosphere
Greenhouse Effect	Warming of Earth due to gases	CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> O are key gases
Aurora	Light display in polar skies	Occurs in Thermosphere
Ionosphere	Reflects radio waves	Part of Thermosphere

## Temperature-Related Terms

Term	Meaning	Effect
Inversion of Temperature	Temperature increases with height	Found in winter/nights/valleys
Albedo	Reflectivity of Earth's surface	Snow = high albedo, forests = low
Isotherm	Line joining places with same temperature	Used in climate maps

## Water in the Atmosphere

Concept	Definition / Description	Important Facts & SSC Points
Humidity	Amount of water vapor present in the air	Measured by <b>hygrometer</b> or <b>psychrometer</b>
Absolute Humidity	Actual amount (grams) of water vapor in 1 cubic meter of air	Unit: g/m <sup>3</sup>
Relative Humidity (RH)	% of moisture in the air compared to its capacity at that temperature	$RH = (\text{Actual humidity} / \text{Saturation humidity}) \times 100$
Dew Point	Temperature at which air becomes saturated and dew begins to form	If RH = 100%, dew forms
Evaporation	Process by which liquid water turns into vapor	Faster in high temperature, wind, and low humidity
Condensation	Process by which water vapor turns into liquid	Forms dew, fog, clouds, etc.
Precipitation	Any form of water that falls from clouds to Earth	Includes rain, snow, hail, sleet
Clouds	Mass of condensed water vapor floating in the atmosphere	Formed by condensation of moist air
Types of Clouds	1. <b>Cirrus</b> – high, feathery, no rain 2. <b>Cumulus</b> – puffy, fair weather 3. <b>Stratus</b> – layered, can bring drizzle 4. <b>Nimbus</b> – rain-bearing	“Nimbus” = precipitation clouds like nimbostratus

Concept	Definition / Description	Important Facts & SSC Points
<b>Rainfall Types</b>	1. <b>Convectional</b> – due to surface heating 2. <b>Orographic</b> – due to mountains 3. <b>Cyclonic (Frontal)</b> – due to meeting of hot & cold air masses	India gets <b>monsoonal &amp; orographic</b> rainfall
<b>Fog</b>	Condensed water vapor near Earth's surface	Reduces visibility; common in winter
<b>Mist</b>	Lighter than fog; visibility more than 1 km	Occurs in slightly humid conditions
<b>Dew</b>	Water droplets formed by condensation on cool surfaces	Common on grass during early morning
<b>Frost</b>	Frozen dew due to below-zero temperatures	Common in winter in temperate zones
<b>Hail</b>	Frozen raindrops that form during thunderstorms	Spherical ice pellets; damaging to crops
<b>Snow</b>	Ice crystals formed when temperature is below freezing	Common in high altitudes and poles
<b>Transpiration</b>	Release of water vapor from plants	Combined with evaporation = <b>Evapotranspiration</b>
<b>Hydrological Cycle</b>	Continuous circulation of water through evaporation, condensation, precipitation, and collection	Also called <b>water cycle</b> ; crucial for life
<b>Latent Heat of Vaporization</b>	Energy absorbed to convert water to vapor without temperature change	Important for cloud formation and rainfall

## Wind System

Concept / Term	Definition / Description	Key SSC Notes / Examples
<b>Wind</b>	Horizontal movement of air from high pressure to low pressure	Measured by <b>anemometer</b> (speed) and <b>wind vane</b> (direction)
<b>Cause of Wind</b>	Uneven heating of Earth's surface creates pressure differences	Influenced by <b>temperature</b> , <b>Coriolis force</b> , and <b>Friction</b>
<b>Pressure Gradient Force</b>	Force that moves air from high to low pressure	Stronger gradient = faster winds
<b>Coriolis Effect</b>	Deflection of winds due to Earth's rotation	Right in Northern Hemisphere, left in Southern
<b>Frictional Force</b>	Resistance near Earth's surface, reduces wind speed	Stronger near ground level
<b>Geostrophic Wind</b>	Winds parallel to isobars due to balance of Coriolis & pressure gradient	Found at higher altitudes
<b>Types of Winds</b>	1. <b>Permanent (Planetary)</b> 2. <b>Periodic</b> 3. <b>Local</b>	Classified based on duration and cause

## Permanent (Planetary) Winds

Wind Type	Direction & Region	Important Facts
<b>Trade Winds</b>	Blow from subtropical high (30°) to equatorial low (0°) NE in NH, SE in SH	Important for monsoon formation in India
<b>Westerlies</b>	From 30° to 60° latitudes	Carry temperate cyclones; stronger in SH
<b>Polar Easterlies</b>	From polar high (90°) to subpolar low (60°)	Very cold and dry winds

## Periodic Winds

Wind Type	Cause	Key Examples
<b>Monsoon Winds</b>	Seasonal reversal due to differential heating of land and sea	SW Monsoon in India (June–Sept); NE Monsoon (Oct–Dec)
<b>Land Breeze</b>	Land cools faster at night → wind blows sea-ward	Nighttime phenomenon
<b>Sea Breeze</b>	Sea cools slower → wind blows landward in daytime	Cools coastal areas during day
<b>Mountain Breeze</b>	Cooler, heavier air flows down at night	Seen in hilly areas at night
<b>Valley Breeze</b>	Warm air rises from valley during day	Opposite of mountain breeze

## Local Winds (Important for MCQs)

Name	Region	Nature / Effect
<b>Loo</b>	India, North-West plains	Hot, dry summer wind (May–June)
<b>Chinook</b>	USA-Canada (Rockies)	Warm, dry wind — melts snow
<b>Foehn</b>	Europe (Alps)	Warm wind — snow-melting, similar to Chinook
<b>Harmattan</b>	West Africa	Dry and dusty northeast trade wind
<b>Mistral</b>	France (Rhône Valley)	Cold wind from Alps to Mediterranean
<b>Sirocco</b>	North Africa to Southern Europe	Hot, dry, dusty wind from Sahara
<b>Nor'easter</b>	Eastern USA	Cold and stormy wind with rain/snow

## Other Important Wind-Related Concepts

Term	Explanation	Exam Focus
<b>Jet Streams</b>	High-speed winds in upper troposphere (westerlies)	Affect monsoon onset & aircraft speed
<b>Doldrums</b>	Equatorial low pressure belt (0°) – calm area	Rising air, weak surface winds
<b>Horse Latitudes</b>	Subtropical highs (30° N & S) – calm and dry	Area of descending air
<b>Anemometer</b>	Measures wind speed	Unit: km/h or m/s
<b>Wind Vane</b>	Shows wind direction	Always points <i>into</i> the wind

## Major Ocean Currents

Ocean Current Name	Ocean	Coast/Region	Temperature Type	Important Facts for SSC
<b>Gulf Stream</b>	Atlantic	East coast of North America (Florida to Europe)	<b>Warm</b>	Increases temperature of Western Europe; most powerful warm current
<b>Canary Current</b>	Atlantic	West coast of North Africa (Morocco area)	<b>Cold</b>	Causes arid climate in Sahara region
<b>North Atlantic Drift</b>	Atlantic	East coast of Europe (extension of Gulf Stream)	<b>Warm</b>	Moderates climate of Western Europe (UK, France)
<b>Labrador Current</b>	Atlantic	East coast of Canada	<b>Cold</b>	Meets warm Gulf Stream → forms foggy conditions (Grand Banks fishing zone)
<b>Brazil Current</b>	Atlantic	East coast of South America (Brazil)	<b>Warm</b>	Warm counterpart to the cold Benguela current



Ocean Name	Current	Ocean	Coast/Region	Temperature Type	Important Facts for SSC
Benguela Current		Atlantic	West coast of Southern Africa (Namibia)	Cold	Brings cold water → supports desert conditions in coastal regions
South Equatorial Current		Atlantic, Pacific, Indian	Near equator (both hemispheres)	Warm	Driven by trade winds, flows westward
North Equatorial Current		Atlantic & Pacific	5°–20° N latitude	Warm	Moves westward due to easterly winds
Kuroshio (Japan) Current		Pacific	East coast of Japan	Warm	Responsible for warm climate of southern Japan
Oyashio Current		Pacific	North-east coast of Japan & Russia	Cold	Meets Kuroshio → creates rich fishing grounds
California Current		Pacific	West coast of USA	Cold	Brings cold water → causes desert-like climate (e.g. Southern California)
Peru (Humboldt) Current		Pacific	West coast of South America (Peru, Chile)	Cold	Responsible for dry Atacama Desert
East Australian Current		Pacific	East coast of Australia	Warm	Moves warm water from Coral Sea southward
West Australian Current		Indian	West coast of Australia	Cold	Causes desert-like conditions along Australian coast
Agulhas Current		Indian	East coast of Africa (Mozambique to South Africa)	Warm	Strong warm current in Indian Ocean
Mozambique Current		Indian	Channel between Madagascar and Africa	Warm	Joins Agulhas current
West Wind Drift		Southern Ocean	Around Antarctica (all oceans)	Cold	Only current that flows uninterrupted around Earth
Antarctic Circumpolar Current		Southern Ocean	Surrounds Antarctica	Cold	Strongest ocean current globally
Somali Current		Indian	Coast of Somalia	Seasonal (Warm/Cold)	Reverses direction with monsoon – unique feature
Indian Monsoon Current		Indian	Near India during SW monsoon	Warm	Seasonal current, flows westward during monsoon

## India and its Location

Topic	Details	Important Notes for SSC CGL
Location of India	In <b>Southern Asia</b> , lies entirely in the <b>Northern &amp; Eastern Hemisphere</b>	Positioned in the <b>south-central part of the Asian continent</b>
Latitude (North–South extent)	<b>8°4'N to 37°6'N</b>	Northernmost: Indira Col (Jammu & Kashmir) Southernmost (mainland): Kanyakumari (Tamil Nadu) Overall southernmost: <b>Indira Point</b> (Great Nicobar)
Longitude (East–West extent)	<b>68°7'E to 97°25'E</b>	Determines <b>time zones</b> and sunrise variation
Length and Breadth	<b>North to South:</b> ~3,214 km <b>East to West:</b> ~2,933 km	Total area: <b>3.28 million sq. km</b> (7th largest country)

Topic	Details	Important Notes for SSC CGL
Area Rank in the World	7th largest	After Russia, Canada, China, USA, Brazil, and Australia
Standard Meridian of India	82°30'E longitude	Passes through <b>Mirzapur (Uttar Pradesh)</b> ; used for <b>Indian Standard Time (IST)</b>
IST vs GMT	+5 hours 30 minutes ahead of GMT	Uniform time for the entire country
Tropic of Cancer	23°30'N latitude	Passes through <b>8 Indian states</b> : Gujarat, Rajasthan, MP, Chhattisgarh, Jharkhand, West Bengal, Tripura, Mizoram
Neighboring Countries	<b>7 total</b> : Pakistan, Afghanistan, China, Nepal, Bhutan, Bangladesh, Myanmar	India also shares maritime borders with Sri Lanka, Maldives, Indonesia
Land Frontier Length	<b>15,106 km</b>	Shared with 7 countries
Coastline Length	<b>7,516.6 km</b> (mainland + islands)	<b>Mainland coast</b> : 6,100 km
Time Difference (East to West India)	Approx. <b>2 hours</b>	Due to longitudinal width of ~29°
Mainland Extremes	North: Indira Col South: Kanyakumari East: Kibithu (Arunachal Pradesh) West: Guhar Moti (Gujarat)	Important for <b>map-based questions</b>
Southernmost Point (India)	<b>Indira Point</b> (Nicobar Islands)	Submerged during 2004 Tsunami; still officially recognized

## The Himalayas

Category	Details	Important Points for SSC
Location	Northern border of India, running in west-east direction from <b>Indus River (J&amp;K)</b> to <b>Brahmaputra River (Arunachal Pradesh)</b>	Acts as a natural barrier; separates Indian subcontinent from Tibet
Length	Approx. <b>2,400 km</b>	From <b>Jammu &amp; Kashmir</b> to <b>Arunachal Pradesh</b>
Width	200–400 km	Wider in the west, narrower in the east
Formation	Formed by <b>collision of Indo-Australian and Eurasian plates</b>	Example of <b>fold mountains</b>
Age	Youngest mountain range in the world	Tectonically active and still rising

## Three Parallel Ranges of the Himalayas

Range	Other Name	Location	Key Features
Greater Himalayas	Himadri	Northernmost	Tallest and most continuous range Contains <b>Mount Everest (8,848.86 m)</b> & <b>Kanchenjunga (India's highest peak - 8,586 m)</b> Composed mainly of granite Source of major glaciers
Lesser Himalayas	Himachal	South of Himadri	Rugged terrain, more weathered Important hill stations: <b>Shimla, Mussoorie, Nainital</b> Popular valleys: <b>Kangra, Kullu</b>
Shiwalik	Outer Himalayas	Southernmost	Youngest and most unstable Formed by unconsolidated sediments Known for <b>Duns (valleys)</b> like <b>Dehradun, Patli Dun</b>

## Regional Divisions of the Himalayas (West to East)

Section	Extent	State(s) Covered	Notes
<b>Punjab Himalayas</b>	Indus to Satluj	J&K, Himachal Pradesh	Also called <b>Kashmir Himalayas</b>
<b>Kumaon Himalayas</b>	Satluj to Kali River	Uttarakhand	Includes Nainital, Almora
<b>Nepal Himalayas</b>	Kali to Tista River	Runs through Nepal	Contains major peaks like Everest, Makalu
<b>Sikkim Himalayas</b>	Tista to Brahmaputra	Sikkim, N Bengal	Includes <b>Kanchenjunga</b>
<b>Arunachal Himalayas</b>	East of Dihang gorge	Arunachal Pradesh	Highly dissected & covered with dense forests

## Important Himalayan Passes

Pass Name	State/Region	Connects	Significance
<b>Zoji La</b>	J&K	Srinagar to Leh	Strategic military route
<b>Shipki La</b>	Himachal Pradesh	India-Tibet	Trade route
<b>Nathu La</b>	Sikkim	India-Tibet	Reopened for trade in 2006
<b>Bomdi La</b>	Arunachal Pradesh	India-Tibet	Near Tawang
<b>Banihal Pass</b>	J&K	Jammu to Srinagar	Road tunnel now built below it

## Major Rivers Originating in the Himalayas

River	Source Glacier	Location
<b>Ganga</b>	Gangotri	Uttarakhand
<b>Yamuna</b>	Yamunotri	Uttarakhand
<b>Indus</b>	Sengge Zangbu (Kailash Range)	Tibet
<b>Brahmaputra</b>	Chemayungdung Glacier	Tibet (called Tsangpo)
<b>Satluj</b>	Rakshastal Lake	Tibet

## Flora and Fauna Zones by Altitude

Altitude Zone	Vegetation Type	Examples
<b>Up to 1000 m</b>	Tropical forests	Sal, Teak
<b>1000-2000 m</b>	Sub-tropical forests	Pine, Oak
<b>2000-3000 m</b>	Temperate forests	Fir, Spruce
<b>3000-4000 m</b>	Alpine	Juniper, Rhododendron
<b>Above 4000 m</b>	Tundra / Snow line	Mosses, Lichens

## Quick Facts for SSC CGL

- **Young fold mountains** formed by **tectonic collision**
- **Kanchenjunga** is India's **highest peak**
- **Shivaliks** are prone to landslides and erosion
- **Duns** are longitudinal valleys between Lesser and Shivalik Himalayas
- Himalayas **influence Indian monsoon** and act as **climatic barrier**

## Peninsular Plateau of India

### General Overview

**Location** | Lies south of Indo-Gangetic Plains; triangular in shape | Flanked by Western & Eastern Ghats |

**Formation** | Ancient igneous & metamorphic rocks | Part of **Gondwana land** – very old and stable |

**Elevation** | 600–900 m above sea level on average | Slopes from west to east |

**States Covered** | MP, Chhattisgarh, Maharashtra, Telangana, Karnataka, Andhra Pradesh, Tamil Nadu, Odisha, Jharkhand, Rajasthan | One of the **largest physiographic divisions** of India |

### Major Divisions of the Peninsular Plateau

Division	Sub-Regions	States	Highest Peak
<b>Central Highlands</b>	Malwa Plateau, Bundelkhand, Baghelkhand, Chotanagpur Plateau	MP, Rajasthan, Jharkhand	<b>Parasnath (1,365 m)</b> – Jharkhand
<b>Deccan Plateau</b>	Maharashtra Plateau, Karnataka Plateau, Telangana Plateau	Maharashtra, Karnataka, Telangana	<b>Anaimudi (2,695 m)</b> – Kerala (highest in Western Ghats & Peninsular India)

Plateau Name	Part of	Location / States	Features	Important Points for SSC
<b>Malwa Plateau</b>	Central Highlands	Madhya Pradesh & parts of Rajasthan	Volcanic origin, rich in black soil; drained by Chambal, Betwa, and Ken rivers	Lies between Aravalli and Vindhya; fertile and agriculturally important
<b>Bundelkhand Plateau</b>	Central Highlands	UP & MP border region	Undulating, rocky terrain; made of granite and sandstone	Poor soil; mostly rain-fed agriculture; drought-prone
<b>Baghelkhand Plateau</b>	Central Highlands	Eastern MP & parts of Chhattisgarh	Rugged terrain with dense forest; sandstone base	Source of Son and Tons rivers; less populated
<b>Chotanagpur Plateau</b>	Central Highlands	Jharkhand, N. Odisha, parts of Chhattisgarh & West Bengal	Rich in coal, iron ore, mica; formed of granite and gneiss	Known as "Ruhr of India" due to rich mineral deposits
<b>Maharashtra Plateau</b>	Deccan Plateau	Maharashtra	Lava-covered (Deccan Trap); mostly black soil; gently sloping	Known for cotton cultivation; major rivers: Godavari, Bhima
<b>Karnataka Plateau</b>	Deccan Plateau	Karnataka	North: dry, red soil; South: undulating, better rainfall	Origin of rivers: Tungabhadra, Kaveri, Sharavati
<b>Telangana Plateau</b>	Deccan Plateau	Telangana & parts of Andhra Pradesh	Deccan lava origin; granite base; red & black soil	Drained by Godavari & Krishna; both agricultural and mineral significance

### Western Ghats (Sahyadri Hills)

Aspect	Details
<b>Location</b>	Runs parallel to west coast (Gujarat to Kerala)
<b>Nature</b>	Continuous and steep
<b>Average Elevation</b>	900–1,600 m
<b>Importance</b>	Biodiversity hotspot; origin of rivers: Godavari, Krishna, Kaveri, etc.
<b>Divisions</b>	<ul style="list-style-type: none"> <li>Northern Ghats (Maharashtra, Goa)</li> <li>Nilgiri Hills (TN, Kerala, Karnataka)</li> </ul>

Aspect	Details
	<ul style="list-style-type: none"> <li>Anaimalai Hills (Kerala-TN border)</li> <li>Cardamom Hills (Southern Kerala)</li> </ul>
Highest Peak	<b>Anaimudi (2,695 m)</b> – Kerala Also highest in entire Peninsular India
Other Important Peaks	<ul style="list-style-type: none"> <li>Mahabaleshwar – Maharashtra</li> <li>Kudremukh – Karnataka</li> <li>Doddabetta – Tamil Nadu (2,637 m)</li> <li>Agasthyamalai – Kerala-TN border</li> </ul>

## Eastern Ghats

Aspect	Details
Location	Runs along east coast (Odisha to Tamil Nadu)
Nature	Discontinuous and lower than Western Ghats
Average Elevation	600–900 m
Importance	Broken by rivers like Mahanadi, Godavari, Krishna, Kaveri
Divisions	<ul style="list-style-type: none"> <li>Northern Eastern Ghats (Odisha)</li> <li>Central Eastern Ghats (Andhra Pradesh)</li> <li>Southern Eastern Ghats (TN)</li> </ul>
Highest Peak	<b>Arma Konda / Sitamma Konda (1,690 m)</b> – Andhra Pradesh
Other Peaks	<ul style="list-style-type: none"> <li>Mahendragiri (1,501 m) – Odisha</li> <li>Nallamala Hills – AP</li> <li>Shevaroy Hills – TN</li> </ul>

## Important Rivers of the Plateau

River	Origin	Drainage	Key Notes
Godavari	Nasik (Trimbak Hills)	Bay of Bengal	Longest river in peninsular India
Krishna	Mahabaleshwar	Bay of Bengal	Flows through MH, KA, AP
Kaveri	Talakaveri (Brahmagiri Hills)	Bay of Bengal	Forms second-largest delta
Narmada	Amarkantak Plateau	Arabian Sea	Rift valley river; west-flowing
Tapi	Satpura Hills	Arabian Sea	Also west-flowing
Mahanadi	Chhattisgarh	Bay of Bengal	Forms delta in Odisha

## Additional Key Facts

Fact	Details
Oldest part of India	Peninsular Plateau – formed during <b>Precambrian era</b>
River Flow	Most rivers flow <b>eastward</b> due to plateau slope
Soils Found	Black (regur) soil, red soil, laterite soil
Famous Dams	Nagarjuna Sagar (Krishna), Srisailem (Krishna), Koyna Dam (MH)
Economic Importance	Rich in <b>minerals</b> (coal, iron, manganese) especially in Chotanagpur



## Northern Plains of India – General Overview (Table Format)

Category	Details	Important SSC Points
<b>Location</b>	Extends from Punjab (west) to Assam (east), between the Himalayas in the north and Peninsular Plateau in the south	Covers states like Punjab, Haryana, UP, Bihar, West Bengal, Assam
<b>Length</b>	Approx. <b>2,400 km</b> (West to East)	From <b>Indus Valley</b> to <b>Brahmaputra Valley</b>
<b>Width</b>	Varies between <b>150 to 300 km</b>	Narrow in the east, broader in the west
<b>Area</b>	Approx. <b>7 lakh sq. km</b>	One of the <b>largest alluvial plains</b> in the world
<b>Formation</b>	Formed by the <b>deposition of alluvium</b> by rivers from the Himalayas	Rivers: <b>Indus, Ganga, Brahmaputra</b> and their tributaries
<b>Soil Type</b>	<b>Alluvial Soil</b> – New (Khadar) & Old (Bhangar)	Very fertile; suitable for <b>wheat, rice, sugarcane</b> cultivation
<b>Slope</b>	Slopes <b>gently from northwest to southeast</b>	Influences <b>river flow</b> and <b>formation of floodplains</b>

## Longitudinal Divisions of Northern Plains

Division	Location	Features	States Covered
<b>Bhabar</b>	Adjacent to foothills of Himalayas	Narrow belt of coarse sediments; rivers disappear underground	Uttarakhand, parts of Himachal, Nepal border
<b>Terai</b>	South of Bhabar	Marshy and swampy land; rivers re-emerge	Uttar Pradesh, Bihar, North Bengal
<b>Bhangar</b>	Older alluvium, above flood plains	Contains calcareous deposits (kankar); less fertile than Khadar	Found throughout the plain
<b>Khadar</b>	Newer alluvium near riverbeds	Very fertile; renewed annually by floods	Cultivated extensively in Punjab, UP, Bihar

## Regional Divisions of Northern Plains (Based on Rivers)

Region	River System	States Covered	Key Features
<b>Punjab Plains</b>	Indus & its tributaries (Jhelum, Chenab, Ravi, Beas, Sutlej)	Punjab, Haryana	Westernmost part; now shared with Pakistan
<b>Ganga Plains</b>	Ganga and its tributaries (Yamuna, Ghaghara, Gandak, Kosi)	Uttar Pradesh, Bihar, West Bengal	Largest part; most densely populated and fertile
<b>Brahmaputra Plains</b>	Brahmaputra River	Assam	Prone to floods; rich alluvium; riverine islands like Majuli

## Quick Facts & Key Points for SSC CGL

Topic	Fact
<b>Most Fertile Soil</b>	Khadar – used for intensive farming
<b>Most Flood-Prone Area</b>	Brahmaputra Plains (especially Assam)
<b>Most Populated Region</b>	Ganga Plains
<b>Most Industrialized Part</b>	Punjab & Western UP
<b>Kankar Deposits</b>	Found in Bhangar soil (old alluvium)
<b>Major Crops</b>	Wheat, rice, sugarcane, pulses
<b>Agriculture Type</b>	Mostly <b>intensive subsistence farming</b>
<b>River Re-emergence</b>	In <b>Terai</b> region after disappearing in Bhabar

## Monsoon in India:

Aspect	Details
<b>Definition</b>	Seasonal reversal of winds that bring rain to the Indian subcontinent.
<b>Origin of Term</b>	Arabic word ' <i>Mausim</i> ' meaning season.
<b>Monsoon Mechanism</b>	Caused by differential heating of land and sea; leads to pressure differences.
<b>Primary Cause</b>	Intense heating of Indian landmass creates low-pressure area; draws in moist air from Indian Ocean.
<b>Monsoon Season Duration</b>	June to September (South-West Monsoon); October to November (Retreating Monsoon)
<b>Types of Monsoon in India</b>	1. <b>South-West Monsoon</b> (June–Sept) 2. <b>North-East Monsoon / Retreating Monsoon</b> (Oct–Nov)
<b>Branches of South-West Monsoon</b>	1. <b>Arabian Sea Branch</b> – Hits Western Ghats 2. <b>Bay of Bengal Branch</b> – Moves towards North-East & Northern India
<b>Arrival of Monsoon</b>	Kerala – around <b>1st June</b> (earliest point in India)
<b>Withdrawal of Monsoon</b>	Starts from NW India (Rajasthan) by <b>September</b> and completes by <b>mid-October</b>
<b>Regions receiving maximum rainfall</b>	1. Mawsynram (Meghalaya) – <b>world's highest</b> 2. Western Ghats (windward side)
<b>Regions with scanty rainfall</b>	1. Western Rajasthan 2. Ladakh 3. Deccan Plateau (leeward side)
<b>Monsoon Winds Direction (S-W)</b>	From <b>South-West</b> to <b>North-East</b> (Arabian Sea and Bay of Bengal branches)
<b>Monsoon Winds Direction (N-E)</b>	From <b>North-East</b> to <b>South-West</b> (dry and cold winds)
<b>Importance of Monsoon</b>	1. Agricultural backbone 2. Impacts economy, water supply, hydro-power
<b>El Niño Effect</b>	Causes <b>weak monsoon</b> ; warming of Pacific Ocean affects Indian rainfall
<b>La Niña Effect</b>	Often causes <b>stronger than usual monsoon</b>
<b>Break in Monsoon</b>	Temporary halt in rainfall during the season; affects crops
<b>Monsoon Trough</b>	Low-pressure area from Punjab to Bay of Bengal; shifts cause variation in rainfall
<b>ITCZ Role</b>	Inter-Tropical Convergence Zone – migrates northwards and helps draw monsoon into India
<b>Western Disturbances (Winter)</b>	Brings rain to North-West India during winter (not part of monsoon)
<b>Retreating Monsoon Rainfall</b>	Heavy in <b>Tamil Nadu</b> , parts of <b>Andhra Pradesh</b> , and <b>Karnataka</b> (main rainy season for TN)

## Local Names of Pre-Monsoon Showers in India

Region / State	Local Name of Pre-Monsoon Shower	Description / Importance
<b>Kerala &amp; Karnataka (Coastal areas)</b>	<b>Mango Showers</b>	Help in early ripening of mangoes; occur in April–May.
<b>West Bengal &amp; Assam</b>	<b>Kal Baisakhi</b> (Nor'westers)	Violent thunderstorms with strong winds and rains in late April & May.
<b>Odisha, Jharkhand &amp; Bihar</b>	<b>Kal Baisakhi</b>	Same as Bengal region; known for damaging effects on crops.
<b>Andhra Pradesh &amp; Telangana</b>	<b>Cherry Blossom Showers</b> or <b>Coffee Showers</b>	Help in blossom of coffee plants, important in hilly regions.
<b>Tamil Nadu</b>	No specific name for pre-monsoon; gets most rain from retreating monsoon.	Pre-monsoon showers are generally weak and scattered.
<b>North India (Punjab, Haryana, Delhi)</b>	No distinct local name	Rare pre-monsoon activity, mostly dry heat before monsoon sets in.
<b>Maharashtra (Konkan region)</b>	Mango Showers (occasionally used)	Similar to Karnataka; pre-monsoon rains in May.

## Agriculture in India – Complete Table for SSC Exams

Aspect	Details
Share in GDP (2024)	~17–18% (approximate)
Share in Employment	Over 50% of Indian population depends on agriculture
Nature	Subsistence, labor-intensive, monsoon-dependent
Types of Agriculture	<ol style="list-style-type: none"> <li>1. <b>Subsistence Farming</b> – For self-consumption</li> <li>2. <b>Commercial Farming</b> – For market</li> <li>3. <b>Plantation Farming</b> – Single cash crop on large scale (e.g., tea, coffee)</li> <li>4. <b>Mixed Farming</b> – Crops + Livestock</li> <li>5. <b>Shifting Agriculture</b> – Slash-and-burn (e.g., <i>Jhumming</i> in NE India)</li> <li>6. <b>Organic Farming</b> – Without chemical fertilizers and pesticides</li> </ol>
Agricultural Seasons	<ol style="list-style-type: none"> <li>1. <b>Kharif</b> – Sown: June–July, Harvested: Sept–Oct</li> <li>2. <b>Rabi</b> – Sown: Oct–Nov, Harvested: March–April</li> <li>3. <b>Zaid</b> – Short summer crops (April–June)</li> </ol>
Major Kharif Crops	Rice, Maize, Cotton, Groundnut, Soybean, Jowar, Bajra
Major Rabi Crops	Wheat, Barley, Mustard, Gram, Peas
Major Zaid Crops	Watermelon, Muskmelon, Cucumber, Vegetables, Fodder
Leading Crops & States	<ul style="list-style-type: none"> <li>• <b>Rice</b> – West Bengal, UP, Punjab</li> <li>• <b>Wheat</b> – UP, Punjab, Haryana</li> <li>• <b>Cotton</b> – Gujarat, Maharashtra</li> <li>• <b>Sugarcane</b> – UP, Maharashtra</li> <li>• <b>Tea</b> – Assam, West Bengal</li> <li>• <b>Coffee</b> – Karnataka, Kerala</li> </ul>
Soil Types for Agriculture	<ul style="list-style-type: none"> <li>• <b>Alluvial Soil</b> – Northern Plains (good for rice, wheat)</li> <li>• <b>Black Soil</b> – Deccan Plateau (ideal for cotton)</li> <li>• <b>Red Soil</b> – South &amp; Central India (less fertile)</li> <li>• <b>Laterite Soil</b> – Hills, good for plantation crops</li> <li>• <b>Mountain Soil</b> – Tea, Coffee</li> <li>• <b>Desert Soil</b> – Sandy areas, poor fertility</li> </ul>
Irrigation Methods	<ol style="list-style-type: none"> <li>1. Canal Irrigation</li> <li>2. Well and Tube-well Irrigation</li> <li>3. Drip Irrigation</li> <li>4. Sprinkler Irrigation</li> <li>5. Tank Irrigation</li> </ol>
Green Revolution	Introduced in 1960s, led by <b>M.S. Swaminathan</b> Focused on wheat & rice High-yield variety (HYV) seeds, fertilizers, irrigation used
White Revolution	1970s – <b>Operation Flood</b> led by <b>Vergheese Kurien</b> Made India largest milk producer
Blue Revolution	Increase in fish production
Yellow Revolution	Increase in oilseed production
Pink Revolution	Meat and poultry production
Golden Revolution	Horticulture and honey
Major Government Schemes	<ul style="list-style-type: none"> <li>• <b>PM-KISAN</b> – ₹6000/year to small farmers</li> <li>• <b>PMFBY</b> – Crop insurance</li> <li>• <b>Soil Health Card Scheme</b> – Nutrient management</li> <li>• <b>eNAM</b> – Online Agri market</li> <li>• <b>PM Krishi Sinchayee Yojana (PMKSY)</b> – Irrigation support</li> <li>• <b>Rashtriya Krishi Vikas Yojana (RKVY)</b> – Holistic development</li> </ul>

Aspect	Details
<b>Agricultural Institutions</b>	<ul style="list-style-type: none"> <li>• <b>ICAR</b> – Indian Council of Agricultural Research</li> <li>• <b>IARI</b> – Indian Agricultural Research Institute</li> <li>• <b>NABARD</b> – Provides rural/agri finance</li> </ul>
<b>Challenges in Agriculture</b>	<ol style="list-style-type: none"> <li>1. Dependence on Monsoon</li> <li>2. Small and Fragmented land holdings</li> <li>3. Poor irrigation facilities</li> <li>4. Lack of mechanization</li> <li>5. Market access &amp; middlemen exploitation</li> <li>6. Post-harvest losses</li> <li>7. Farmer indebtedness</li> </ol>
<b>Recent Initiatives (2023-24)</b>	<ul style="list-style-type: none"> <li>• Promotion of natural farming</li> <li>• Millet Mission – Declared <b>2023 as International Year of Millets</b></li> <li>• Digitization of land records</li> <li>• Focus on Farmer Producer Organisations (FPOs)</li> </ul>

## MINERALS IN INDIA

Aspect	Details
<b>Definition</b>	Naturally occurring substances with a definite chemical composition and physical properties.
<b>Classification of Minerals</b>	<ol style="list-style-type: none"> <li>1. <b>Metallic Minerals</b> – Ferrous (with iron) &amp; Non-ferrous (without iron)</li> <li>2. <b>Non-Metallic Minerals</b></li> <li>3. <b>Energy Minerals</b> (coal, petroleum, uranium)</li> </ol>
<b>Metallic Minerals – Ferrous</b>	<ul style="list-style-type: none"> <li>• <b>Iron Ore</b> – Hematite &amp; Magnetite</li> <li>• <b>Manganese</b></li> <li>• <b>Chromite</b></li> </ul>
<b>Metallic Minerals – Non-Ferrous</b>	<ul style="list-style-type: none"> <li>• <b>Bauxite</b> (Aluminium ore)</li> <li>• <b>Copper</b></li> <li>• <b>Zinc</b></li> <li>• <b>Lead</b></li> <li>• <b>Gold</b></li> </ul>
<b>Non-Metallic Minerals</b>	<ul style="list-style-type: none"> <li>• <b>Limestone</b></li> <li>• <b>Mica</b></li> <li>• <b>Gypsum</b></li> <li>• <b>Asbestos</b></li> <li>• <b>Potash</b></li> </ul>
<b>Energy Minerals</b>	<ul style="list-style-type: none"> <li>• <b>Coal</b></li> <li>• <b>Lignite</b></li> <li>• <b>Petroleum (Crude Oil)</b></li> <li>• <b>Natural Gas</b></li> <li>• <b>Uranium &amp; Thorium</b></li> </ul>
<b>Major Iron Ore States</b>	<ol style="list-style-type: none"> <li>1. <b>Odisha</b> (Kendujhar, Sundergarh)</li> <li>2. <b>Jharkhand</b> (Singbhum)</li> <li>3. <b>Chhattisgarh</b> (Bastar)</li> <li>4. <b>Karnataka</b> (Bellary)</li> </ol>
<b>Bauxite Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Odisha</b> (Koraput)</li> <li>2. <b>Gujarat</b></li> <li>3. <b>Maharashtra</b></li> <li>4. <b>Jharkhand</b></li> </ol>

Aspect	Details
<b>Coal Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Jharkhand</b> (Jharia, Bokaro)</li> <li>2. <b>Odisha</b> (Talcher)</li> <li>3. Chhattisgarh (Korba)</li> <li>4. West Bengal (Raniganj)</li> </ol>
<b>Manganese Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Odisha</b></li> <li>2. Maharashtra</li> <li>3. Madhya Pradesh</li> <li>4. Karnataka</li> </ol>
<b>Gold Mining in India</b>	<ol style="list-style-type: none"> <li>1. <b>Kolar Gold Fields</b> (Karnataka – now closed)</li> <li>2. Hutti Mines (Karnataka – active)</li> <li>3. Ramgiri (Andhra Pradesh)</li> </ol>
<b>Copper Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Rajasthan</b> (Khetri)</li> <li>2. Madhya Pradesh</li> <li>3. Jharkhand</li> </ol>
<b>Petroleum Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Assam</b> (Digboi, oldest)</li> <li>2. Gujarat (Ankleshwar)</li> <li>3. Mumbai High (Offshore)</li> <li>4. Rajasthan (Barmer – onshore)</li> </ol>
<b>Natural Gas Fields</b>	<ol style="list-style-type: none"> <li>1. <b>Krishna-Godavari Basin</b> (Andhra Pradesh)</li> <li>2. <b>Mumbai High</b></li> <li>3. <b>Assam</b></li> </ol>
<b>Uranium Deposits</b>	<ol style="list-style-type: none"> <li>1. <b>Jharkhand</b> (Jaduguda – largest)</li> <li>2. Andhra Pradesh (Tummalapalle)</li> <li>3. Meghalaya</li> </ol>
<b>Thorium Deposits</b>	<ol style="list-style-type: none"> <li>1. <b>Kerala Monazite Sands</b></li> <li>2. Andhra Pradesh</li> <li>3. Tamil Nadu (Coastal sands)</li> </ol>
<b>Limestone Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Madhya Pradesh</b></li> <li>2. Rajasthan</li> <li>3. Andhra Pradesh</li> <li>4. Gujarat</li> </ol>
<b>Mica Producing States</b>	<ol style="list-style-type: none"> <li>1. <b>Jharkhand</b> (Hazaribagh)</li> <li>2. Bihar</li> <li>3. Andhra Pradesh</li> </ol>
<b>India's Mineral Policy</b>	<ul style="list-style-type: none"> <li>• <b>National Mineral Policy (NMP) 2019</b></li> <li>• Encourages private sector participation, sustainability, and transparency</li> </ul>
<b>Major Mining PSUs</b>	<ul style="list-style-type: none"> <li>• <b>Coal India Ltd (CIL)</b> – coal</li> <li>• <b>NMDC</b> – iron ore</li> <li>• <b>NALCO</b> – aluminium</li> <li>• <b>HCL</b> – copper</li> <li>• <b>ONGC</b> – oil &amp; gas</li> </ul>
<b>Important Mineral Belts</b>	<ol style="list-style-type: none"> <li>1. <b>Chhota Nagpur Plateau</b> – Jharkhand, Odisha, Chhattisgarh</li> <li>2. <b>Peninsular Belt</b> – Karnataka, Goa</li> <li>3. <b>Western Belt</b> – Rajasthan, Gujarat</li> <li>4. <b>North-Eastern Region</b> – Assam (oil), Meghalaya (uranium)</li> </ol>
<b>Uses of Minerals</b>	<ul style="list-style-type: none"> <li>• <b>Iron</b> – Steel</li> <li>• <b>Bauxite</b> – Aluminium</li> <li>• <b>Coal</b> – Fuel</li> <li>• <b>Mica</b> – Electrical industry</li> <li>• <b>Limestone</b> – Cement</li> <li>• <b>Copper</b> – Electrical wires</li> <li>• <b>Gold/Silver</b> – Jewellery &amp; Electronics</li> </ul>



## Making of Indian Constitution:

S.No.	Concept / Topic	Details
1	Historical Background	Demand for a Constituent Assembly was first made by <b>M.N. Roy (1934)</b> ; supported by <b>INC (1935)</b>
2	Constituent Assembly Formation	Formed under <b>Cabinet Mission Plan (1946)</b>
3	Total Members Initially	<b>389 members</b> (292 British Indian provinces + 93 Princely States + 4 Chief Commissioner's Provinces)
4	First Meeting	<b>9 December 1946</b> , presided by <b>Dr. Sachchidananda Sinha (interim chairman)</b>
5	Permanent Chairman	<b>Dr. Rajendra Prasad</b> , elected on <b>11 December 1946</b>
6	Boycott by Muslim League	Muslim League boycotted the Assembly initially; demanded a separate nation (Pakistan)
7	Number of Committees	Total <b>22 committees</b> , of which <b>8 were major committees</b>
8	Drafting Committee	Formed on <b>29 August 1947</b> , chaired by <b>Dr. B.R. Ambedkar</b>
9	Members of Drafting Committee	1. Dr. B.R. Ambedkar (Chairman) 2. N. Gopalaswami Ayyangar 3. Alladi Krishnaswami Ayyar 4. K.M. Munshi 5. Syed Mohammad Saadullah 6. B.L. Mitter (resigned later, replaced by N. Madhava Rao) 7. D.P. Khaitan (died later, replaced by T.T. Krishnamachari)
10	Adoption Date of Constitution	<b>26 November 1949</b>
11	Enforcement Date	<b>26 January 1950</b> (chosen to honor <b>Purna Swaraj Day</b> of 1930)
12	Total Time Taken	<b>2 years, 11 months, 18 days</b>
13	Total Sessions	<b>11 sessions</b> held over the period
14	Total Days of Sitting	<b>165 days</b>
15	Initial Articles, Schedules, Parts	<b>395 Articles, 8 Schedules, 22 Parts</b>
16	Current Articles, Schedules, Parts	<b>~470 Articles, 12 Schedules, 25 Parts</b> (as amended)
17	Source of Ideas	Adopted ideas from multiple constitutions: • UK: Parliamentary system • USA: Fundamental Rights • Ireland: DPSPs • Canada: Federation with strong center
18	Objective Resolution	Introduced by <b>Jawaharlal Nehru</b> on <b>13 December 1946</b> – Became <b>Preamble's base</b>
19	Final Draft Submitted	<b>21 February 1948</b>
20	First Amendment	<b>1951</b> , dealt with land reforms and freedom of speech limitations
21	Nature of Constitution	• <b>Longest written constitution in the world</b> • <b>Partly rigid and partly flexible</b>
22	Significance of 26 January	Commemorates the declaration of <b>Purna Swaraj</b> by INC at Lahore session in <b>1930</b>
23	Language of Drafting	Initially drafted in <b>English</b> , final version also available in <b>Hindi</b>
24	Total Signatories	<b>284 members</b> signed the Constitution on <b>24 January 1950</b>
25	India became a Republic	<b>26 January 1950</b> , when Constitution came into force and Dr. Rajendra Prasad became the <b>first President</b>

## Preamble

S.No.	Topic / Concept	Details / Explanation
1	<b>Definition of Preamble</b>	An introductory statement that outlines the <b>goals, objectives, and philosophy</b> of the Constitution.
2	<b>Inspired by</b>	Based on the <b>Objective Resolution</b> moved by <b>Jawaharlal Nehru</b> on <b>13 December 1946</b> .
3	<b>Adopted on</b>	<b>26 November 1949</b>
4	<b>Came into force on</b>	<b>26 January 1950</b>
5	<b>Preamble added by</b>	It is an integral part of the original Constitution; not added later.
6	<b>Preamble begins with</b>	<b>"We, the people of India..."</b>
7	<b>Nature of the State (keywords)</b>	• <b>Sovereign</b> • <b>Socialist</b> • <b>Secular</b> • <b>Democratic</b> • <b>Republic</b>
8	<b>Objectives mentioned</b>	• <b>Justice</b> (Social, Economic, Political) • <b>Liberty</b> (of thought, expression, belief, faith, worship) • <b>Equality</b> (of status and opportunity) • <b>Fraternity</b> (assuring dignity of individual and unity of the nation)
9	<b>Amendment to Preamble</b>	Only one amendment: <b>42nd Amendment Act, 1976</b>
10	<b>Words added in 42nd Amendment</b>	• <b>Socialist</b> • <b>Secular</b> • <b>Integrity</b> (in "unity and integrity of the Nation")
11	<b>Is Preamble a part of Constitution?</b>	Yes. Declared in <b>Kesavananda Bharati case (1973)</b> – it is part of the Constitution.
12	<b>Can Preamble be amended?</b>	Yes. Held in <b>Kesavananda Bharati case (1973)</b> that it can be amended <b>without changing basic structure</b> .
13	<b>Cannot be amended if...</b>	It alters the <b>basic structure</b> of the Constitution (as per <b>Basic Structure Doctrine</b> )
14	<b>Not enforceable in court</b>	Preamble is <b>non-justiciable</b> , i.e., not legally enforceable
15	<b>Serves as</b>	An <b>introduction, philosophical foundation, and guiding principle</b> for interpreting Constitution
16	<b>First word of Preamble</b>	<b>"We"</b> – indicating <b>popular sovereignty</b>
17	<b>Republic meaning</b>	Head of the state is <b>elected</b> , not hereditary (President instead of monarch)
18	<b>Democratic meaning</b>	Government by <b>elected representatives</b> by the people
19	<b>Secular meaning</b>	State has <b>no official religion</b> ; all religions treated equally
20	<b>Socialist meaning</b>	Aims at reducing <b>inequality</b> , promoting <b>social and economic justice</b>
21	<b>Fraternity meaning</b>	Promotes <b>brotherhood, unity and dignity of individual</b>
22	<b>Justice (3 types)</b>	• <b>Social</b> – equal treatment without discrimination • <b>Economic</b> – equal wealth distribution • <b>Political</b> – equal voting rights
23	<b>Liberty (5 areas)</b>	Thought, Expression, Belief, Faith, Worship
24	<b>Equality (2 areas)</b>	Status and Opportunity

## Part I – The Union and Its Territory (Articles 1 to 4)

Article	Title	Explanation / Key Points
<b>Article 1</b>	Name and territory of the Union	<ul style="list-style-type: none"> <li>India, that is Bharat, shall be a Union of States.</li> <li>It includes states, UTs, and any acquired territories.</li> </ul>
<b>Article 2</b>	Admission or establishment of new states	<ul style="list-style-type: none"> <li>Parliament can admit or establish new states into the Union.</li> </ul>
<b>Article 3</b>	Formation of new States and alteration of areas	<ul style="list-style-type: none"> <li>Parliament can form new states, alter boundaries, names, areas of existing states.</li> <li>President must recommend the bill.</li> </ul>
<b>Article 4</b>	Laws under Articles 2 and 3	<ul style="list-style-type: none"> <li>Any laws made under Article 2 or 3 shall not be considered a constitutional amendment under Article 368.</li> </ul>

## Part II – Citizenship (Articles 5 to 11)

Article	Title	Explanation / Key Points
<b>Article 5</b>	Citizenship at the commencement of the Constitution	<ul style="list-style-type: none"> <li>Provides citizenship rights to persons domiciled in India at the time of commencement (26 Jan 1950).</li> </ul>
<b>Article 6</b>	Rights of citizenship of certain persons who have migrated from Pakistan	<ul style="list-style-type: none"> <li>Grants citizenship to persons who migrated from Pakistan before or after 19 July 1948 under certain conditions.</li> </ul>
<b>Article 7</b>	Rights of citizenship of certain migrants to Pakistan	<ul style="list-style-type: none"> <li>Those who migrated to Pakistan but returned under permit system are eligible.</li> </ul>
<b>Article 8</b>	Rights of citizenship of Indians abroad	<ul style="list-style-type: none"> <li>Indian-origin persons residing outside India (like in UK) could register as citizens through Indian diplomatic missions.</li> </ul>
<b>Article 9</b>	Persons voluntarily acquiring citizenship of a foreign state	<ul style="list-style-type: none"> <li>Such persons shall not be citizens of India.</li> </ul>
<b>Article 10</b>	Continuance of the rights of citizenship	<ul style="list-style-type: none"> <li>Parliament has the power to regulate citizenship rights via law.</li> </ul>
<b>Article 11</b>	Parliament to regulate the right of citizenship	<ul style="list-style-type: none"> <li>Empowers Parliament to make laws regarding acquisition, termination, and all other matters relating to citizenship.</li> </ul>

## Polity

### Fundamental Rights

Article No.	Fundamental Right
<b>Article 14</b>	Equality before law
<b>Article 15</b>	Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth
<b>Article 16</b>	Equality of opportunity in matters of public employment
<b>Article 17</b>	Abolition of untouchability
<b>Article 18</b>	Abolition of titles
<b>Article 19</b>	Protection of six freedoms: speech and expression, assembly, association, movement, residence, and profession
<b>Article 20</b>	Protection in respect of conviction for offences (Ex-post-facto law, double jeopardy, self-incrimination)
<b>Article 21</b>	Protection of life and personal liberty
<b>Article 21A</b>	Right to education (6–14 years) – inserted by 86th Amendment Act, 2002
<b>Article 22</b>	Protection against arrest and detention in certain cases
<b>Article 23</b>	Prohibition of traffic in human beings and forced labour

Article No.	Fundamental Right
Article 24	Prohibition of employment of children below 14 years in hazardous industries
Article 25	Freedom of conscience and free profession, practice and propagation of religion
Article 26	Freedom to manage religious affairs
Article 27	Freedom from payment of taxes for promotion of any religion
Article 28	Freedom from attending religious instruction in certain educational institutions
Article 29	Protection of interests of minorities
Article 30	Right of minorities to establish and administer educational institutions
Article 32	Right to constitutional remedies (to move Supreme Court directly in case of violation of Fundamental Rights)

### Articles Related to Enforcement & Exceptions

Article No.	Purpose
Article 33	Parliament's power to modify fundamental rights for armed forces
Article 34	Restriction of rights while martial law is in force
Article 35	Parliament's authority to make laws to give effect to certain Fundamental Rights

### Directive Principles of State Policy (DPSPs) – Articles 36 to 51

Article No.	Directive Principle
Article 36	Definition of 'State' (same as in Part III)
Article 37	Application of DPSPs (Not enforceable by court but fundamental to governance)
Article 38	Promote welfare of people by securing a social order through justice
Article 39	<ul style="list-style-type: none"> <li>Adequate means of livelihood</li> <li>Equal pay for equal work</li> <li>Protection of children and youth from exploitation</li> <li>Economic justice</li> </ul>
Article 39A	Equal justice and free legal aid (added by 42nd Amendment)
Article 40	Organisation of Village Panchayats
Article 41	Right to work, education and public assistance in certain cases
Article 42	Just and humane conditions of work and maternity relief
Article 43	Living wage, etc., for workers
Article 43A	Workers' participation in management of industries (added by 42nd Amendment)
Article 44	Uniform Civil Code for the citizens
Article 45	Provision for early childhood care and education (amended by 86th Amendment)
Article 46	Promotion of educational and economic interests of SCs, STs, and other weaker sections
Article 47	Duty of the State to raise the level of nutrition and public health
Article 48	Organisation of agriculture and animal husbandry (prohibition of cow slaughter)
Article 48A	Protection and improvement of environment and safeguarding of forests and wildlife (added by 42nd Amendment)
Article 49	Protection of monuments and places of national importance
Article 50	Separation of judiciary from the executive
Article 51	Promotion of international peace and security

## Fundamental Duties – Article 51A (Part IVA)

Article No.	Fundamental Duty
Article 51A (a)	To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem
Article 51A (b)	To cherish and follow the noble ideals of the freedom struggle
Article 51A (c)	To uphold and protect the sovereignty, unity, and integrity of India
Article 51A (d)	To defend the country and render national service when called upon
Article 51A (e)	To promote harmony and brotherhood among all people and renounce practices derogatory to the dignity of women
Article 51A (f)	To value and preserve the rich heritage of our composite culture
Article 51A (g)	To protect and improve the natural environment (forests, lakes, rivers, and wildlife)
Article 51A (h)	To develop scientific temper, humanism and spirit of inquiry and reform
Article 51A (i)	To safeguard public property and abjure violence
Article 51A (j)	To strive towards excellence in all spheres of individual and collective activity
Article 51A (k)	Parent/guardian to provide opportunities for education to children (6–14 years) – added by 86th Amendment, 2002

## The President of India

Article No.	Provision
Article 52	The President of India – There shall be a President of India
Article 53	Executive power of the Union shall be vested in the President
Article 54	Election of President (by electoral college: MPs + MLAs)
Article 55	Manner of election of President (Proportional Representation by Single Transferable Vote)
Article 56	Term of office of President (5 years)
Article 57	Eligibility for re-election of President
Article 58	Qualifications for election as President (Citizen of India, 35 years, eligible for Lok Sabha)
Article 59	Conditions of President's office (no other office of profit, official residence, emoluments)
Article 60	Oath or affirmation by the President
Article 61	Procedure for impeachment of the President
Article 62	Time of holding election to fill a vacancy
Article 70	Discharge of President's functions in other contingencies
Article 71	Matters relating to or connected with the election of a President
Article 72	Power of President to grant pardons, etc., in certain cases
Article 74	Council of Ministers to aid and advise the President
Article 75	Other provisions as to Ministers (appointed by President)
Article 76	Attorney General of India (appointed by President)
Article 77	Conduct of business of the Government of India (by President)
Article 123	Power of President to promulgate ordinances



## Vice-President of India

Article No.	Provision
<b>Article 63</b>	The Vice-President of India – There shall be a Vice-President
<b>Article 64</b>	The Vice-President to be ex-officio Chairman of the Rajya Sabha
<b>Article 65</b>	The Vice-President to act as President in case of vacancy or absence
<b>Article 66</b>	Election of Vice-President (by electoral college: only MPs)
<b>Article 67</b>	Term of office of Vice-President (5 years)
<b>Article 68</b>	Time of holding election to fill vacancy in Vice-President's office
<b>Article 69</b>	Oath or affirmation by the Vice-President
<b>Article 71</b>	Matters relating to or connected with election of Vice-President (also applies to President)

## The Governor – Indian Constitution (Part VI: The States)

Article No.	Provision Related to the Governor
<b>Article 153</b>	There shall be a Governor for each State ( <i>Note: one person can be Governor for two or more states</i> )
<b>Article 154</b>	Executive power of the State shall be vested in the Governor
<b>Article 155</b>	Appointment of Governor by the President of India
<b>Article 156</b>	Term of office of Governor (normally 5 years, holds office at the pleasure of the President)
<b>Article 157</b>	Qualifications for appointment as Governor (must be citizen of India, 35+ years of age)
<b>Article 158</b>	Conditions of Governor's office (no office of profit, official residence, emoluments, etc.)
<b>Article 159</b>	Oath or affirmation by the Governor (administered by Chief Justice of High Court)
<b>Article 160</b>	Discharge of functions in contingencies (President may make provisions)
<b>Article 161</b>	Power of Governor to grant pardons, reprieves, respites, or remissions of punishment
<b>Article 162</b>	Extent of executive power of the State
<b>Article 163</b>	Council of Ministers to aid and advise the Governor
<b>Article 164</b>	Other provisions as to Ministers (appointed by Governor, CM is appointed by Governor)
<b>Article 165</b>	Advocate-General for the State (appointed by Governor)
<b>Article 166</b>	Conduct of business of the Government of a State
<b>Article 167</b>	Duties of Chief Minister with respect to furnishing information to Governor
<b>Article 174</b>	Governor's power to summon, prorogue and dissolve the State Legislature
<b>Article 175</b>	Right of Governor to address and send messages to the House or Houses of State Legislature
<b>Article 176</b>	Special Address by the Governor (customary address at the commencement of first session each year)
<b>Article 200</b>	Assent to Bills (Governor may give, withhold, or reserve for President's consideration)
<b>Article 201</b>	Bills reserved for consideration of the President

## Council of Ministers

Article No.	Provision Title	Description / Key Points
<b>Article 74</b>	<b>Council of Ministers to aid and advise the President</b>	<ul style="list-style-type: none"> <li>- There shall be a <b>Council of Ministers headed by the Prime Minister</b> to aid and advise the President.</li> <li>- <b>President shall act in accordance with such advice</b> (44th Amendment clarified this).</li> </ul>

Article No.	Provision Title	Description / Key Points
Article 75	Other provisions regarding Ministers	<ul style="list-style-type: none"> <li>- PM appointed by President; other ministers appointed on PM's advice.</li> <li>- Ministers hold office <b>during the pleasure of the President</b>.</li> <li>- <b>Collective Responsibility</b> to Lok Sabha.</li> <li>- <b>Minister must be a member of Parliament</b> within 6 months of appointment.</li> <li>- Salaries as determined by Parliament.</li> </ul>
Article 77	Conduct of business of Government of India	<ul style="list-style-type: none"> <li>- All executive actions of the Government of India shall be expressed to be taken in the name of the <b>President</b>.</li> <li>- Allocation of business among ministers.</li> </ul>
Article 78	Duties of the Prime Minister	<ul style="list-style-type: none"> <li>- PM communicates all decisions of CoM to President.</li> <li>- PM furnishes information and submits matters for Presidential consideration when required.</li> </ul>
Article 88	Rights of Ministers as Members	<ul style="list-style-type: none"> <li>- Ministers have the <b>right to speak and take part</b> in the proceedings of either House, any committee, <b>but cannot vote if not a member</b> of the House.</li> </ul>

### Council of Ministers – Additional Key Information

Category	Details
Composition	PM + Cabinet Ministers + Ministers of State (with/without independent charge)
Maximum Limit	As per <b>91st Amendment Act, 2003</b> – Total number of Ministers <b>shall not exceed 15% of the Lok Sabha strength</b> .
Collective Responsibility	The entire Council is collectively responsible to <b>Lok Sabha</b> (Article 75(3))
Individual Responsibility	Ministers hold office during the <b>pleasure of the President</b> , implying dismissal on PM's advice.
Oath of Office	Administered by the <b>President</b> under <b>Third Schedule</b> of the Constitution
Difference: Cabinet vs CoM	<ul style="list-style-type: none"> <li>- <b>Cabinet</b> is a smaller body within CoM, responsible for key decisions.</li> <li>- <b>Council of Ministers</b> includes all levels of ministers.</li> </ul>

### Parliament: Structure and Composition of Parliament

Article No.	Title / Subject	Key Provisions / Description
Article 79	Constitution of Parliament	Parliament = President + Lok Sabha + Rajya Sabha
Article 80	Composition of Rajya Sabha	Max strength = 250 - 238 elected by states/UTs - 12 nominated by President
Article 81	Composition of Lok Sabha	Max strength = 552 - 530 from states, 20 from UTs, 2 Anglo-Indians (removed by 104th Amendment)
Article 82	Readjustment after census	Delimitation of constituencies after every census
Article 83	Duration of Houses	Rajya Sabha: permanent, 1/3rd retire every 2 yrs Lok Sabha: 5 years (can be dissolved earlier)
Article 84	Qualifications for MP	Must be Indian citizen, 25 yrs for LS, 30 yrs for RS, etc.
Article 85	Sessions of Parliament	President summons each House; max 6-month gap allowed
Article 86	President's Address	Right to address and send messages to Parliament
Article 87	Special Address	President addresses both Houses at the start of first session each year and first session after general elections

## Officers and Conduct of Business

Article No.	Title / Subject	Key Provisions / Description
<b>Article 88</b>	Rights of Ministers	Can speak in either House, but cannot vote unless member
<b>Article 89</b>	Chairman and Deputy Chairman of Rajya Sabha	Vice President = Ex-officio Chairman of RS
<b>Article 90</b>	Vacation/resignation/removal of Deputy Chairman	Details of how the Deputy Chairman vacates/removal process
<b>Article 91</b>	Powers of Deputy Chairman	When Chairman absent, Deputy presides
<b>Article 93</b>	Speaker and Deputy Speaker of Lok Sabha	Elected by LS members
<b>Article 94</b>	Vacation/resignation/removal of Speaker	Rules for Speaker/Deputy Speaker vacating or removal
<b>Article 95</b>	Powers of Deputy Speaker	Acts in absence of Speaker

## Legislative Process and Powers

Article No.	Title / Subject	Key Provisions / Description
<b>Article 107</b>	Introduction & Passing of Bills	Defines Bill and procedure in both Houses
<b>Article 108</b>	Joint Sitting of Parliament	Called by President if deadlock on a bill arises
<b>Article 109</b>	Money Bills – Rajya Sabha's Role	RS has only advisory role; must return in 14 days
<b>Article 110</b>	Definition of Money Bill	Only Speaker certifies it; includes taxes, borrowings, etc.
<b>Article 111</b>	President's Assent	President can assent, withhold, or return (except Money Bill)

## Parliamentary Privileges and Disqualifications

Article No.	Title / Subject	Key Provisions / Description
<b>Article 105</b>	Powers and Privileges of Parliament	Freedom of speech, immunity from court proceedings
<b>Article 102</b>	Disqualification of MPs	On grounds of defection, unsound mind, insolvency, office of profit, etc.

## Miscellaneous and Financial Powers

Article No.	Title / Subject	Key Provisions / Description
<b>Article 112</b>	Annual Financial Statement	Union Budget presented to Parliament
<b>Article 113–117</b>	Procedure for Money Bills, Appropriation Bills, etc.	Describes the entire budget and financial process
<b>Article 118</b>	Rules of Procedure	Each House can make its own rules
<b>Article 122</b>	Courts not to inquire into proceedings of Parliament	Ensures separation of powers & legislative privilege

## State Legislature – Important Articles

Article No.	Title / Subject	Key Provisions / Description
<b>168</b>	Constitution of Legislatures in States	Provides for two types of legislature: • <b>Unicameral</b> – only Legislative Assembly (most states) • <b>Bicameral</b> – Legislative Assembly + Legislative Council (e.g., UP, Bihar, Maharashtra)
<b>169</b>	Abolition or Creation of Legislative Councils	Parliament can abolish or create Legislative Councils via ordinary law on state's resolution passed by special majority
<b>170</b>	Composition of Legislative Assembly (Vidhan Sabha)	Max strength = 500, Min = 60 (exceptions: Goa, Sikkim, Mizoram) Members are directly elected

Article No.	Title / Subject	Key Provisions / Description
171	Composition of Legislative Council (Vidhan Parishad)	Max = 1/3rd of Assembly size; Min = 40 Members elected from local bodies, teachers, graduates, etc.
172	Duration of State Legislatures	<ul style="list-style-type: none"> <li>Legislative Assembly: 5 years unless dissolved sooner</li> <li>Can be extended during national emergency</li> </ul>
173	Qualifications for Membership	<ul style="list-style-type: none"> <li>Indian citizen</li> <li>25 years for Assembly, 30 years for Council</li> </ul>
174	Sessions of State Legislature	Governor summons, prorogues, and dissolves the Assembly Max 6-month gap between sessions
175	Governor's Address to the House	Governor can address and send messages to either/both Houses
176	Special Address by Governor	At the first session of each year or after a general election
177	Rights of Ministers and Advocate General	Can participate in proceedings of legislature without voting rights if not a member
178	Speaker and Deputy Speaker of Legislative Assembly	Elected by the Assembly members
179	Vacation/resignation/removal of Speaker/Deputy Speaker	Details of how they vacate office or are removed
182	Chairman and Deputy Chairman of Legislative Council	Similar to RS; elected internally
183	Vacation/removal of Chairman/Deputy Chairman	Provisions related to resignation/removal
188	Oath or Affirmation by Members	Before taking seat, members must take oath
190	Vacation of Seats	Seat vacated on resignation, disqualification, or absence
191	Disqualifications for Membership	Similar to Parliament; includes office of profit, insolvency, allegiance to foreign state, etc.
192	Decision on Disqualification	Governor decides after consulting Election Commission
193	Penalty for sitting and voting while disqualified	Penalty may be imposed if a disqualified person votes or sits in House
194	Powers and Privileges	Freedom of speech, immunity from court proceedings, etc. – similar to Parliament
198	Bills in State Legislature	Procedure for introducing and passing bills
200	Assent to Bills by Governor	Governor can give assent, withhold, return (except money bill)
201	Reservation of Bills for President	Governor can reserve certain bills for President's consideration
202	Annual Financial Statement (State Budget)	Similar to Union Budget – lays out revenue/expenditure
203–207	State Financial Procedure	Rules for money bills, appropriation bills, etc.

## Supreme Court of India – Important Articles

Article No.	Title / Subject	Key Provisions / Description
124	Establishment and Constitution of Supreme Court	<ul style="list-style-type: none"> <li>Supreme Court established as per Constitution</li> <li>Chief Justice + other Judges appointed by President</li> </ul>
125	Salaries and Allowances	Salaries, allowances, rights of SC judges are charged on the Consolidated Fund of India
126	Appointment of Acting Chief Justice	President can appoint a judge to act as Chief Justice when needed
127	Appointment of Ad hoc Judges	Chief Justice can request a HC judge to act as SC judge temporarily
128	Attendance of retired judges	Retired SC judges can be asked to sit and act as SC judges
129	Supreme Court as a Court of Record	Judgments have evidentiary value and contempt powers

Article No.	Title / Subject	Key Provisions / Description
130	Seat of Supreme Court	- SC shall sit in Delhi (unless changed by the Chief Justice with the approval of the President)
131	Original Jurisdiction	- Disputes between Centre and one or more States, or among States (federal disputes)
132	Appellate Jurisdiction – Constitutional Matters	- Appeals to SC in cases involving substantial questions of law as to interpretation of Constitution
133	Appellate Jurisdiction – Civil Cases	- Civil appeals to SC if the case involves a substantial question of law
134	Appellate Jurisdiction – Criminal Cases	- Criminal appeals under specified conditions (e.g., death sentence, acquittal reversal)
134A	Certificate for appeal to Supreme Court	- High Court may certify that a case is fit for appeal to SC
135	Enlarged Jurisdiction	- SC can exercise jurisdiction and powers conferred by any other law
136	Special Leave Petition (SLP)	- SC may grant special leave to appeal from any judgment, decree, order from any court/tribunal (except military tribunals)
137	Review of Judgments	- SC has the power to review its own judgments or orders
138	Enlargement of Jurisdiction	- Parliament may confer further jurisdiction on SC
139	Conferment of powers to issue writs	- Parliament can empower SC to issue writs in other matters
139A	Transfer of certain cases	- Transfer of cases involving the same legal question to SC for decision
141	Law declared by SC to be binding	- SC decisions are binding on all courts in India
142	Enforcement of decrees and orders	- SC may pass any order necessary for complete justice
143	Advisory Jurisdiction	- President can refer legal/matters of public importance to SC for advice
144	Civil and judicial authorities to act in aid of SC	- All authorities must act in aid of SC
145	Rules of Court	- SC can make its own rules for procedure and practice
146	Officers and servants of SC	- Appointments made by CJI; conditions set by President
147	Interpretation	- Clarifies what 'law' includes in SC jurisdiction (e.g., Constitutional law)

## High Court - Important Articles

Article No.	Title / Subject	Key Provisions / Description
214	High Courts for States	Each state shall have a High Court; common HC can be formed for two or more states/UTs
215	High Court to be a Court of Record	High Court has power to punish for its contempt; judgments have evidentiary value
216	Constitution of High Courts	High Court shall consist of Chief Justice + other judges appointed by the President
217	Appointment and Conditions of Office of HC Judges	Appointed by President (in consultation with CJI, Governor, and Chief Justice of that HC) Retirement age: <b>62 years</b>
218	Application of certain provisions regarding SC to HC	Conditions like removal and tenure applicable to HC Judges
219	Oath or Affirmation	Judges of HC take oath before Governor or person appointed by him
220	Restriction on practice after retirement	A retired HC judge cannot plead or act in any court or before any authority in India except the Supreme Court
221	Salaries and Allowances	Determined by Parliament; charged on Consolidated Fund of the State



Article No.	Title / Subject	Key Provisions / Description
222	Transfer of Judges	President can transfer a HC judge from one court to another after consultation with CJI
224	Appointment of Additional and Acting Judges	Appointed by President to clear arrears or for temporary vacancies
225	Jurisdiction of Existing High Courts	Jurisdiction continues unless changed by law made by Parliament
226	Power of High Courts to issue writs	Can issue writs (habeas corpus, mandamus, prohibition, certiorari, quo warranto) for enforcement of fundamental rights and for <b>any other purpose</b>
227	Power of Superintendence	High Court has power of superintendence over all subordinate courts within its jurisdiction
228	Transfer of certain cases to High Court	High Court can withdraw cases from subordinate courts if they involve substantial question of constitutional law
229	Officers and servants of HC	Appointed by Chief Justice of HC
230	Extension of jurisdiction of High Courts to Union Territories	Parliament can extend jurisdiction of HC to UTs
231	Establishment of common High Court	Parliament can establish a common HC for two or more States/UTs (e.g., Punjab & Haryana)

## Constitutional Bodies

Articles	Constitutional Body	Explanation of Each Article
76	Attorney General of India	76: Chief legal advisor to the Government of India. Must be qualified to be a SC judge. Represents Union in court cases.
148 - 151	Comptroller and Auditor General (CAG)	148: Appointment, oath, conditions. 149: Duties and powers. 150: Form of accounts. 151: Submission of audit reports to President/Governor.
165	Advocate General of State	165: Highest legal officer in a state. Advises State Government in legal matters.
280	Finance Commission	280: Constituted every 5 years by the President. Recommends tax distribution between Centre and States and gives financial advice.
315 - 323	UPSC and State PSCs	315: Establishes UPSC & State PSCs. 316: Appointment & term. 317: Removal. 318: Power to make rules. 319: Re-appointment restrictions. 320: Functions. 321: Parliament can assign additional functions. 322: Expenses charged on Consolidated Fund. 323: Submission of reports to President/Governor.
324 - 329	Election Commission of India	324: Power to direct/control elections. 325: No discrimination in electoral rolls. 326: Adult suffrage. 327: Parliament laws for elections. 328: State laws for elections. 329: No court interference except through election petitions.
338	National Commission for SCs	338: Investigates safeguards and rights of Scheduled Castes, submits reports to the President, and suggests welfare measures.

Articles	Constitutional Body	Explanation of Each Article
338A	<b>National Commission for STs</b>	338A: Similar to Article 338 but focuses on Scheduled Tribes. Separate commission created by 89th Amendment.
338B	<b>National Commission for Backward Classes</b>	338B: Added by the 102nd Constitutional Amendment. Gives constitutional status to NCBC. Works for OBC welfare and rights.
350B	<b>Special Officer for Linguistic Minorities</b>	350B: Appointed by the President. Reports to the President on linguistic minority issues. Ensures safeguards are followed.
279A	<b>GST Council</b>	279A: Established by the President. Recommends GST rates, exemptions, laws. Headed by Union Finance Minister with members from Centre and States.

## Local Bodies – Panchayats & Municipalities

### Part IX – Panchayats (Articles 243–243O)

Article	Subject	Explanation
243	Definitions	Provides definitions of terms like "district", "Gram Sabha", "Panchayat", etc.
243A	Gram Sabha	Empowers Gram Sabha to function as a basic village-level body for people's participation.
243B	Constitution of Panchayats	Mandates 3-tier structure: Gram Panchayat, Panchayat Samiti, Zila Parishad (State can skip intermediate level if population < 20 lakhs).
243C	Composition of Panchayats	Members can be directly or indirectly elected; includes reservation for SC/ST/women.
243D	Reservation of Seats	One-third reservation for women, reservation for SCs/STs based on population.
243E	Term of Panchayats	5-year term; dissolution leads to elections within 6 months.
243F	Qualifications for members	State Legislature can define qualifications/disqualifications.
243G	Powers, authority, and responsibilities	State Legislature may endow Panchayats with powers to prepare plans for economic development and social justice.
243H	Powers to impose taxes and receive funds	State can authorize Panchayats to levy taxes and receive funds from State or Centre.
243I	State Finance Commission	Constituted every 5 years to review financial position of Panchayats.
243J	Audit of accounts	State Legislature to make provisions for Panchayat audit.
243K	Elections to Panchayats	State Election Commission (SEC) conducts Panchayat elections.
243L	Application to Union Territories	Provides for Panchayat formation in Union Territories.
243M	Exceptions	Excludes certain areas like Scheduled Areas, tribal areas (5th and 6th Schedule).
243N	Continuance of existing laws	Existing laws to continue until amended in line with the 73rd Amendment.
243O	Bar to interference by courts	Courts cannot question Panchayat elections except via election petitions.

### Part IXA – Municipalities (Articles 243P–243ZG)

#### Key Highlights:

Topic	Details
73rd Amendment Act, 1992	Introduced <b>Part IX &amp; 11th Schedule</b> (Panchayats)
74th Amendment Act, 1992	Introduced <b>Part IXA &amp; 12th Schedule</b> (Municipalities)
Schedules Related	11th Schedule: 29 subjects for Panchayats 12th Schedule: 18 subjects for Municipalities

## Important Constitutional Amendment Acts

Amendment No.	Year	Purpose / Key Provisions
1st	1951	Added <b>9th Schedule</b> to protect land reform laws from judicial review. Introduced <b>Article 31A &amp; 31B</b> .
7th	1956	<b>States Reorganisation Act</b> – Reorganized states based on language. Abolished Part B states.
10th	1961	Incorporated <b>Dadra &amp; Nagar Haveli</b> as a Union Territory.
12th	1961	Incorporated <b>Goa, Daman and Diu</b> into the Indian Union.
21st	1967	Included <b>Sindhi</b> in the <b>8th Schedule</b> of the Constitution.
24th	1971	Affirmed <b>Parliament's power</b> to amend any part of the Constitution including Fundamental Rights (Art. 368).
25th	1971	Curtailed Right to Property (Art. 31C); property ceased to be a Fundamental Right.
26th	1971	Abolished <b>privy purses and privileges</b> of former rulers of princely states.
36th	1975	Made <b>Sikkim</b> a full-fledged <b>State</b> of India.
42nd	1976	Known as the <b>Mini Constitution</b> . Added words " <b>Socialist, Secular, Integrity</b> " in the Preamble. Limited judicial review, strengthened Directive Principles.
44th	1978	Reversed many 42nd Amendment provisions. Restored <b>Article 21</b> as a Fundamental Right. Deleted Right to Property from Fundamental Rights.
52nd	1985	Introduced the <b>Anti-Defection Law</b> (10th Schedule) to curb political defections.
61st	1989	Reduced <b>voting age</b> from <b>21 to 18 years</b> (Article 326).
69th	1991	Gave <b>Delhi</b> the status of <b>National Capital Territory</b> ; created <b>Legislative Assembly</b> for Delhi.
73rd	1992	Introduced <b>Panchayati Raj System</b> (Part IX, Articles 243–243O and 11th Schedule).
74th	1992	Introduced <b>Urban Local Bodies/Municipalities</b> (Part IXA, Articles 243P–243ZG and 12th Schedule).
86th	2002	Made <b>Right to Education (RTE)</b> a Fundamental Right (Article 21A); added Article 51A(k).
91st	2003	Limited <b>Council of Ministers</b> to 15% of total strength; barred defectors from becoming ministers.
101st	2016	Introduced <b>Goods and Services Tax (GST)</b> ; added Article 279A (GST Council).
102nd	2018	Gave <b>constitutional status to the National Commission for Backward Classes (NCBC)</b> ; added Article 338B.
103rd	2019	Introduced <b>10% reservation for EWS</b> in jobs and education; amended Articles 15 and 16.
104th	2020	Abolished <b>Anglo-Indian reserved seats</b> in Lok Sabha and State Assemblies (Art. 334).
105th	2021	Restored <b>State Governments' power</b> to identify and notify <b>OBCs</b> (post 102nd Amendment clarification).

## Schedules of the Indian Constitution

Schedule No.	Subject	Key Provisions
1st Schedule	<b>Territories of India &amp; Union Territories</b>	Lists the names of <b>States and Union Territories</b> and their <b>territorial jurisdiction</b> .
2nd Schedule	<b>Salaries &amp; Allowances</b>	Details salaries, allowances, and privileges of the <b>President, Governors, Judges, Speaker, CAG</b> , etc.
3rd Schedule	<b>Forms of Oaths and Affirmations</b>	Specifies the <b>oaths/affirmations</b> for Union and State Ministers, MPs, MLAs, Judges, etc.
4th Schedule	<b>Allocation of Rajya Sabha Seats</b>	Allocates <b>seats in the Rajya Sabha</b> (Upper House) to the States and Union Territories.
5th Schedule	<b>Provisions for Scheduled Areas and Tribes</b>	Administration and control of <b>Scheduled Areas and Tribes</b> in states other than the northeast.

Schedule No.	Subject	Key Provisions
6th Schedule	Provisions for Tribal Areas in NE	Deals with <b>autonomous district councils</b> in Assam, Meghalaya, Tripura, and Mizoram.
7th Schedule	Division of Powers	Contains <b>three lists</b> : Union List, State List, and Concurrent List for legislative powers distribution.
8th Schedule	Official Languages	Lists the <b>22 official languages</b> recognized by the Constitution.
9th Schedule	Laws Exempt from Judicial Review	Contains laws (mostly land reforms) that are <b>protected from judicial review</b> under Article 31B.
10th Schedule	Anti-Defection Law	Provides for <b>disqualification of legislators</b> on grounds of defection (added by 52nd Amendment).
11th Schedule	Panchayati Raj (Rural Governance)	Lists <b>29 subjects</b> under the control of <b>Panchayats</b> (added by 73rd Amendment).
12th Schedule	Municipalities (Urban Governance)	Lists <b>18 subjects</b> under the functions of <b>Municipalities</b> (added by 74th Amendment).

## Important Parliamentary Committees

Committee Name	Type	Composition	Key Functions / Purpose
<b>Public Accounts Committee (PAC)</b>	Financial Committee	22 members (15 from Lok Sabha, 7 from Rajya Sabha)	Examines audit reports of the <b>CAG</b> , ensures <b>public money is used efficiently</b> .
<b>Estimates Committee</b>	Financial Committee	30 members from Lok Sabha only	Suggests <b>economies and improvements</b> in public expenditure.
<b>Committee on Public Undertakings (COPU)</b>	Financial Committee	22 members (15 LS + 7 RS)	Reviews functioning of <b>PSUs</b> and examines CAG reports on PSUs.

## Economics

### Basics of Economy – Key Concepts & Definitions

Concept	Definition / Explanation
<b>Economy</b>	A system by which goods and services are produced, distributed, and consumed in a country.
<b>Microeconomics</b>	Study of individual economic units like households, firms, markets.
<b>Macroeconomics</b>	Study of the economy as a whole, including inflation, unemployment, and national income.
<b>Economic Growth</b>	An increase in the output of goods and services over a period of time, usually measured as GDP growth.
<b>Economic Development</b>	Improvement in living standards, income equality, health, and education along with economic growth.
<b>Capitalist Economy</b>	Economy where private individuals own means of production.
<b>Socialist Economy</b>	Economy where the government owns means of production.
<b>Mixed Economy</b>	Economy that combines features of both capitalism and socialism (e.g., India).
<b>Inflation</b>	Sustained increase in general price levels in an economy.
<b>Deflation</b>	Sustained decrease in general price levels in an economy.
<b>Recession</b>	A period of negative economic growth for two or more consecutive quarters.
<b>Monetary Policy</b>	Policy by the central bank to control money supply and interest rates to ensure price stability and growth.
<b>Fiscal Policy</b>	Government policy related to revenue (tax) and expenditure to influence the economy.
<b>Public Sector</b>	Government-controlled part of the economy.
<b>Private Sector</b>	Economy operated by individuals or private firms.

## National Income

Term	Definition / Explanation
<b>National Income</b>	Total monetary value of all final goods and services produced by the residents of a country in one year.
<b>GDP (Gross Domestic Product)</b>	Total value of all goods and services produced within a country's borders in a given year, regardless of who owns them.
<b>GNP (Gross National Product)</b>	GDP + Net income earned from abroad (i.e., Income by Indians abroad – Income by foreigners in India).
<b>NNP (Net National Product)</b>	GNP – Depreciation (Net value after deducting capital wear and tear).
<b>NDP (Net Domestic Product)</b>	GDP – Depreciation.
<b>Per Capita Income</b>	National Income ÷ Total Population – Average income per person in a year.
<b>Personal Income (PI)</b>	Total income actually received by individuals, including transfer incomes (like pensions, gifts).
<b>Disposable Income</b>	PI – Direct Taxes = Income left with individuals for spending or saving.
<b>Factor Income</b>	Income earned by providing factors of production (Rent, Wages, Interest, Profit).
<b>Transfer Income</b>	Income received without giving any service in return (e.g., pensions, scholarships, subsidies).
<b>Real GDP (Real Gross Domestic Product)</b>	GDP calculated at constant prices (adjusted for inflation). Reflects actual volume of production.
<b>Nominal GDP</b>	GDP calculated at current market prices (not adjusted for inflation). Reflects both price and quantity changes.
<b>GDP Deflator</b>	A price index used to convert nominal GDP into real GDP. <b>Formula:</b> GDP Deflator = (Nominal GDP / Real GDP) × 100
<b>Depreciation</b>	The loss in value of capital assets over time due to use, wear and tear.
<b>Value Added</b>	Value of Output – Value of Intermediate Goods; prevents double counting in GDP.

## GDP at Factor Cost vs GDP at Market Price

Aspect	GDP at Market Price (GDP_MP)	GDP at Factor Cost (GDP_FC)
<b>Definition</b>	Total value of all final goods and services produced <b>within a country, at current market prices.</b>	Total value of all goods and services produced <b>based on factor incomes</b> , excluding indirect taxes.
<b>Includes</b>	<ul style="list-style-type: none"> <li>► Factor incomes</li> <li>► Indirect Taxes</li> <li>► Excludes Subsidies</li> </ul>	<ul style="list-style-type: none"> <li>► Only <b>Factor incomes</b> (wages, rent, interest, profit)</li> <li>► <b>Includes Subsidies, Excludes Indirect Taxes</b></li> </ul>
<b>Reflects</b>	The <b>actual price paid by consumers</b> (market cost including taxes).	The <b>actual income earned by producers</b> or factors of production.
<b>Used for</b>	Analyzing <b>total output</b> and government tax impact on production.	Measuring <b>real income</b> of domestic production factors.
<b>Relation between them</b>	$GDP\_MP = GDP\_FC + \text{Indirect Taxes} - \text{Subsidies}$	$GDP\_FC = GDP\_MP - \text{Indirect Taxes} + \text{Subsidies}$
<b>Focus</b>	Market-based valuation (including government intervention through taxes).	Cost-based valuation from producers' point of view.
<b>Example Components</b>	Market Price = Cost of Production + Profit + Taxes – Subsidies	Factor Cost = Rent + Wages + Interest + Profit



## Budget and Taxation

S.No.	Topic	Details / Explanation	Important for Exam
1	<b>Union Budget</b>	Annual financial statement of estimated receipts and expenditures of Govt. of India.	Presented under <b>Article 112</b> of Constitution.
2	<b>Who prepares the Budget?</b>	Ministry of Finance, Department of Economic Affairs	Final approval by Parliament
3	<b>Who presents the Budget?</b>	Finance Minister	In Lok Sabha usually on <b>1st Feb</b>
4	<b>Types of Budget</b>	1. Balanced 2. Surplus 3. Deficit Budget	Most common: <b>Deficit Budget</b>
5	<b>Revenue Budget</b>	Deals with <b>Revenue Receipts &amp; Revenue Expenditure</b>	No creation of assets
6	<b>Capital Budget</b>	Deals with <b>Capital Receipts &amp; Capital Expenditure</b>	Includes loans, asset creation
7	<b>Revenue Receipts</b>	Govt. earnings <b>without obligation</b> to repay (e.g., taxes, fees)	Non-redeemable receipts
8	<b>Capital Receipts</b>	Earnings that <b>create liability or reduce assets</b> (e.g., borrowings, disinvestment)	Includes market loans
9	<b>Revenue Expenditure</b>	Expenditures that <b>do not create assets</b> (e.g., salaries, subsidies)	Recurring in nature
10	<b>Capital Expenditure</b>	Expenditures that <b>create assets or reduce liabilities</b> (e.g., infrastructure, loans to states)	Asset-generating expenditure
11	<b>Direct Taxes</b>	Taxes <b>paid directly</b> by individuals or organizations to the government	e.g., <b>Income Tax</b> , Corporate Tax
12	<b>Indirect Taxes</b>	Taxes <b>levied on goods/services</b> , paid indirectly by consumers	e.g., <b>GST</b> , excise, customs
13	<b>Goods and Services Tax (GST)</b>	Unified indirect tax across India introduced in <b>2017</b> (101st Amendment)	<b>One Nation, One Tax</b>
14	<b>GST Components</b>	1. <b>CGST</b> – Centre, 2. <b>SGST</b> – State, 3. <b>IGST</b> – Interstate	Collected by respective authorities
15	<b>Finance Bill</b>	Bill presented along with Budget, contains provisions of taxation	Must be passed to implement tax changes
16	<b>Appropriation Bill</b>	Grants permission to withdraw funds from <b>Consolidated Fund of India</b>	Follows passing of Budget
17	<b>Consolidated Fund of India</b>	Main government account for revenues and expenditures	<b>Article 266(1)</b>
18	<b>Contingency Fund of India</b>	For <b>emergency/unforeseen expenses</b> , controlled by President	<b>Article 267(1)</b>
19	<b>Public Account of India</b>	Fund for transactions where Govt. acts as <b>trustee</b> (e.g., PF, small savings)	<b>Article 266(2)</b>
20	<b>Fiscal Deficit</b>	Total expenditure – (Total revenue receipts + recoveries + other receipts)	Indicates borrowings
21	<b>Revenue Deficit</b>	Revenue Expenditure – Revenue Receipts	Negative for fiscal health
22	<b>Primary Deficit</b>	Fiscal Deficit – Interest payments	Reflects borrowing need
23	<b>Zero-based budgeting</b>	Every expense justified from zero base annually	Encourages efficiency
24	<b>GST Council</b>	Recommends rates, structure, etc. of GST	Chaired by Finance Minister
25	<b>Tax-to-GDP Ratio</b>	Total tax revenue / GDP	Indicates tax compliance & capacity

## Demand and Supply in Indian Economy

### Section A: Demand

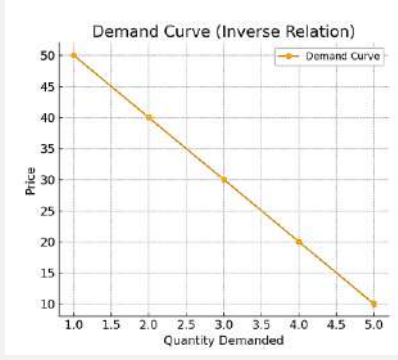
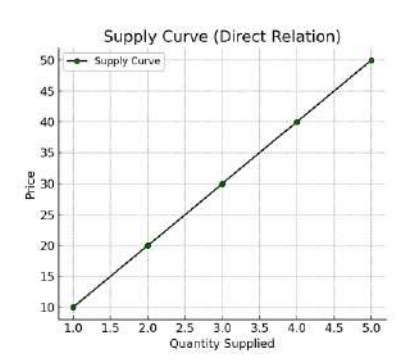
S.No.	Concept	Definition / Explanation	Exam Relevance
1	<b>Demand</b>	The quantity of a commodity that a consumer is willing and able to buy at various prices in a given time.	Core definition
2	<b>Law of Demand</b>	<i>Ceteris Paribus</i> , as price falls, demand rises and vice versa.	Inverse relation; key law
3	<b>Demand Curve</b>	Downward-sloping curve showing inverse relationship between price and quantity demanded.	Negative slope
4	<b>Determinants of Demand</b>	Price, Income, Price of Related Goods, Tastes & Preferences, Future Expectations.	Repeated MCQ topic
5	<b>Individual Demand</b>	Demand by a single consumer.	Micro concept
6	<b>Market Demand</b>	Sum total of all individual demands in the market.	Aggregated demand
7	<b>Normal Goods</b>	Demand rises with income (e.g., clothes, electronics).	Positive income effect
8	<b>Inferior Goods</b>	Demand falls as income increases (e.g., cheap food).	Negative income effect
9	<b>Giffen Goods</b>	Demand increases as price increases (violation of Law of Demand).	Rare case – often asked
10	<b>Complementary Goods</b>	Goods used together; fall in price of one increases demand for the other (e.g., pen and ink).	Inverse price-demand relation
11	<b>Substitute Goods</b>	Goods used in place of one another (e.g., tea and coffee).	Direct price-demand relation
12	<b>Extension of Demand</b>	Movement along demand curve due to fall in price (more quantity demanded).	Price-based movement
13	<b>Contraction of Demand</b>	Movement along demand curve due to rise in price (less quantity demanded).	Price-based movement
14	<b>Increase in Demand</b>	Rightward shift in demand curve due to non-price factors (e.g., rise in income).	Important distinction
15	<b>Decrease in Demand</b>	Leftward shift due to non-price factors (e.g., fall in income).	Non-price factor impact
16	<b>Price Elasticity of Demand</b>	% change in quantity demanded / % change in price.	Measures sensitivity
17	<b>Elastic Demand (&gt;1)</b>	Quantity demanded changes more than price.	Luxury items
18	<b>Inelastic Demand (&lt;1)</b>	Quantity demanded changes less than price.	Necessities
19	<b>Unitary Elasticity (=1)</b>	% change in demand = % change in price.	Theoretical concept
20	<b>Perfectly Inelastic (=0)</b>	No change in demand with price.	Example: lifesaving medicine
21	<b>Perfectly Elastic (=∞)</b>	Infinite change in demand at same price.	Hypothetical case

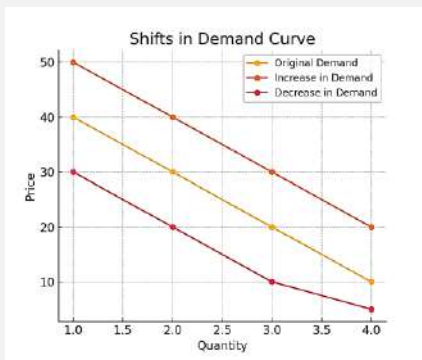
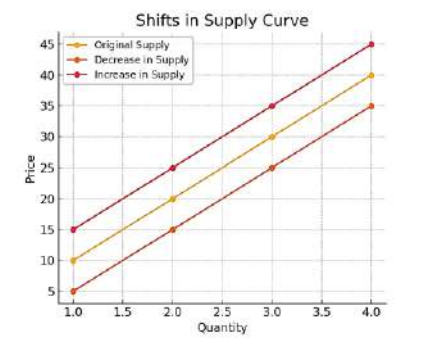
### Section B: Supply

S.No.	Concept	Definition / Explanation	Exam Relevance
1	<b>Supply</b>	Quantity of a good a seller is willing to offer for sale at different prices over a period of time.	Core concept
2	<b>Law of Supply</b>	<i>Ceteris Paribus</i> , as price rises, supply rises and vice versa.	Positive relationship
3	<b>Supply Curve</b>	Upward sloping curve showing direct relation between price and quantity supplied.	Positive slope

S.No.	Concept	Definition / Explanation	Exam Relevance
4	<b>Determinants of Supply</b>	Price, Technology, Input Costs, Govt. Policy, Climate, Future Price Expectation.	Direct questions asked
5	<b>Extension of Supply</b>	More quantity supplied due to rise in price (movement along supply curve).	Price-based movement
6	<b>Contraction of Supply</b>	Less quantity supplied due to fall in price.	Movement along curve
7	<b>Increase in Supply</b>	Rightward shift of supply curve due to non-price factors (e.g., tech improvement).	Non-price factor
8	<b>Decrease in Supply</b>	Leftward shift due to non-price factors (e.g., tax imposition).	Non-price factor
9	<b>Elasticity of Supply</b>	% change in quantity supplied / % change in price.	Measures responsiveness
10	<b>Elastic Supply (<math>&gt;1</math>)</b>	Supply changes more than price.	Luxury/seasonal goods
11	<b>Inelastic Supply (<math>&lt;1</math>)</b>	Supply changes less than price.	Limited-resource goods
12	<b>Unitary Elastic Supply (<math>=1</math>)</b>	% change in supply = % change in price.	Theoretical case
13	<b>Perfectly Inelastic (<math>=0</math>)</b>	Supply remains constant despite price change.	Rare – e.g., land
14	<b>Perfectly Elastic (<math>=\infty</math>)</b>	Supply changes infinitely at same price.	Hypothetical

### Demand and Supply Curves

S.No.	Explanation of the Curve	Graph
1	The demand curve shows the inverse relationship between the price of a good and its quantity demanded. As the price decreases, the quantity demanded increases, keeping all other factors constant (Law of Demand).	 <p>Demand Curve (Inverse Relation)</p> <p>The graph shows a downward-sloping line representing the demand curve. The Y-axis is Price (10 to 50) and the X-axis is Quantity Demanded (1.0 to 5.0). The curve starts at (1.0, 50) and ends at (5.0, 10).</p>
2	The supply curve represents the direct relationship between the price of a good and its quantity supplied. As price increases, producers are willing to supply more, adhering to the Law of Supply.	 <p>Supply Curve (Direct Relation)</p> <p>The graph shows an upward-sloping line representing the supply curve. The Y-axis is Price (10 to 50) and the X-axis is Quantity Supplied (1.0 to 5.0). The curve starts at (1.0, 10) and ends at (5.0, 50).</p>

S.No.	Explanation of the Curve	Graph
3	A shift in the demand curve occurs due to non-price factors. An increase in demand shifts the curve right, while a decrease shifts it left. Price remains constant in such shifts.	 <p>The graph shows three downward-sloping demand curves on a Price vs. Quantity axis. The original demand curve is yellow. A red curve to its right represents an increase in demand, and a purple curve to its left represents a decrease in demand. The y-axis (Price) ranges from 0 to 50, and the x-axis (Quantity) ranges from 1.0 to 4.0.</p>
4	Supply curve shifts when factors other than price affect supply (e.g., technology, taxes). An increase shifts the curve right, a decrease shifts it left.	 <p>The graph shows three upward-sloping supply curves on a Price vs. Quantity axis. The original supply curve is yellow. A red curve to its right represents an increase in supply, and a purple curve to its left represents a decrease in supply. The y-axis (Price) ranges from 0 to 45, and the x-axis (Quantity) ranges from 1.0 to 4.0.</p>

## Money and Banking

S.No.	Concept / Term	Definition / Explanation	Exam Key Point
1	<b>Money</b>	Any item generally accepted as a medium of exchange, unit of account, store of value, and standard of deferred payment	Performs <b>4 major functions</b>
2	<b>Barter System</b>	Exchange of goods/services without using money	<b>Double coincidence of wants</b> issue
3	<b>Fiat Money</b>	Money declared legal tender by government but not backed by physical commodity	e.g., Indian Rupee
4	<b>Legal Tender Money</b>	Money that must be accepted for payment by law	Coins, ₹ notes issued by RBI & Govt.
5	<b>Near Money</b>	Assets easily converted to cash like bonds, shares, fixed deposits	Not actual money but liquid assets
6	<b>Narrow Money (M1)</b>	Currency with public + demand deposits + other deposits with RBI	$M1 = C + DD + OD$
7	<b>Broad Money (M3)</b>	M1 + Time deposits with banks	Most inclusive money supply indicator
8	<b>Demand Deposits</b>	Bank deposits withdrawable on demand	Like current/savings accounts
9	<b>Time Deposits</b>	Fixed deposits held for a specific time period	Not instantly withdrawable
10	<b>Reserve Bank of India (RBI)</b>	India's central bank, founded in 1935, nationalized in 1949	Controls money supply & monetary policy
11	<b>Monetary Policy</b>	Policy controlling money supply, inflation, liquidity	Managed by <b>RBI</b> , NOT Finance Ministry

S.No.	Concept / Term	Definition / Explanation	Exam Key Point
12	<b>Quantitative Instruments</b>	Tools to control overall credit in economy (CRR, SLR, Repo, Reverse Repo)	Affect <b>volume</b> of money
13	<b>Qualitative Instruments</b>	Tools to regulate specific sectors (e.g., moral suasion, margin requirements)	Affect <b>direction</b> of credit
14	<b>CRR (Cash Reserve Ratio)</b>	% of NDTL that banks keep with RBI in cash	Increase → less money to lend
15	<b>SLR (Statutory Liquidity Ratio)</b>	% of NDTL banks must maintain in gold, cash or govt. securities	Controls inflation
16	<b>Repo Rate</b>	Rate at which RBI lends to banks	Lower repo → cheaper loans
17	<b>Reverse Repo Rate</b>	Rate at which RBI borrows from banks	Used to absorb liquidity
18	<b>Bank Rate</b>	Long-term rate at which RBI lends to banks without repurchase agreement	Higher than Repo usually
19	<b>Open Market Operations (OMO)</b>	Buying/selling govt. securities by RBI to control money supply	Used to inject/absorb liquidity
20	<b>Liquidity Adjustment Facility (LAF)</b>	Framework for RBI to adjust liquidity via Repo and Reverse Repo	Introduced in 2000
21	<b>Base Rate / MCLR</b>	Minimum interest rate below which banks cannot lend	MCLR replaced Base Rate in 2016
22	<b>Commercial Banks</b>	Banks that provide general banking services to public and businesses	Include SBI, HDFC, etc.
23	<b>Scheduled Banks</b>	Listed in Second Schedule of RBI Act, 1934	Must maintain CRR with RBI
24	<b>Non-Scheduled Banks</b>	Not listed in the schedule, small in operations	Do not follow CRR norms
25	<b>Development Banks</b>	Provide long-term finance for industrial and rural development	e.g., NABARD, SIDBI
26	<b>NABARD</b>	National Bank for Agriculture and Rural Development (1982)	Apex rural credit institution
27	<b>SIDBI</b>	Small Industries Development Bank of India	Finances MSMEs
28	<b>Co-operative Banks</b>	Provide credit to farmers and small borrowers in rural areas	Work on cooperative principles
29	<b>Rural Banks (RRBs)</b>	Sponsored by govt. and commercial banks to support rural economy	e.g., Prathama Bank
30	<b>Money Market</b>	Market for short-term funds and financial instruments (less than 1 year)	Includes T-bills, call money
31	<b>Capital Market</b>	Market for long-term financial assets (stocks, bonds)	Includes primary and secondary markets
32	<b>Treasury Bills (T-Bills)</b>	Short-term govt. securities with maturity < 1 year	Issued at discount, no interest
33	<b>Certificates of Deposit (CDs)</b>	Short-term instruments issued by banks to raise funds	Tradable in market
34	<b>Inflation</b>	Sustained rise in general price level	Measured via CPI & WPI
35	<b>Deflation</b>	Sustained fall in general price level	Opposite of inflation



## Monetary Policy

S.No.	Concept / Term	Definition / Explanation	SSC Exam Focus
1	Monetary Policy	Policy by the <b>Reserve Bank of India (RBI)</b> to control <b>money supply, inflation, and interest rates</b>	Notified in <b>Monetary Policy Statement</b>
2	Main Objectives of Monetary Policy	1. Price Stability 2. Economic Growth 3. Exchange Rate Stability 4. Employment	Often asked as MCQ
3	Who formulates Monetary Policy?	<b>Reserve Bank of India (RBI)</b> , through <b>Monetary Policy Committee (MPC)</b>	Chaired by RBI Governor
4	Monetary Policy Committee (MPC)	6-member committee set up in 2016 to decide policy rates	3 RBI + 3 Govt-nominated members
5	Quantitative Instruments	Affect the <b>volume</b> of money/credit in the economy	Also called <b>general tools</b>
6	Qualitative Instruments	Affect the <b>allocation or direction</b> of credit	Also called <b>selective tools</b>
7	CRR (Cash Reserve Ratio)	% of Net Demand and Time Liabilities (NDTL) to be kept in <b>cash with RBI</b>	Higher CRR → Less money to lend
8	SLR (Statutory Liquidity Ratio)	% of NDTL to be maintained in form of <b>gold, cash or approved securities</b>	Maintained with the <b>bank itself</b>
9	Repo Rate	Rate at which RBI lends short-term money to banks <b>against securities</b>	Decrease → Banks lend cheaper
10	Reverse Repo Rate	Rate at which RBI <b>borrow</b> s money from banks	Used to absorb excess liquidity
11	Bank Rate	Long-term lending rate without repurchase agreement	Higher than repo; rarely changed
12	LAF (Liquidity Adjustment Facility)	Framework using <b>Repo &amp; Reverse Repo</b> to adjust liquidity daily	Introduced in 2000
13	MSF (Marginal Standing Facility)	Banks can borrow overnight from RBI beyond LAF limit	Higher than repo rate
14	OMO (Open Market Operations)	RBI <b>buys/sells govt securities</b> to increase/decrease liquidity	Buying → injects money; Selling → absorbs money
15	MSS (Market Stabilization Scheme)	RBI sells govt securities to absorb excess capital flows (e.g., FII inflow)	Special tool used in extreme cases
16	MCLR (Marginal Cost Lending Rate)	Minimum interest rate below which banks can't lend	Replaced <b>Base Rate</b> system in 2016
17	Expansionary Monetary Policy	<b>Increases money supply</b> by reducing CRR, SLR, Repo etc.	Used during <b>recession/slowdown</b>
18	Contractionary Monetary Policy	<b>Reduces money supply</b> by increasing CRR, SLR, Repo	Used to <b>control inflation</b>
19	Neutral Monetary Policy	Balances inflation control and growth	Mixed or transitional stance
20	Inflation Targeting in India	Set by Govt & RBI: <b>4% ± 2%</b> (i.e., 2–6%)	As per RBI Act (Amendment 2016)
21	Headline Inflation	Inflation based on <b>CPI or WPI</b> (overall prices)	More volatile
22	Core Inflation	Inflation excluding food and fuel components	Shows long-term trend

## Practice Questions

1. The Battle of Wandiwash in 1760 was a significant victory for the:  
(a) Portuguese (b) Dutch  
(c) French (d) British
2. The Second Anglo-Mysore War ended with the signing of which treaty?  
(a) Treaty of Mangalore (b) Treaty of Arcot  
(c) Treaty of Wandiwash (d) Treaty of Madras
3. Which of the following Anglo - Maratha wars resulted in merging the Peshwas' territories with the Bombay Presidency?  
(a) Fourth (b) Third  
(c) Second (d) First
4. Vasco da Gama, who discovered the sea route from Europe to India, belonged to which nation?  
(a) Spain (b) Portugal  
(c) England (d) Germany
5. All India Kisan Sabha was founded in 1936 at Indian National Congress (INC) \_\_\_\_\_ Session as All India Kisan Congress.  
(a) Bombay (b) Delhi  
(c) Lucknow (d) Agra
6. Which tribal farmer of Singhbhum in Chhotanagpur led the Kol tribals in the revolt of 1857?  
(a) Birsa Munda (b) Jatra Bhagat  
(c) Tilka Manjhi (d) Budhu Bhagat
7. At which one of the following places did Mahatma Gandhi first start his Satyagraha in India?  
(a) Ahmedabad (b) Kheda  
(c) Bardoli (d) Champaran
8. Gandhiji's idea of Village Sarvodaya implied that an ideal village must fulfil certain conditions. Which of the following is NOT among those conditions?  
(a) The caste system should be abolished  
(b) The places of worship should be built beside each other to develop a sense of brotherhood  
(c) It should have a dharamshala and a small dispensary  
(d) It should be self-sufficient in matters of food and clothing
9. The first Partition of Bengal took place in the year\_\_\_\_\_  
(a) 1906 AD (b) 1903 AD  
(c) 1904 AD (d) 1905 AD
10. Who among the following was the British official who suppressed the revolt at Kanpur?  
(a) John Nicholson (b) Sir Colin Campbell  
(c) Henry Lawrence (d) General Hugh Rose
11. During Quit India Movement, 'Parallel Government' was constituted at:  
(a) Allahabad (b) Varanasi  
(c) Lucknow (d) Ballia
12. In which session of All India Congress Committee was the Quit India Resolution accepted?  
(a) Calcutta (b) Delhi  
(c) Madras (d) Bombay
13. The famous 'Tripartite struggle' for supremacy occurred between which of the following powers?  
(a) Sen, Pala and Rashtrakuta  
(b) Chalukya, Sen and Pratiharas  
(c) Chouhan, Pala and Gurjar  
(d) Gurjar-Pratihara, Rashtrakuta and Palas
14. Who among the following rulers was a part of the Tripartite Struggle for the possession of Kannauj?  
(a) Dharmapala (b) Yashovarman  
(c) Mahendrapal (d) Prithvi Raj III
15. Who shifted the capital of the Delhi Sultanate from Delhi to Daulatabad?  
(a) Alauddin Khilji  
(b) Muhammad bin Tughlaq  
(c) Firoz Shah Tughlaq  
(d) Sikandar Lodi
16. What was the dominant source of income in the Vijaynagar Empire?  
(a) Mining (b) Land revenue  
(c) Import duty (d) Industrial duty



17. Abdur Razzaq, an envoy from Persia came to Vijaynagar during the reign of whose rule?  
(a) Bukka I (b) Harihar II  
(c) Deva Raya I (d) Deva Raya II
18. Gulbarga and Bidar style of architecture was patronised by which of the following dynasties?  
(a) Maratha dynasty (b) Nanda dynasty  
(c) Tuluva dynasty (d) Bahmani dynasty
19. The Nizam Shahi dynasty of Ahmednagar was founded by \_\_\_\_\_ in 1490.  
(a) Mohammed Shah I  
(b) Alauddin Bahman Shah  
(c) Tajuddin Firuz Shah  
(d) Malik Ahmed Nizamul Mulk Bahri
20. The Bhakti movement in South India was led by:  
(a) Nayanars and Alvars (b) Kabir and Tulsidas  
(c) Chishti and Suhrawardi (d) Guru Gobind Singh
21. Aurangzeb, the Mughal Emperor died in?  
(a) 1507 (b) 1607  
(c) 1707 (d) 1807
22. Which of the following statements is correct?  
1. The Mughal Empire was founded by Babur, a Timurid prince.  
2. The Mughal Empire reached its peak during the reign of Akbar, the greatest Mughal emperor.  
(a) Only 1 (b) Only 2  
(c) Both 1 and 2 (d) Neither 1 nor 2
23. Who was the last Mughal emperor?  
(a) Babur (b) Noor Jehan  
(c) Akbar (d) Bahadur Shah II
24. The Maratha Navy was the naval wing of the armed forces of the Maratha Empire, established by  
(a) Sambhaji (b) Shivaji  
(c) Balaji Bajirao (d) Bajirao II
25. Which of the following statements is correct about the Maratha administration?  
1. The Marathas followed a decentralized administrative system.  
2. Peshwas were the hereditary prime ministers of the Maratha Empire.  
(a) Only 1 (b) Only 2  
(c) Both 1 and 2 (d) Neither 1 nor 2
26. Which of the following statements is/are true about the Cholas?  
1. The capital of the Chola kingdom was Tanjore.  
2. Vikram Chola had in his veins the blood of the Cholas and Eastern Chalukyas.  
3. Rajendra I Chola is known as Gangaikonda Chola.  
(a) Only 1 and 3 (b) All 1, 2 and 3  
(c) Only 1 and 2 (d) Only 2 and 3
27. Which of the following animals was the emblem of the Chola dynasty?  
(a) Wolf (b) Horse  
(c) Elephant (d) Tiger
28. Which among the following Chola emperors defeated the Pandya king Maravarman Rajasimha II in the battle of Vellore?  
(a) Rajendra I (b) Vijayalaya  
(c) Parantaka I (d) Rajaraja I
29. The Pandya Kingdom was first mentioned by Megasthenes, who said that their kingdom was famous for pearls. Their capital was:  
(a) Thanjavur (b) Uraiyur  
(c) Madurai (d) Kaveripatnam
30. The ruler of which dynasty of South India assumed the title of Dharmaraj?  
(a) Wakatak (b) Pallava  
(c) Kadamb (d) Western Ganga
31. The Iron Age site named Tekwada is located in \_\_\_\_\_.  
(a) Madhya Pradesh (b) Maharashtra  
(c) Andhra Pradesh (d) Tamil Nadu
32. Who discovered the first site of the Indus Valley Civilization?  
(a) R.D. Banerji (b) Dayaram Sahni  
(c) Cunningham (d) Wheeler
33. The people of the Indus valley civilisation worshipped  
(a) Pashupati (b) Vishnu  
(c) Indra (d) Brahma
34. Fire had been discovered in which age?  
(a) Paleolithic (b) Mesolithic  
(c) Neolithic (d) Chalcolithic
35. Which of the following is NOT associated with the Iron Age in India?  
(a) Smelting  
(b) Painted grey ware  
(c) Northern black polished ware  
(d) Mehrauli iron pillar
36. In which of the following sites of the Harappan civilization was Jadeite stone found?  
(a) Hallur (b) Mehrgarh  
(c) Daojali Hading (d) Mahagara
37. Which river is not associated with the Indus Valley Civilization?  
(a) Indus River (b) Saraswati River  
(c) Ganges River (d) Beas River

38. Hinayana and Mahayana are the branches of which of the following religion?  
(a) Buddhism (b) Sikhism  
(c) Jainism (d) Hinduism
39. The Buddha got enlightenment under which of the following tree?  
(a) Mango Tree (b) Sal Tree  
(c) Banyan Tree (d) Peepal Tree
40. Buddhist texts called Dipavamsa and Mahavamsa, which are sources of information on Mauryan times, belong to which of the following countries?  
(a) India (b) China  
(c) Myanmar (d) Sri Lanka
41. In the context of panchvrata in Jainism, which of the following means non-stealing?  
(a) Aparigraha (b) Brahmacharya  
(c) Ahimsa (d) Astheya
42. Consider the following statements regarding Jainism.  
1. 24 Tirthankaras were responsible for the origin and development of the Jain religion and philosophy.  
2. The Jains too do not believe in the Vedas, but they admit the existence of a soul.  
3. The 22nd Tirthankara was Parsvanatha. The followers of Parsvanatha wore a white garment.  
4. The 24th Tirthankara was Vardhamana Mahavira.  
(a) 1 and 2 only (b) 2 and 3 only  
(c) 1,3 and 4 only (d) 1,2 and 4 only
43. How many Mahajanapadas were there during the age of Buddha?  
(a) 15 (b) 26  
(c) 9 (d) 16
44. Initially, which of the following was the capital of Magadha Mahajanapada?  
(a) Rajagriha (b) Vikramshila  
(c) Pataliputra (d) Vaishali
45. Arrange the following Indian dynasties in chronological order.  
(a) Nanda → Maurya → Shunga → Gupta  
(b) Maurya → Nanda → Gupta → Shunga  
(c) Gupta → Shunga → Maurya → Nanda  
(d) Shunga → Nanda → Maurya → Gupta
46. Who assassinated King Brihadratha of the Mauryan Empire?  
(a) Vasishka (b) Kujula Kadphises  
(c) Pushyamitira Sunga (d) Kanishka
47. Mathura was the second capital of \_\_\_\_\_ dynasty.  
(a) Kushana (b) Maurya  
(c) Maukhri (d) Gupta
48. Historians have used which of the following sources to reconstruct the history of the Mauryan Empire?  
I. The account of Megasthenes (a Greek ambassador to the court of Chandragupta Maurya), which survives in fragments.  
II. The Arthashastra, parts of which were probably composed by Kautilya or Chanakya.  
(a) Only I (b) Both I and II  
(c) Only II (d) Neither I nor II
49. Harappa of Harappan civilization was situated on the banks of river \_\_\_\_\_.  
(a) Ravi (b) Indus  
(c) Ganga (d) Chenab
50. Which of the following excavation sites is associated with "Sangam age"?  
(a) Harappa (b) Uraiyur  
(c) Nellore (d) Keeladi
51. According to the Vishnu Purana, who was Chandragupta Maurya's mother?  
(a) The wife of a Nanda king  
(b) Mura, daughter of a hunter  
(c) A Greek noblewoman  
(d) Subhadra, daughter of a Brahmin
52. In which of the following sites of the Harappan civilization was Jadeite stone found?  
(a) Hallur (b) Mehrgarh  
(c) Daojali Hading (d) Mahagara
53. The first Tamil Sangam is said to have been instituted by  
(a) Tiruvalluvar (b) Parasurama  
(c) Mamulanar (d) Agastya
54. The Era of the Chera, Chola, and Pandya dynasties are collectively known as the:  
(a) Tripartite Era (b) Sangam Era  
(c) Kannada Era (d) Dravidian Era
55. Name the Chola inscription that provided details of the way in which the sabha was organised in the local administration in the Chola empire.  
(a) Thiruvallangadu inscription  
(b) Thirunanthikarai inscription  
(c) Darsanam Koppu inscription  
(d) Uttaramerur inscription



56. In the Western India the Chalukya dynasty succeeded by?  
 (a) Cholas (b) Kakatiyas  
 (c) Pallavas (d) Rashtrakutas
57. The Chalukya king Pulakeshin II is best known for his victory against which ruler of the North Indian dynasty?  
 (a) Harsha Vardhana  
 (b) Chandragupta Maurya  
 (c) Samudragupta  
 (d) Ashoka the Great
58. The biggest natural satellite of our solar system is?  
 (a) Phobas (b) Deimos  
 (c) Moon (d) Ganymede
59. How many Kilometers are represented by 1 degree of latitude?  
 (a) 150 Km (b) 111 Km  
 (c) 112 Km (d) 120Km
60. How much longitude does the Earth move in an hour?  
 (a) 12° (b) 15°  
 (c) 18° (d) 20°
61. Which of the following options is a part of the Earth's interior?  
 (a) Stratosphere (b) Asthenosphere  
 (c) Thermosphere (d) Troposphere
62. Divergent plate boundary is a boundary that occurs between two tectonic plates:  
 (a) that are moving towards one another  
 (b) where one plate slides beneath the other  
 (c) that are sliding horizontally past each other  
 (d) that are moving away from one another
63. Which of the following is one of the active volcanoes in the Philippines and is part of the Pacific Ring of Fire?  
 (a) Mount Apo (b) Mount Kanlaon  
 (c) Mount Everest (d) Mount Elbrus
64. Alp's mountain range is located in which continent?  
 (a) Europe (b) North America  
 (c) South America (d) Africa
65. Among the following minerals, which one is a common constituent of both igneous rocks and sedimentary rocks?  
 (a) Feldspar, found in granite and sandstone  
 (b) Calcite, found only in limestone  
 (c) Mica, found only in schist  
 (d) Quartz, found only in quartzite
66. \_\_\_\_\_ Ocean is also known as the Southern Ocean.  
 (a) Antarctic (b) Indian  
 (c) Atlantic (d) Pacific
67. A process like river bifurcation can create valuable landforms for the environment, providing growth of vegetation. An example of such a landform is \_\_\_\_\_.  
 (a) River Deltas (b) Potholes  
 (c) V-shaped valley (d) Cascades
68. "Which layer of the atmosphere is the highest where meteors burn up upon entering Earth's atmosphere?"  
 (a) Thermosphere (b) Mesosphere  
 (c) Troposphere (d) Stratosphere
69. A dense mass of water drops on smoke or dust particles in the lower atmosphere layers is referred to as:  
 (a) mist (b) blizzard  
 (c) frost (d) smog
70. What wind system is responsible for India's intense monsoonal rains?  
 (a) Polar Easterlies (b) Trade Winds  
 (c) Westerlies (d) South Asian Monsoon
71. Which of the following is a cold ocean current?  
 (a) Gulf stream (b) Agulhas current  
 (c) Labrador current (d) Alaska current
72. Which one of the following is a warm ocean current?  
 (a) East Australian current  
 (b) West Australian current  
 (c) Benguela current  
 (d) Peru current
73. India shares its land borders with \_\_\_\_\_ countries.  
 (a) eight (b) seven  
 (c) five (d) six





74. Which of the following statement is correct about Great Himalaya?
- The folds of Great Himalayas are symmetrical in nature.
  - The core of this part of Himalayas is composed of granite.
- (a) Only I (b) Only II  
(c) Neither I nor II (d) Both I and II
75. The Himalayas is the example of
- (a) Block mountains (b) Fold mountains  
(c) Ancient mountains (d) Residual mountains
76. Southernmost point of the Peninsular Plateau is marked by which of the following hills?
- (a) Girnar (b) Nilgiri  
(c) Velikonda (d) Anaconda
77. Which is the largest part of the northern plains and is formed of older alluvium?
- (a) Terai (b) Bhangar  
(c) Khadar (d) Bhabar
78. Which of the following regions or countries does the Indian state of Sikkim share its borders with?
- (a) Nepal, Bhutan, Bangladesh, Tibet Autonomous Region  
(b) Nepal, China, Bhutan, West Bengal  
(c) Bhutan, Myanmar, China, West Bengal  
(d) Bangladesh, Nepal, Arunachal Pradesh, Tibet Autonomous Region
79. Which of the following mountain ranges is correctly arranged from west to east?
- (a) Aravalli → Vindhya → Western Ghats → Purvanchal  
(b) Western Ghats → Vindhya → Aravalli → Purvanchal  
(c) Aravalli → Vindhya → Purvanchal → Western Ghats  
(d) Vindhya → Aravalli → Purvanchal → Western Ghats
80. What is the study of rocks called?
- (a) petrology (b) Fruit Science  
(c) Mycology (d) Soil Science
81. The Western Ghats and the Eastern Ghats meet at which of the following places in southern India?
- (a) Satpura Hills (b) Nallamala Hills  
(c) Nilgiri Hills (d) Mahendragiri Hills
82. The western part of the Northern Plains is formed by the river system of which of the following?
- (a) Ganga and its tributaries  
(b) Indus and its tributaries  
(c) Brahmaputra and its tributaries  
(d) Mahanadi and its tributaries
83. The word monsoon refers to \_\_\_\_\_.  
(a) Blowing of wind in one direction always  
(b) Blowing of wind swiftly  
(c) Blowing of wind slowly  
(d) Changing direction of winds
84. The retreating Monsoon gives rainfall to  
(a) Gujarat (b) Goa  
(c) Tamil Nadu (d) Maharashtra
85. The Rabi season of agriculture begins in October-November and ends in \_\_\_\_\_.  
(a) June-July (b) March-April  
(c) January-February (d) May-June
86. The 'slash and burn' agriculture is known as \_\_\_\_\_ in Rajasthan state.  
(a) Waltre (b) Roca  
(c) Dipa (d) Podu
87. Which of the following is a precious mineral?  
(a) Hematite (b) Mica  
(c) Bauxite (d) Platinum
88. From which of the following countries has the Indian Constitution borrowed the procedure of making amendments in the Constitution?  
(a) Australia (b) Ireland  
(c) Russia (d) South Africa
89. Who among the following introduced Preamble in Constituent Assembly?  
(a) Dr. B R Ambedkar  
(b) Dr. Rajendra Prasad  
(c) Sardar Ballabhbhai Patel  
(d) Jawaharlal Nehru
90. Which of the following statements is correct?
- The Preamble of the Indian Constitution is not enforceable by the courts.
  - The Preamble of the Indian Constitution is a part of the Constitution and is binding on the government.
- (a) Only 1 (b) Only 2  
(c) Both 1 and 2 (d) Neither 1 nor 2

91. Indian Citizenship is granted by  
(a) The Prime Minister  
(b) The President of India  
(c) The Ministry of Home Affairs  
(d) The Ministry of External Affairs
92. Which Articles of the Constitution of India deal with the Union and its territory?  
(a) Articles 5-11 (b) Articles 1-4  
(c) Articles 12-35 (d) Article 36-51
93. Right to Education is a fundamental right, which is related to :  
(a) Article 21A (b) Article 19  
(c) Articles 29 and 30 (d) None of these
94. Which among the following are Fundamental Duties?  
(a) All of these  
(b) Protect the sovereignty, integrity and unity of India.  
(c) Safeguard public property.  
(d) Develop scientific temper and humanism.
95. Which article under DPSP proposes for the separation of the Judiciary from the executive?  
(a) Article 50 (b) Article 51  
(c) Article 53 (d) Article 49
96. The President can grant pardon in  
(a) All cases of punishment by Court Martial  
(b) All offences against laws in the union and concurrent list  
(c) All cases involving death sentence  
(d) All the above cases
97. Which Article deals with the election of the Vice President?  
(a) Article 70 (b) Article 74  
(c) Article 66 (d) Article 52
98. The Council of Ministers is collectively responsible to  
(a) The President of India (b) The Lok Sabha  
(c) The Prime Minister (d) The Rajya Sabha
99. Which of the following statements is not correct about the censure motion with regard to the Parliament of India ?  
(a) A censure motion need not have a ground or a reason on which it is based.  
(b) This motion is moved for specific purposes.  
(c) It can be moved against the Council of Ministers.  
(d) It can also be moved against an individual minister.
100. Which Article of the Indian Constitution mentions that 'The Council of Ministers shall be collectively responsible to the Legislative Assembly of the state'?  
(a) Article 164(3) (b) Article 164(4)  
(c) Article 164(2) (d) Article 164(1)
101. Which Article of the Indian Constitution provides for the establishment of the Supreme Court of India, including the Chief Justice and other Judges?  
(a) Article 122 (b) Article 124(1)  
(c) Article 148 (d) Article 226
102. Articles 214 to 231 in Part VI of the Indian Constitution deal with the \_\_\_\_\_.  
(a) High Courts (b) District Courts  
(c) Subordinate Courts (d) Supreme Court
103. In India, who takes charge as acting President in the event of resignation, impeachment, or removal of the President?  
(a) The Cabinet Secretary (b) The Prime Minister  
(c) The Vice President (d) The Chief Justice
104. In the Indian Constitution, the part dealing with freedom of trade and commerce within the country and between the states was taken from which country?  
(a) United States of America  
(b) France  
(c) Australia  
(d) Great Britain
105. If the state has violated your fundamental rights, what is the fundamental right of citizens to appeal against the court?  
(a) Right to Equality  
(b) Right to Constitutional Remedies  
(c) Right to Freedom of Expression  
(d) Right to Protection from Exploitation
106. DPSP (Directive Principles of State Policy) for Indian Constitution was inspired by which among the following Constitutions ?  
(a) USA (b) France  
(c) Ireland (d) None of these
107. What is the sanctioned judge strength of the Supreme Court excluding Chief Justice of India as per the Supreme Court (Number of Judges) Amendment Act, 2019?  
(a) Ten (b) Thirty-Three  
(c) Twenty-One (d) Twenty-Eight

- 108.** Which of the following is NOT a constitutional body?  
 (a) National Commission for Backward Classes  
 (b) Election Commission of India  
 (c) Reserve bank of India  
 (d) Comptroller and Auditor-General of India
- 109.** Which of the following committees was/were set up by the government for local bodies in India?  
 1. Balwant Rai Mehta Committee  
 2. The Ashok Mehta Committee  
 3. Khusro Committee  
 (a) Only 1 (b) Only 2 and 3  
 (c) Only 1 and 2 (d) Only 3
- 110.** When was NITI Aayog established?  
 (a) Jan 1 2015 (b) Jan 1 2014  
 (c) Jan 1 2016 (d) Jan 1 2017
- 111.** Which of the following statements is/are correct regarding Parliamentary Committees?  
 A. A minister cannot be a member of the Public Accounts Committee.  
 B. The members of the Estimates Committee are nominated by the Speaker of the Lok Sabha.  
 C. A minister can be a member of the Estimates Committee if he is nominated by the Speaker.  
 D. A member of the Committee on Public Undertakings will have tenure of 2 years.  
 (a) A only (b) A, B and C only  
 (c) A, B, C and D (d) B, C and D only
- 112.** The Constitution (74th) Amendment Act mentions, the \_\_\_\_\_.  
 (a) composition of the National Development Council  
 (b) structure of the Planning Commission of India  
 (c) setting up the State Finance Commission  
 (d) functions of the Kaveri Water Authority
- 113.** \_\_\_\_\_ is the maximum income available that can be saved and spent by a nation on the consumption of goods and services.  
 (a) National Disposable Income  
 (b) Gross National Disposable Income  
 (c) National Income  
 (d) Personal Disposable Income
- 114.** What is the use of Net National Product (NNP)?  
 (a) To calculate per capita income  
 (b) To calculate exports  
 (c) To calculate balance of payments  
 (d) To calculate imports
- 115.** Which of the following is the correct formula for calculating NNP?  
 (a)  $NNP = GNP - \text{DEPRECIATION}$   
 (b)  $NNP = GNP + \text{DEPRECIATION}$   
 (c)  $NNP = GDP - \text{INCOME}$   
 (d)  $NNP = GDP - \text{DEPRECIATION}$
- 116.** Transportation and Storage fall under which sector of economic activity?  
 (a) Secondary Sector (b) Primary Sector  
 (c) Service Sector (d) Tertiary Sector
- 117.** At higher levels of development, which sector of the economy contributes less to the GDP?  
 (a) Service sector  
 (b) Both service and agriculture sector  
 (c) Industrial sector  
 (d) Agriculture sector
- 118.** What is a budget deficit?  
 (a) The excess of government revenue over expenditure  
 (b) The amount of money allocated for defence spending  
 (c) The amount of money allocated for social welfare programmes  
 (d) The excess of government expenditure over revenue
- 119.** When was India's first-ever budget presented?  
 (a) 1935 (b) 1857  
 (c) 1948 (d) 1860
- 120.** Taxes like gift tax, wealth tax etc are also referred to as which type of taxes?  
 (a) Paperless taxes (b) Rich taxes  
 (c) Direct taxes (d) Paper taxes
- 121.** Non-Tax revenue is part of \_\_\_\_\_.  
 (a) Revenue Expenditure (b) Revenue Receipts  
 (c) Capital Expenditure (d) Capital Receipts
- 122.** Which of the following is an example of indirect tax?  
 (a) Customs duty (b) Individual income tax  
 (c) Gift tax (d) Corporate income tax
- 123.** With respect to money and banking, what does SLR stand for?  
 (a) Statutory Legal Ratio  
 (b) Statutory Liquidity Ratio  
 (c) State Liquidity Ratio  
 (d) State Legal Ratio

- 124.** Read the given statements and select the correct option regarding 'High Powered Money'.
- (i) High Powered Money consists of currency and cash reserves with the bank.
- (ii) High Powered Money includes demand deposits of the banks.
- (a) Both (i) and (ii) are true  
(b) Only (i) is true  
(c) Both (i) and (ii) are false  
(d) Only (ii) is true
- 125.** Reserve ratio and money supply have \_\_\_\_\_ relationship.
- (a) a negative (b) a linear  
(c) a symmetrical (d) no
- 126.** To combat inflation, what is the usual monetary policy stance adopted?
- (a) Owlsh (b) Dovish  
(c) Hicksian (d) Hawkish
- 127.** Which of the following is NOT a monetary policy instrument of RBI?
- (a) Government Spending  
(b) Bank Rate  
(c) Open Market Operations  
(d) Cash Reserve Ratio
- 128.** Inflation is caused by
- (a) Decrease in production  
(b) Increase in money supply and decrease in production  
(c) Increase in money supply  
(d) Increase in production
- 129.** which of the following group's suffer the most from inflation?
- (a) Debtor's (b) creditor's  
(c) Business Class (d) Holders of real assets.
- 130.** Unemployment caused by the recession of 2008-2010 is an example of which of the following types of unemployment?
- (a) Classical (b) Structural  
(c) Frictional (d) Cyclical
- 131.** The balance of the Payment Account of an economy is related to the \_\_\_\_\_.
- (a) agriculture sector (b) external sector  
(c) government sector (d) private sector
- 132.** In India, poverty estimation is done by:
- (a) NSO (b) CSO  
(c) NSSO (d) Ministry of Finance
- 133.** Cotton is used in making clothes. In this example, cotton is which type of good?
- (a) Giffen (b) Capital  
(c) Intermediate (d) Inferior
- 134.** The amount of Cash Reserves that commercial banks are required to keep with the RBI is referred to as:
- (a) Bank Rate (b) SLR  
(c) CRR (d) Repo Rate
- 135.** Which of the following is the correct formula for calculating gross primary deficit?
- (a) Gross fiscal deficit – Net interest liabilities  
(b) Gross fiscal deficit + Net interest liabilities  
(c) Gross fiscal deficit – Borrowings from abroad  
(d) Gross fiscal deficit – Borrowing from RBI
- 136.** In the context of an open economy, the term "forex" is an abbreviation for:
- (a) Foreign Expenditure Ratio  
(b) Formal Exchange Rate  
(c) Formal Expenditure Ratio  
(d) Foreign Exchange
- 137.** Which instrument was used to measure economic growth during the planning era?
- (a) Gross Domestic Product  
(b) Per Capita Gross Domestic Product  
(c) Per Capita Income  
(d) National Income





## Solutions

S1. Ans.(d)	S36. Ans.(c)	S71. Ans.(c)	S106. Ans.(c)
S2. Ans.(a)	S37. Ans.(c)	S72. Ans.(a)	S107. Ans.(b)
S3. Ans.(b)	S38. Ans.(a)	S73. Ans.(b)	S108. Ans.(c)
S4. Ans.(b)	S39. Ans.(d)	S74. Ans.(b)	S109. Ans.(c)
S5. Ans.(c)	S40. Ans.(d)	S75. Ans.(b)	S110. Ans.(a)
S6. Ans.(e)	S41. Ans.(d)	S76. Ans.(b)	S111. Ans.(a)
S7. Ans.(d)	S42. Ans.(d)	S77. Ans.(b)	S112. Ans.(c)
S8. Ans.(b)	S43. Ans.(d)	S78. Ans.(b)	S113. Ans.(a)
S9. Ans.(d)	S44. Ans.(a)	S79. Ans.(a)	S114. Ans.(a)
S10. Ans.(b)	S45. Ans.(a)	S80. Ans.(a)	S115. Ans.(a)
S11. Ans.(d)	S46. Ans.(c)	S81. Ans.(c)	S116. Ans.(d)
S12. Ans.(d)	S47. Ans.(a)	S82. Ans.(b)	S117. Ans.(d)
S13. Ans.(d)	S48. Ans.(b)	S83. Ans.(d)	S118. Ans.(d)
S14. Ans.(a)	S49. Ans.(a)	S84. Ans.(c)	S119. Ans.(d)
S15. Ans.(b)	S50. Ans.(d)	S85. Ans.(b)	S120. Ans.(d)
S16. Ans.(b)	S51. Ans.(b)	S86. Ans.(a)	S121. Ans.(b)
S17. Ans.(d)	S52. Ans.(c)	S87. Ans.(d)	S122. Ans.(a)
S18. Ans.(d)	S53. Ans.(d)	S88. Ans.(d)	S123. Ans.(b)
S19. Ans.(d)	S54. Ans.(b)	S89. Ans.(d)	S124. Ans.(b)
S20. Ans.(a)	S55. Ans.(d)	S90. Ans.(c)	S125. Ans.(a)
S21. Ans.(c)	S56. Ans.(d)	S91. Ans.(c)	S126. Ans.(d)
S22. Ans.(c)	S57. Ans.(a)	S92. Ans.(b)	S127. Ans.(a)
S23. Ans.(d)	S58. Ans.(d)	S93. Ans.(a)	S128. Ans.(b)
S24. Ans.(b)	S59. Ans.(b)	S94. Ans.(a)	S129. Ans.(b)
S25. Ans.(c)	S60. Ans.(b)	S95. Ans.(a)	S130. Ans.(d)
S26. Ans.(b)	S61. Ans.(b)	S96. Ans.(d)	S131. Ans.(b)
S27. Ans.(d)	S62. Ans.(d)	S97. Ans.(c)	S132. Ans.(a)
S28. Ans.(c)	S63. Ans.(b)	S98. Ans.(b)	S133. Ans.(c)
S29. Ans.(c)	S64. Ans.(a)	S99. Ans.(a)	S134. Ans.(c)
S30. Ans.(d)	S65. Ans.(a)	S100. Ans.(c)	S135. Ans.(a)
S31. Ans.(b)	S66. Ans.(a)	S101. Ans.(b)	S136. Ans.(d)
S32. Ans.(b)	S67. Ans.(a)	S102. Ans.(a)	S137. Ans.(a)
S33. Ans.(a)	S68. Ans.(b)	S103. Ans.(c)	
S34. Ans.(a)	S69. Ans.(d)	S104. Ans.(c)	
S35. Ans.(d)	S70. Ans.(d)	S105. Ans.(b)	