

SSC Selection Post (Graduation) Similar Paper (Held on 29 Aug 2025 S1)

**Q.1 Statement:**

"All efficient workers are punctual."

**Conclusions:**

- I. Some punctual persons are efficient workers.
- II. All punctual persons are efficient workers.

- A. Only I follows
- B. Only II follows
- C. Both follow
- D. Neither follows

**Answer:** A

**Sol: Statement:**

"All efficient workers are punctual."

**Conclusions:**

- I. Some punctual persons are efficient workers.

From "All efficient workers are punctual," we can validly infer that some punctual persons are efficient workers (assuming efficient workers exist).

- II. All punctual persons are efficient workers.

We cannot infer that all punctual persons are efficient workers (that would be the reverse, which is not given).

So, **Only I follows.**

Thus, correct option is (a).

**Q.2 Instruction:** Determine which of the following judgments can be made. **Judgments:**

Apple may be sweet.

Apple is definitely sour. **Statement:** Some fruits are sweet. Apple is a fruit.

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Answer:** A

**Sol: Statement:**

Some fruits are sweet.

Apple is a fruit.

**Judgments:**

- 1. Apple may be sweet.
- 2. Apple is definitely sour.

**Analysis:**

From "some fruits are sweet" and "apple is a fruit," it is possible that apple is among the sweet fruits. So Judgment 1 can be made.

There is no information about apples being sour. Hence, Judgment 2 cannot be made.

So, **Only 1.**

Thus, correct option is (a).

**Q.3** If MOBILE is coded as 56 and LAPTOP as 80, then what is the code for TABLET?

- A. 62
- B. 65
- C. 66
- D. 60

**Answer:** D

**Sol: Given:** If MOBILE is coded as 56 and LAPTOP as 80.

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

**Logic:** Sum of place value of letter = Number

Adda247

# Test Prime

**ALL EXAMS, ONE SUBSCRIPTION**



**1,00,000+**  
Mock Tests



Personalised  
Report Card



Unlimited  
Re-Attempt



**600+**  
Exam Covered



**25,000+** Previous  
Year Papers



**500%**  
Refund



**ATTEMPT FREE MOCK NOW**

**For, MOBILE - 56**

$$13 + 15 + 2 + 9 + 12 + 5 = 56$$

**For, LAPTOP - 80**

$$12 + 1 + 16 + 20 + 15 + 16 = 80$$

Similarly,

TABLET - ?

$$20 + 1 + 2 + 12 + 5 + 20 = 60$$

So, TABLET is coded as **60**.

Thus, correct option is (d).

**Q.4** In the following question, select the related number from the given alternatives.

$$4 : 20 :: 6 : ?$$

- A. 30
- B. 36
- C. 41
- D. 48

**Answer:** A

**Sol: Given:**  $4 : 20 :: 6 : ?$

**Logic:** 1st number  $\times$  5 = 2nd number

**For,**  $4 : 20$

$$4 \times 5 = 20$$

Similarly,

$6 : ?$

$$6 \times 5 = \mathbf{30}$$

Thus, correct option is (a).

**Q.5** The sum of ages of a father and son is 56 years. After 4 years, the father will be four times as old as the son. What is the son's present age?

- A. 8 years
- B. 10 years
- C. 12 years
- D. 14 years

**Answer:** A

**Sol: Given:** The sum of ages of a father and son is 56 years. After 4 years, the father will be four times as old as the son.

**Solution:**

Sum of present ages of father and son = 56 years

After 4 years, father's age =  $4 \times$  son's age

Let the son's present age =  $x$  years

Then father's present age =  $56 - x$

After 4 years:

Son's age =  $x + 4$

Father's age =  $60 - x$

According to the condition:

$$(60 - x = 4(x + 4))$$

$$(60 - x = 4x + 16)$$

$$(60 - 16 = 4x + x)$$

$$(44 = 5x)$$

$$(x = 8.8)$$

So, **8 years** is the son's present age.

Thus, correct option is (a).

**Q.6** From the given alternatives, select the word which cannot be formed using the letters of the word REPUTATION. Each letter may be used only as many times as it appears.

- A. RATION
- B. PUTTER
- C. TONE
- D. OPENER

**Answer:** D

**Sol: Given:** REPUTATION

Letters available:

R, E, P, U, T, A, T, I, O, N

(Note: T appears twice, all others once)

We check options:

**Option (a):** RATION → R, A, T, I, O, N (all available)

**Option (b):** PUTTER → P, U, T, T, E, R (T used twice, allowed)

**Option (c):** TONE → T, O, N, E (all available)

**Option (d):** OPENER → O, P, E, N, E, R (E needed twice, but only one E is available)

So, **OPENER** word which cannot be formed using the letters of the word.

Thus, correct option is (d).

**Q.7** Pick the different one.

- A. Odissi
- B. Manipuri
- C. Mohiniyattam
- D. Chhau

**Answer:** D

**Sol: Odissi, Manipuri and Mohiniyattam** are classical Indian dance forms.

**Chhau** is a semi-classical / folk dance, not a classical one.

So, **Chhau** is odd one out.

Thus, correct option is (d).

**Q.8** Which of the following alternative will come at the place of question mark?

12, 24, 48, 96, ?

- A. 184
- B. 192
- C. 198
- D. 196

**Answer:** B

**Sol: Given:** 12, 24, 48, 96, ?

**Logic:** Numbers are multiply by 2.

$$12 \times 2 = 24$$

$$24 \times 2 = 48$$

$$48 \times 2 = 96$$

$$96 \times 2 = 192$$

So, the missing term **192**.

Thus, correct option is (b).

**Q.9** If A = add 4, B = triple then subtract 1, C = square then subtract 3, find: 3 A B C

- A. 100
- B. 121
- C. 144
- D. 169

**Answer:** C

**Sol: Given:**

A = add 4

B = triple, then subtract 1

C = square

Find: 3 A B C

3 → B → A → C

B:  $3 \times 3 - 1 = 8$

A:  $8 + 4 = 12$   
 C:  $12^2 = 144$   
 Thus, correct option is (c).

**Q.10** The combined age of two sisters is 30 years. The product of their ages is 209. What are their ages?

- A. 11 and 19 years
- B. 12 and 18 years
- C. 13 and 17 years
- D. 14 and 16 years

**Answer:** A

**Sol: Given:** The combined age of two sisters is 30 years. The product of their ages is 209.

Now, we check the options:

**Option (a):** 11 and 19 → Product =  $(11 \times 19 = 209)$

**Option (b):** 12 and 18 → Product = 216

**Option (c):** 13 and 17 → Product = 221

**Option (d):** 14 and 16 → Product = 224

Only option A satisfies both conditions.

So, **11 and 19** years are their ages.

Thus, correct option is (a).

**Q.11** In the following question, select the related word from the given alternatives.

Sandstone : Rajasthan :: Limestone : ?

- A. Punjab
- B. Meghalaya
- C. Kerala
- D. Ladakh

**Answer:** B

**Sol: Given:** Sandstone : Rajasthan :: Limestone : ?

**Sandstone** is abundantly found in **Rajasthan**.

Similarly,

Limestone : ?

**Limestone** is abundantly found in **Meghalaya**.

Thus, correct option is (b).

**Q.12** Choose the correct equation using:  $+$  =  $-$ ,  $-$  =  $\times$ ,  $\times$  =  $\div$ ,  $\div$  =  $+$

- A.  $36 + 6 - 3 \times 2 = 27$
- B.  $48 - 4 + 6 \div 2 = 24$
- C.  $60 \div 5 - 4 + 2 = 18$
- D.  $72 + 8 \div 4 - 3 = 20$

**Answer:** A

**Sol: Given:**

Given Sign  $+$  -  $\times$   $\div$

New Sign  $-$   $\times$   $\div$   $+$

Using **BODMAS** rule.

Operation preference wise	Symbol
Brackets	$[], , ()$
Orders, of	$(power), \sqrt{(root)}, of$
Division	$\div$
Multiplication	$\times$
Addition	$+$
Subtraction	$-$

Now, we check each options.

**Option (a):**  $36 + 6 - 3 \times 2 = 27$

**New equation:**  $36 - 6 \times 3 \div 2 = 27$

$36 - 18 \div 2 = 27$

$36 - 9 = 27$

$27 \neq 27$

**Option (b):**  $48 - 4 + 6 \div 2 = 24$

**New equation:**  $48 \times 4 - 6 + 2 = 24$

$192 - 6 + 2 = 24$

$194 - 6 = 24$

$188 \neq 24$

**Option (c):**  $60 \div 5 - 4 + 2 = 18$

**New equation:**  $60 + 5 \times 4 - 2 = 18$

$60 + 20 - 2 = 18$

$80 - 2 = 18$

$78 \neq 18$

**Option (d):**  $72 + 8 \div 4 - 3 = 20$

**New equation:**  $72 - 8 + 4 \times 3 = 20$

$72 - 8 + 12 = 20$

$84 - 8 = 20$

$76 \neq 20$

So,  **$36 + 6 - 3 \times 2 = 27$**  is correct.

Thus, correct option is (a).

**Q.13** If @ = -, \$ = ÷, % = +, # = ×, then  $18 \% 6 @ 4 \# 12 \$ 3 = ?$

- A. 6
- B. 8
- C. 10
- D. 12

**Answer:** B

**Sol: Given:**  $18 \% 6 @ 4 \# 12 \$ 3 = ?$

Given Symbol@ \$%#

New Sign - ÷ + ×

Using **BODMAS** rule.

Operation preference wise	Symbol
Brackets	$\square, \dots, ()$
Orders, of	$(power), \sqrt{(root)}, of$
Division	$\div$
Multiplication	$\times$
Addition	$+$
Subtraction	$-$

**New equation:**  $18 + 6 - 4 \times 12 \div 3 = ?$

$18 + 6 - 4 \times 4 = ?$

$18 + 6 - 16 = ?$

$24 - 16 = ?$

$? = 8$

Thus, correct option is (b).

**Q.14** In the following question, select the related number from the given alternatives.

$45 : 15 :: 81 : ?$

- A. 9
- B. 18
- C. 27
- D. 36

**Answer:** C

**Sol: Given:**  $45 : 15 :: 81 : ?$

**Logic:** 1st number  $\div 3 =$  2nd number

**For,**  $45 : 15$

$$45 \div 3 = 15$$

Similarly,

$$81 : ?$$

$$81 \div 3 = \mathbf{27}$$

Thus, correct option is (c).

**Q.15** Read the given statements and conclusions carefully.

**Statements:**

1. All flowers are beautiful.
2. Some beautiful things are fragrant.

**Conclusions:**

- I. Some flowers are fragrant.
- II. All fragrant things are beautiful.

- A. Only I follows
- B. Only II follows
- C. Both I and II follow
- D. Neither I nor II follow

**Answer:** D

**Sol: Statements:**

1. All flowers are beautiful.
2. Some beautiful things are fragrant.

**From the given statements possible Venn diagram will be.**



**Conclusions:**

- I. Some flowers are fragrant. (**False**, there is no relation between flowers and fragrant).
- II. All fragrant things are beautiful. (**False**, some beautiful things are fragrant, so that means all fragrant things are not beautiful).

So, **Neither I nor II follow.**

Thus, correct option is (d).

**Q.16** In the following question, select the relationship from the given alternatives.

Library : Books :: Orchard : ?

- A. Fruits
- B. Trees
- C. Flowers
- D. Seeds

**Answer:** B

**Sol: Given:** Library : Books :: Orchard : ?

A **library** is a place where **books** are kept.

Similarly,

Orchard : ?

An **orchard** is a place where **trees** (especially fruit trees) are grown.

Thus, correct option is (b).

**Q.17** A family consists of a grandmother, her husband, their three sons, each son's wife, and one son per son. Find total male and female members.

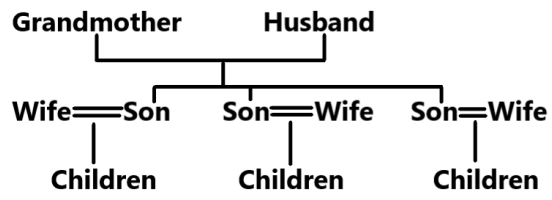
- A. 5 males, 6 females
- B. 6 males, 5 females
- C. 7 males, 4 females
- D. 6 males, 7 females

**Answer:** C

**Sol: Given:** A family consists of a grandmother, her husband, their three sons, each son's wife, and one son per son.

Symbol in Diagram	Meaning
- / O	Female
+ / □	Male
=	Married Couple
—	Siblings
	Difference Of Generation

From the given information blood relation diagram will be.



So, total male and female members are **7 males, 4 females**.  
Thus, correct option is (c).

**Q.18** Center AB (45), Room 12: Roll numbers follow format 4512XX. Question: Which of the following does not belong to this room based on roll number pattern?

- A. 451201
- B. 451215
- C. 451234
- D. 452112

**Answer:** D

**Sol: Given:** Center AB (45), Room 12: Roll numbers follow format 4512XX.

That means:

First two digits = 45

Next two digits = 12

Last two digits = any number (XX)

Now, we check options:

**Option (a):** 451201 → 45 | 12 | 01

**Option (b):** 451215 → 45 | 12 | 15

**Option (c):** 451234 → 45 | 12 | 34

**Option (d):** 452112 → 45 | 21 | 12 (room number is not 12)

So, **452112** does not belong to this room based on roll number pattern.

Thus, correct option is (d).

**Q.19** In the following question, select the related letter from the given alternatives.

PQRS : SRQP :: LMNO : ?

- A. ONML
- B. MNOL
- C. OLNM
- D. NOLM

**Answer:** A

**Sol: Given:** PQRS : SRQP :: LMNO : ?

**Logic:** Letters are reversed.

**For,** PQRS : SRQP

PQRS → SRQP (letters are reversed)

Similarly,

LMNO : ?

LMNO → **ONML** (letters are reversed)

Thus, correct option is (a).

**Q.20** If '+' means '÷', '-' means '×', '×' means '+', and '÷' means '-', then what is the value of:  $24 - 6 + 8 \times 4 \div 2$  ?

- A. 28
- B. 26
- C. 24

D. 20

**Answer:** D

**Sol: Given:**  $24 - 6 + 8 \times 4 \div 2$  ?

Given Sign  $+ - \times \div$

New Sign  $\div \times + -$

Using **BODMAS** rule.

Operation preference wise	Symbol
Brackets	$[], , ()$
Orders, of	$(power), \sqrt{(root), of}$
Division	$\div$
Multiplication	$\times$
Addition	$+$
Subtraction	$-$

**New equation:**  $24 \times 6 \div 8 + 4 - 2 = ?$

$144 \div 8 + 4 - 2 = ?$

$18 + 4 - 2 = ?$

$22 - 2 = ?$

$? = 20$

Thus, correct option is (d).

**Q.21** In MP (07), seat numbers must not repeat in the same room. Which set is valid?

- A. 701021, 701021, 701034, 701034
- B. 701045, 701056, 701045, 701067
- C. 701111, 701112, 701113, 701114
- D. 701021, 701031, 701021, 701041

**Answer:** C

**Sol: Given:** In MP (07), seat numbers must not repeat in the same room.

Now, we check each options:

**Option (a):** 701021, 701021, 701034, 701034 (repetition)

**Option (b):** 701045, 701056, 701045, 701067 (repetition)

**Option (c):** 701111, 701112, 701113, 701114 (all seat numbers are different)

**Option (d):** 701021, 701031, 701021, 701041 (repetition)

So, **701111, 701112, 701113, 701114** set is valid.

Thus, correct option is (c).

**Q.22** In the following question, select the related letter from the given alternatives.

ACE : BDF :: KMO : ?

- A. LNP
- B. LNO
- C. MNP
- D. LMP

**Answer:** A

**Sol: Given:** ACE : BDF :: KMO : ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

**Logic:** Letters are increasing + 1 place.

**For,** ACE : BDF

A + 1 = B, C + 1 = D, E + 1 = F

Similarly,

KMO : ?

K + 1 = L, M + 1 = N, O + 1 = P

So, KMO : **LNP**

Thus, correct option is (a).

**Q.23** Find the missing term: BFL, CHM, DJN, ?

- A. EJO
- B. EIP
- C. EKN
- D. ELO

**Answer:** D

**Sol: Given:** BFL, CHM, DJN, ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

**Logic:** 1st letter + 1, 2nd letter + 2 and 3rd letter + 1 place.

**For,** 1st letter

B + 1 = C, C + 1 = D, D + 1 = E

**For,** 2nd letter

F + 2 = H, H + 2 = J, J + 2 = L

**For,** 3rd letter

L + 1 = M, M + 1 = N, N + 1 = O

So, the missing term is **ELO**.

Thus, correct option is (d).

**Q.24** A train 240 m long passes a pole in 15 s. Its speed is?

- A. 58 km/h
- B. 54 km/h
- C. 60 km/h
- D. 72 km/h

**Answer:** A

**Sol: Given:** A train 240 m long passes a pole in 15 s.

Speed = Distance ÷ Time

= 240 ÷ 15 = 16 m/s

Convert m/s to km/h:

$16 \times \frac{18}{5} = 57.6$  km/h

So, **58 km/h** is speed.

Thus, correct option is (a).

**Q.25** Which of the following alternative will come at the place of question mark?

12 : 144 :: 15 : ?

- A. 200
- B. 210
- C. 225
- D. 240

**Answer:** C

**Sol: Given:** 12 : 144 :: 15 : ?

**Logic:** 1st number<sup>2</sup> = 2nd number

**For,** 12 : 144

12<sup>2</sup> = 144

Similarly,

15 : ?

15<sup>2</sup> = **225**

Thus, correct option is (c).

**Q.26** What is the main objective of the Global Hunger Index (GHI)?

- A. To measure global GDP growth rates
- B. To rank countries based on military strength
- C. To assess and track hunger levels at global, regional, and national levels
- D. To evaluate literacy rates worldwide

**Answer:** C

N/A

**Q.27** Assertion (A): A country may achieve high GDP growth yet continue to face widespread unemployment.

Reason (R): GDP growth measures total economic output but does not necessarily ensure equitable job creation.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is true, but R is false
- D. A is false, but R is true

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- GDP measures the market value of goods and services. Growth can occur through automation or capital-intensive sectors without hiring more people (Jobless growth).
- Therefore, R explains why A is possible.

**Information Booster:**

- Jobless growth is a phenomenon where the economy grows but unemployment remains high or even increases.

**Additional Knowledge:**

- Inclusive growth is the term used for growth that creates employment and reduces poverty.

**Q.28** Match the Indian freedom fighters with their associated movements:

- A) Bal Gangadhar Tilak — 3) Home Rule Movement
- B) Mahatma Gandhi — 1) Quit India Movement
- C) Subhas Chandra Bose — 2) Indian National Army
- D) Bhagat Singh — 4) Hindustan Socialist Republican Association

- A. A-3, B-1, C-2, D-4
- B. A-1, B-3, C-4, D-2
- C. A-2, B-4, C-1, D-3
- D. A-4, B-2, C-3, D-1

**Answer:** A

**Sol:** The correct answer is **(A) A-3, B-1, C-2, D-4**

**Explanation:**

- Bal Gangadhar Tilak launched the Home Rule League in 1916.
- Mahatma Gandhi led the Quit India Movement in 1942.
- Subhas Chandra Bose took command of the Indian National Army (Azad Hind Fauj) in 1943.
- Bhagat Singh was a key leader of the HSRA.

**Information Booster:**

- Tilak is known as 'Lokmanya' and famously said, "Swaraj is my birthright and I shall have it."

**Additional Knowledge:**

- The Quit India Movement is also known as the 'August Kranti'.

**Q.29** Read the below statements marked as Assertion (A) and Reason (R). Mark the correct option:

Assertion (A): Gupta period temples show the beginning of structural temple architecture in India.

Reason (R): The use of dressed stone and brick during the Gupta period led to permanent temple structures.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is true, but R is false
- D. Both A and R are false

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- The Gupta period is considered the 'Golden Age' of Indian architecture where free-standing structural temples emerged.
- Before this, rock-cut architecture was more prevalent; the shift to dressed stone and brick allowed for permanent, complex structures.

**Information Booster:**

- The Dashavatara Temple at Deogarh is a classic example of Gupta structural temple architecture.

**Additional Knowledge:**

- Gupta temples often featured a flat roof initially, evolving into a shikhara (tower).

**Q.30** Consider the following statements:

Statement 1: Akbar introduced the Mansabdari system to organize the Mughal administrative and military structure.

Statement 2: The Mansabdari system classified officials based on rank and the number of cavalry they maintained.

Which of the statements is/are correct?

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Answer:** C

**Sol:** The correct answer is **(C) Both 1 and 2**

**Explanation:**

- Akbar introduced the Mansabdari system to create a centralized administrative structure.
- The system used 'Zat' to indicate personal rank and status, and 'Sawar' to indicate the number of cavalymen (cavalry) the official was required to maintain.

**Information Booster:**

- Mansabdars received their salaries either in cash (Naqdi) or through land assignments (Jagirs).

**Additional Knowledge:**

- The system was not hereditary and depended on the will of the Emperor.

**Q.31** Consider the following statements about Olympic Games rules:

1. The Olympic Games are held every four years.

2. Only professional athletes are allowed to participate in all Olympic sports.

Which of the above statements is/are Correct?

- A. Only 1 is Correct
- B. Only 2 is Correct
- C. 1 and 2 both are Correct
- D. Neither 1 nor 2 are Correct

**Answer:** A

**Sol:** The correct answer is **(A) Only 1 is Correct**

**Explanation:**

- The Olympic Games are a quadrennial event, occurring every four years.
- Statement 2 is incorrect because while many Olympians are professionals, the Olympics historically emphasized amateurism, and today both professionals and amateurs can compete depending on the sport's federation rules.

**Information Booster:**

- The International Olympic Committee (IOC) was founded in 1894 by Pierre de Coubertin.

**Additional Knowledge:**

- The first modern Olympics were held in Athens, Greece, in 1896.

**Q.32** Which sport did Neeraj Chopra win a gold medal in at the Tokyo 2020 Olympics?

- A. Wrestling
- B. Boxing
- C. Javelin Throw
- D. Badminton

**Answer:** C

**Sol:** The correct answer is **(C) Javelin Throw**

**Explanation:**

- Neeraj Chopra won the gold medal in the Javelin Throw event with a throw of 87.58m at the Tokyo 2020 Olympics.
- He became the first Indian track and field athlete to win an Olympic gold medal.

**Information Booster:**

- Neeraj Chopra is only the second Indian to win an individual Olympic gold after Abhinav Bindra.

**Additional Knowledge:**

- Wrestling (Option A): Ravi Kumar Dahiya won Silver in Tokyo.
- Boxing (Option B): Lovlina Borgohain won Bronze in Tokyo.
- Badminton (Option D): P.V. Sindhu won Bronze in Tokyo.

**Q.33** Which Indian government body regulates civil aviation in India?

- A. Airports Authority of India (AAI)
- B. Directorate General of Civil Aviation (DGCA)
- C. Ministry of Defence
- D. Bureau of Civil Aviation Security

**Answer:** B

**Sol:** The correct answer is **(B) Directorate General of Civil Aviation (DGCA)**

**Explanation:**

- The DGCA is the statutory body of the Government of India to regulate civil aviation in India.
- It primarily deals with safety issues and is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations.

**Information Booster:**

- DGCA is headquartered in New Delhi and functions under the Ministry of Civil Aviation.

**Additional Knowledge:**

- AAI (Option A): Manages the infrastructure of airports.
- BCAS (Option D): Responsible for laying down standards for civil aviation security.

**Q.34** What is the primary objective of the Aditya-L1 mission launched by ISRO?

- A. To explore the surface of Mars

- B. To study the Sun's corona and solar activities
- C. To deploy communication satellites in orbit
- D. To conduct experiments on the Moon's surface

**Answer:** B

**Sol:** The correct answer is **(B) To study the Sun's corona and solar activities**

**Explanation:**

- Aditya-L1 is India's first solar mission to study the Sun.
- It is placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, about 1.5 million km from Earth.

**Information Booster:**

- The mission studies solar winds, Coronal Mass Ejections (CMEs), and the heating of the solar corona.

**Additional Knowledge:**

- Mars Exploration (Option A): Mangalyaan was ISRO's mission for Mars.
- Moon Surface (Option D): Chandrayaan series focuses on the Moon.

**Q.35** The Iron Pillar of Delhi is primarily composed of which metal?

- A. Copper
- B. Iron
- C. Bronze
- D. Aluminium

**Answer:** B

**Sol:** The correct answer is **(B) Iron**

**Explanation:**

- The Iron Pillar of Delhi is famous for its high resistance to corrosion, showcasing the advanced metallurgy of ancient India.
- It is made of 98% wrought iron and was erected during the Gupta Dynasty, likely during the reign of Chandragupta II.

**Information Booster:**

- The pillar's rust-resistance is attributed to a passive protective film of crystalline iron hydrogen phosphate hydrate forming on the surface.

**Additional Knowledge:**

- Copper (Option A): Used in the Indus Valley Civilization for tools.
- Bronze (Option C): An alloy of copper and tin, prominent in the Harappan culture.
- Aluminium (Option D): A modern metal not extracted in ancient India.

**Q.36** Assertion (A): India successfully soft-landed on the Moon's south polar region through Chandrayaan-3 in 2023.

Reason (R): The mission demonstrated India's capability in advanced space exploration and lunar surface operations.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is false, but R is true
- D. A is true, but R is false

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- Chandrayaan-3 landed on August 23, 2023, making India the first country to land near the lunar South Pole.
- The success proves the technological maturity of ISRO in executing complex soft-landing maneuvers.

**Information Booster:**

- The landing site of Chandrayaan-3 has been named 'Shiv Shakti Point'.

**Additional Knowledge:**

- India is the fourth country to achieve a soft landing on the Moon after the USA, Russia, and China.

**Q.37** Read the below statements marked as Assertion (A) and Reason (R). Mark the correct options:

Assertion (A): The Goods and Services Tax (GST) was introduced in India in 2017 to unify the indirect tax structure.

Reason (R): GST subsumed various central and state taxes into a single tax system.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is false, but R is true
- D. A is true, but R is false

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- GST was implemented on July 1, 2017, to create a 'One Nation, One Tax' system.
- It unified the market by replacing multiple indirect taxes like Excise Duty, VAT, and Service Tax, thus explaining why it was introduced.

**Information Booster:**

- GST is a destination-based tax on consumption of goods and services.

**Additional Knowledge:**

- The GST Council, chaired by the Union Finance Minister, is the governing body for GST.

**Q.38** Read the following two statements carefully and choose the correct option:

Statement 1: The Green Revolution in India significantly increased food grain production.

Statement 2: High-yielding variety (HYV) seeds and improved irrigation were major components of the Green Revolution.

- A. Only 1
- B. Only 2
- C. Both 1 and 2 are correct
- D. Neither 1 nor 2 is correct

**Answer:** C

**Sol:** The correct answer is **(C) Both 1 and 2 are correct**

**Explanation:**

- The Green Revolution (starting in the mid-1960s) transformed India from a food-deficient nation to a self-sufficient one.
- This was achieved through the 'Package Technology' comprising HYV seeds (especially wheat and rice), chemical fertilizers, and assured irrigation.

**Information Booster:**

- M.S. Swaminathan is known as the Father of the Green Revolution in India.

**Additional Knowledge:**

- Norman Borlaug is known as the Father of the Green Revolution globally.

**Q.39** Assertion (A): According to Census 2011, Kerala has the highest literacy rate among Indian states.

Reason (R): Kerala has historically invested heavily in education and social development.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is false, but R is true
- D. A is true, but R is false

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- In Census 2011, Kerala recorded a literacy rate of 94.00%, the highest in India.
- This achievement is a direct result of long-term state policies focusing on primary education and public health.

**Information Booster:**

- Bihar had the lowest literacy rate in the 2011 Census at 61.80%.

**Additional Knowledge:**

- Literacy in Census is defined as the ability to read and write with understanding in any language for a person aged 7 and above.

**Q.40** Assertion (A): India's National Green Hydrogen Mission aims to position the country as a global hub for green hydrogen production.  
Reason (R): Green hydrogen is produced using renewable energy sources and helps reduce carbon emissions.

- A. Both A and R are true, and R is the correct explanation of A
- B. Both A and R are true, but R is not the correct explanation of A
- C. A is true, but R is false
- D. A is false, but R is true

**Answer:** A

**Sol:** The correct answer is **(A) Both A and R are true, and R is the correct explanation of A**

**Explanation:**

- The mission was approved to decarbonize the economy and reduce dependence on fossil fuel imports.
- Since 'Green' hydrogen is made via electrolysis powered by renewables, it aligns with India's climate goals, justifying the push to become a global hub.

**Information Booster:**

- The mission targets a production capacity of at least 5 MMT of green hydrogen per year by 2030.

**Additional Knowledge:**

- Green hydrogen differs from 'Grey' (from natural gas) and 'Blue' (with carbon capture) hydrogen.

**Q.41** Which of the following minerals is most widely used in the production of stainless steel in India?

- A. Bauxite
- B. Manganese
- C. Limestone
- D. Gypsum

**Answer:** B

**Sol:** The correct answer is **(B) Manganese**

**Explanation:**

- Manganese is an essential raw material for manufacturing steel and ferromanganese alloys.
- Nearly 10 kg of manganese is required to manufacture one tonne of steel, as it helps in deoxidizing and desulfurizing.

**Information Booster:**

- Odisha is a leading producer of Manganese in India.

**Additional Knowledge:**

- Bauxite (Option A): Ore used for Aluminium production.
- Limestone (Option C): Used primarily in the Cement industry.
- Gypsum (Option D): Used in making fertilizer and Plaster of Paris.

**Q.42** Under the Disaster Management Act, 2005, who chairs the National Disaster Management Authority (NDMA)?

- A. Home Minister
- B. Prime Minister
- C. Defence Minister
- D. Cabinet Secretary

**Answer:** B

**Sol:** The correct answer is **(B) Prime Minister**

**Explanation:**

- The NDMA is the apex statutory body for disaster management in India.
- According to the DM Act 2005, the Prime Minister is the ex-officio Chairperson of the NDMA.

**Information Booster:**

- State Disaster Management Authorities (SDMAs) are chaired by the respective Chief Ministers.

**Additional Knowledge:**

- The Home Minister (Option A): Usually serves as the Vice-Chairperson or head of the executive committee.

**Q.43** Read the following statements about human digestive enzymes:

1. Amylase helps in the digestion of starch into simple sugars.
2. Pepsin works in an acidic medium in the stomach.
3. Bile contains enzymes that digest proteins.

Which of the above statements are correct?

- A. Only 1 and 2 are correct
- B. Only 2 and 3 are correct
- C. Only 1 and 3 are correct
- D. 1, 2 and 3 are correct

**Answer:** A

**Sol:** The correct answer is **(A) Only 1 and 2 are correct**

**Explanation:**

- Salivary amylase begins the breakdown of starch in the mouth.
- Pepsin is a protein-digesting enzyme in the stomach that requires the acidic pH provided by HCl.
- Statement 3 is incorrect because Bile does not contain enzymes; it emulsifies fats.

**Information Booster:**

- Bile is produced by the liver and stored in the gallbladder.

**Additional Knowledge:**

- Trypsin is another protein-digesting enzyme, but it works in the small intestine.

**Q.44** Under PM-KISAN scheme, eligible farmers receive financial assistance of:

- A. ₹4,000 per year
- B. ₹5,000 per year
- C. ₹6,000 per year
- D. ₹10,000 per year

**Answer:** C

**Sol:** The correct answer is **(C) ₹6,000 per year**

**Explanation:**

- Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) is a central sector scheme.
- It provides an income support of ₹6,000 per year in three equal installments of ₹2,000 directly into the bank accounts of farmer families.

**Information Booster:**

- The scheme was launched in February 2019 (effective from December 2018).

**Additional Knowledge:**

- It is implemented by the Ministry of Agriculture and Farmers Welfare.

**Q.45** If the atomic number of an element is 11, the number of electrons in its outermost shell is:

- A. 1

- B. 2
- C. 8
- D. 11

**Answer:** A

**Sol:** The correct answer is **(A) 1**

**Explanation:**

- The atomic number 11 belongs to Sodium (Na).
- Electronic configuration: The first shell (K) holds 2, the second (L) holds 8, leaving 1 electron for the third shell (M). Configuration is 2, 8, 1.

**Information Booster:**

- Elements with 1 electron in the outermost shell are highly reactive metals (Alkali metals).

**Additional Knowledge:**

- Valency of an element with 1 valence electron is +1.

**Q.46** Fill in the Blank:

The classical dance form 'Kathakali' originated in \_\_\_\_\_.

- A. Tamil Nadu
- B. Karnataka
- C. Kerala
- D. Andhra Pradesh

**Answer:** C

**Sol:** The correct answer is **(C) Kerala**

**Explanation:**

- Kathakali is a 'story play' genre of art, distinguished by its colorful make-up and costumes.
- It originated in the state of Kerala and is one of the 8 classical dances of India recognized by Sangeet Natak Akademi.

**Information Booster:**

- Mohiniyattam is the other classical dance form from Kerala.

**Additional Knowledge:**

- Tamil Nadu (Option A): Bharatnatyam.
- Andhra Pradesh (Option D): Kuchipudi.

**Q.47** Consider the following statements regarding the National Green Hydrogen Mission:

1. It aims to make India a global hub for the production and export of green hydrogen.
2. It was launched in 2023.
3. It focuses only on hydrogen production for domestic fertilizer industries.

- A. Only 1 and 2 are correct
- B. Only 2 and 3 are correct
- C. Only 1 and 3 are correct
- D. All 1, 2 and 3 are correct

**Answer:** A

**Sol:** The correct answer is **(A) Only 1 and 2 are correct**

**Explanation:**

- The Mission was formally launched in early 2023.
- Statement 3 is incorrect because the mission has a broad scope, including export, transport, and industrial sectors, not just fertilizers.

**Information Booster:**

- Green Hydrogen is defined as hydrogen produced by splitting water using electricity generated from renewable sources.

**Additional Knowledge:**

- The mission helps India meet its 'Panchamrit' climate targets announced at COP26.

**Q.48** When was the Goods and Services Tax (GST) implemented in India?

- A. 2015
- B. 2016
- C. 2017
- D. 2018

**Answer:** C

**Sol:** The correct answer is **(C) 2017**

**Explanation:**

- GST was launched in India on the midnight of July 1, 2017.
- It replaced multiple cascading taxes levied by the central and state governments.

**Information Booster:**

- The 101st Constitution Amendment Act paved the way for GST implementation.

**Additional Knowledge:**

- Assam was the first state to ratify the GST Bill.

**Q.49** Large-scale wind energy projects require specific geographical conditions. Which of the following factors is most important for maximizing wind power generation?

- A. High humidity and dense forest cover
- B. Consistent high-speed winds in open coastal or elevated areas
- C. Proximity to mineral-rich regions
- D. Abundant groundwater availability

**Answer:** B

**Sol:** The correct answer is **(B) Consistent high-speed winds in open coastal or elevated areas**

**Explanation:**

- Wind turbines convert kinetic energy from wind into electricity; hence, wind speed is the most critical factor (power is proportional to the cube of wind speed).
- Coastal and elevated areas experience fewer obstructions and higher pressure gradients, providing steady winds.

**Information Booster:**

- Tamil Nadu, Gujarat, and Karnataka are the leading states in wind energy capacity in India.

**Additional Knowledge:**

- Forest cover (Option A) actually reduces wind speed due to friction.

**Q.50** Consider the following statements about Venus:

1. Venus rotates in a retrograde direction.
2. It is often called Earth's twin due to its similar size and mass.

Which of the above is/are correct?

- A. Statement 1 only
- B. Statement 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

**Answer:** C

**Sol:** The correct answer is **(C) Both 1 and 2**

**Explanation:**

- Venus is the only planet along with Uranus that rotates from East to West (Retrograde).
- It is called 'Earth's Twin' because its size, mass, and density are very similar to Earth.

**Information Booster:**

- Venus is the hottest planet in the solar system due to a runaway greenhouse effect caused by its thick CO<sub>2</sub> atmosphere.

**Additional Knowledge:**

- A day on Venus is longer than its year.

**Q.51** A decorative object consists of a cylinder and a cone mounted on top of it. The radius of both parts is 7 cm. The height of the cylindrical part is 20 cm, and the slant height of the conical part is 25 cm. Determine the total surface area of the object (base included).

- A.  $1254\text{cm}^2$
- B.  $1386\text{cm}^2$
- C.  $1540\text{cm}^2$
- D.  $1584\text{cm}^2$

**Answer:** D

**Sol: Given:**

Radius of cylinder and cone ( $r$ ) = 7 cm  
 Height of cylinder ( $h$ ) = 20 cm  
 Slant height of cone ( $l$ ) = 25 cm

**Formula Used:**

Total Surface Area (TSA) = CSA of Cylinder + CSA of Cone + Area of Base  
 $TSA = 2\pi rh + \pi rl + \pi r^2 = \pi r(2h + l + r)$

**Solution:**

Substitute the given values into the formula:

$$\begin{aligned} TSA &= \frac{22}{7} \times 7 \times (2(20) + 25 + 7) \\ &= 22 \times (40 + 25 + 7) \\ &= 22 \times 72 \\ &= 1584 \text{ cm}^2 \end{aligned}$$

**Final Answer**

So the correct answer is (d)

**Q.52** A regular tetrahedron (triangular pyramid) has an edge length of 6 cm. Find its total surface area.

- A.  $24\sqrt{3}\text{cm}^2$
- B.  $36\sqrt{3}\text{cm}^2$
- C.  $18\sqrt{3}\text{cm}^2$
- D.  $12\sqrt{3}\text{cm}^2$

**Answer:** B

**Sol: Given:**

Edge length ( $a$ ) = 6 cm

**Formula Used:**

Total Surface Area of Regular Tetrahedron =  $a^2\sqrt{3}$

**Solution:**

Substitute the value of  $a = 6$ :

$$\begin{aligned} TSA &= 6^2\sqrt{3} \\ TSA &= 36\sqrt{3} \text{ cm}^2 \end{aligned}$$

**Final Answer**

So the correct answer is (b)

**Q.53** In which type of triangle do the Centroid, Incenter, Circumcenter, and Orthocenter all coincide at the same point?

- A. Isosceles triangle
- B. Right-angled triangle
- C. Equilateral triangle
- D. Scalene triangle

**Answer:** C

**Sol: Given:**

Condition: Centroid, Incenter, Circumcenter, and Orthocenter coincide.

**Formula Used:**

Properties of triangles.

**Solution:**

In an equilateral triangle, all sides and angles are equal. Due to this symmetry, the medians, angle bisectors, perpendicular bisectors, and altitudes are the same lines. Therefore, their points of intersection (Centroid, Incenter, Circumcenter, and Orthocenter) all lie at the exact same point.

**Final Answer**

So the correct answer is (c)

**Q.54** Two parallel chords of lengths 10 cm and 24 cm are drawn in a circle of radius 13 cm. If the chords are on opposite sides of the center, what is the distance between them?

- A. 17 cm
- B. 12 cm
- C. 7 cm
- D. 14 cm

**Answer:** A

**Sol: Given:**

Radius ( $r$ ) = 13 cm

Chord 1 ( $L_1$ ) = 10 cm

Chord 2 ( $L_2$ ) = 24 cm

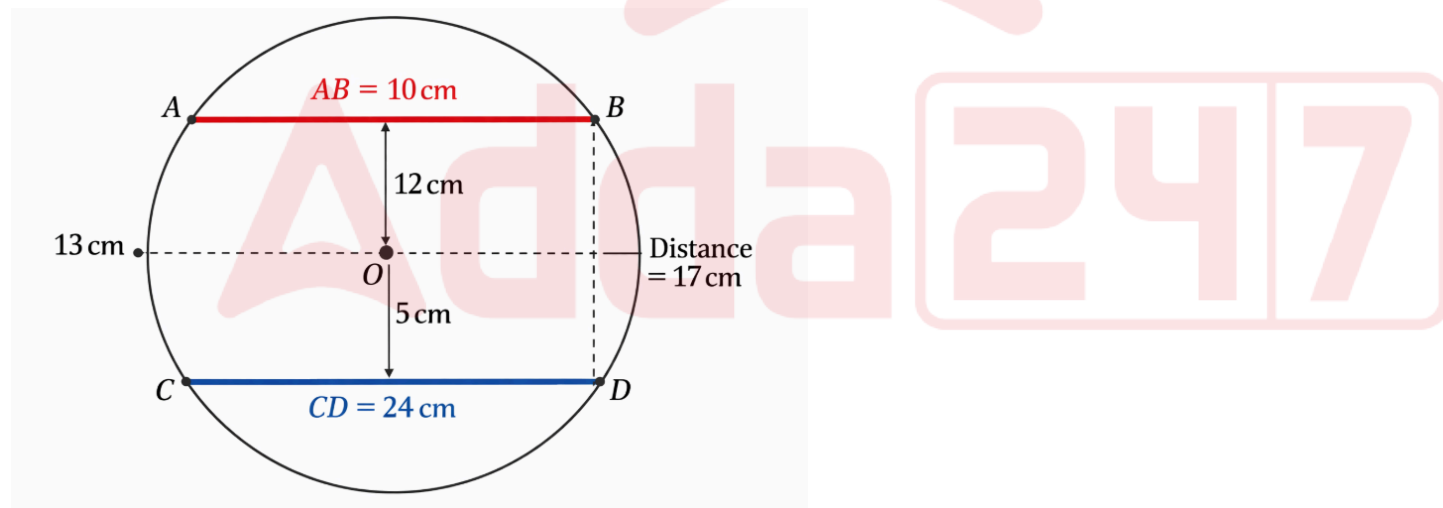
Chords are on opposite sides.

**Formula Used:**

Distance from center  $d = \sqrt{r^2 - (L/2)^2}$

Total distance =  $d_1 + d_2$

**Solution:**



For Chord 1 (10 cm): Half-length = 5 cm.

$$d_1 = \sqrt{13^2 - 5^2} = \sqrt{169 - 25} = \sqrt{144} = 12 \text{ cm.}$$

For Chord 2 (24 cm): Half-length = 12 cm.

$$d_2 = \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5 \text{ cm.}$$

Since they are on opposite sides, add the distances:

$$\text{Distance} = 12 + 5 = 17 \text{ cm}$$

**Final Answer**

So the correct answer is (a)

**Q.55** Runner A completes a lap of a circular track in 12 minutes, while Runner B takes 18 minutes. If they start at the same time from the same point, after how many minutes will they meet again at the starting point?

- A. 24 minutes
- B. 36 minutes
- C. 48 minutes

D. 72 minutes

**Answer:** B

**Sol: Given:**

Time taken by A = 12 minutes

Time taken by B = 18 minutes

**Formula Used:**

Meeting time = LCM(Time A, Time B)

**Solution:**

Find the Least Common Multiple (LCM) of 12 and 18.

Factors of 12 =  $2^2 \times 3$

Factors of 18 =  $2 \times 3^2$

LCM =  $2^2 \times 3^2 = 4 \times 9 = 36$

They will meet again at the starting point after 36 minutes.

**Final Answer**

So the correct answer is (b)

**Q.56** If  $\cos \theta = -\frac{12}{13}$  and  $\theta$  lies in the third quadrant, find the value of  $\tan \theta$ .

- A.  $-\frac{5}{12}$
- B.  $\frac{5}{13}$
- C.  $\frac{12}{5}$
- D.  $-\frac{12}{5}$

**Answer:** C

**Sol: Given:**

$$\cos \theta = -\frac{12}{13}$$

$\theta$  is in the 3rd Quadrant.

**Formula Used:**

In a right triangle,  $(\text{base})^2 + (\text{perpendicular})^2 = (\text{hypotenuse})^2$ .

In 3rd Quadrant,  $\tan \theta$  is positive.

**Solution:**

Here, Base = 12, Hypotenuse = 13.

$$\text{Perpendicular} = \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5.$$

$$\tan \theta = \frac{\text{Perpendicular}}{\text{Base}} = \frac{5}{12}.$$

Since  $\theta$  is in the 3rd quadrant,  $\tan \theta$  is positive.

$$\tan \theta = \frac{5}{12}.$$

**Final Answer**

So the correct answer is (c)

**Q.57** If  $\tan(2A) = \cot(A - 18^\circ)$ , where  $2A$  is an acute angle, find the value of  $A$ .

- A.  $36^\circ$
- B.  $45^\circ$
- C.  $24^\circ$
- D.  $30^\circ$

**Answer:** A

**Sol: Given:**

$$\tan(2A) = \cot(A - 18^\circ)$$

**Formula Used:**

$$\tan \theta = \cot(90^\circ - \theta)$$

**Solution:**

Convert  $\tan$  to  $\cot$  :

$$\cot(90^\circ - 2A) = \cot(A - 18^\circ)$$

Equate the angles:

$$90^\circ - 2A = A - 18^\circ$$

$$90^\circ + 18^\circ = A + 2A$$

$$108^\circ = 3A$$

$$A = \frac{108^\circ}{3}$$

$$A = 36^\circ$$

**Final Answer**

So the correct answer is (a)

**Q.58** Arrange the following in descending order:  $\sqrt{2}$ ,  $\sqrt[3]{3}$ ,  $\sqrt[6]{6}$

A.  $\sqrt[3]{3} > \sqrt{2} > \sqrt[6]{6}$

B.  $\sqrt{2} > \sqrt[6]{6} > \sqrt[3]{3}$

C.  $\sqrt[3]{3} > \sqrt[6]{6} > \sqrt{2}$

D.  $\sqrt[6]{6} > \sqrt{2} > \sqrt[3]{3}$

**Answer:** A

**Sol: Given:**

Numbers:  $\sqrt{2}$ ,  $\sqrt[3]{3}$ ,  $\sqrt[6]{6}$

**Formula Used:**

Convert roots to fractional exponents and equate denominators (LCM of 2, 3, 6 is 6).

**Solution:**

$$\sqrt{2} = 2^{1/2} = 2^{3/6} = (2^3)^{1/6} = 8^{1/6}$$

$$\sqrt[3]{3} = 3^{1/3} = 3^{2/6} = (3^2)^{1/6} = 9^{1/6}$$

$$\sqrt[6]{6} = 6^{1/6} = 6^{1/6}$$

Compare the bases:  $9 > 8 > 6$ .

Therefore,  $9^{1/6} > 8^{1/6} > 6^{1/6}$ .

Order:  $\sqrt[3]{3} > \sqrt{2} > \sqrt[6]{6}$ .

**Final Answer**

So the correct answer is (a)

**Q.59** Simplify:  $(\sqrt{5} - \sqrt{2})^2$

A.  $8 - \sqrt{15}$

B.  $7 - 2\sqrt{10}$

C.  $2 - 2\sqrt{10}$

D.  $8 + 2\sqrt{15}$

**Answer:** B

**Sol: Given:**

Expression:  $(\sqrt{5} - \sqrt{2})^2$

**Formula Used:**

$$(a - b)^2 = a^2 + b^2 - 2ab$$

**Solution:**

Let  $a = \sqrt{5}$  and  $b = \sqrt{2}$

$$(\sqrt{5})^2 + (\sqrt{2})^2 - 2(\sqrt{5})(\sqrt{2})$$

$$= 5 + 2 - 2\sqrt{10}$$

$$= 7 - 2\sqrt{10}$$

**Final Answer**

So the correct answer is (b)

**Q.60** A sum of ₹6,450 is borrowed at 5% simple interest per annum, to be paid back in 2 equal annual installments. What is the amount of each installment?

A. ₹3,000

- B. ₹3,225
- C. ₹3,461
- D. ₹3,150

**Answer:** C

**Sol: Given:**

Principal (Borrowed Sum, P): ₹6,450

Rate of Interest (R): 5% per annum

Time (T): 2 years

Installments: 2 equal annual installments

**Formula Used:**

Total Amount to be Paid (Debt):

$$A = P + \frac{P \times R \times T}{100}$$

Installment Formula (to discharge a future Debt A):

$$I = \frac{100 \times A}{100 \times T + \frac{R \times T \times (T-1)}{2}}$$

(Where I is the annual installment amount)

**Solution:**

First, calculate the total amount (Debt) payable at the end of 2 years on the borrowed sum.

$$A = 6450 + \frac{6450 \times 5 \times 2}{100}$$

$$A = 6450 + \frac{64500}{100}$$

$$A = 6450 + 645 = 7,095$$

Now, determine the installment \$I\$ that will settle this debt of ₹7,095 in 2 years.

Using the installment formula:

$$I = \frac{7095 \times 100}{100 \times 2 + \frac{5 \times 2 \times 1}{2}}$$

$$I = \frac{709500}{200 + 5}$$

$$I = \frac{709500}{205}$$

$$I \approx 3,460.97$$

Rounding to the nearest rupee, the installment is ₹3,461.

**Alternate Solution (Short Trick):**

Let the annual installment be 100 units.

1st Installment (paid at end of Year 1): Earns interest for 1 remaining year.

$$\text{Value} = 100 + (100 \times 5\% \times 1) = 105 \text{ units.}$$

2nd Installment (paid at end of Year 2): Earns interest for 0 remaining years.

$$\text{Value} = 100 + 0 = 100 \text{ units.}$$

$$\text{Total Value of Installments} = 105 + 100 = 205 \text{ units.}$$

$$\text{Total Debt (Amount)} = 110\% \text{ of } 6450 \text{ (since } 5\% \text{ for } 2 \text{ years} = 10\%)$$

$$\text{Total Debt} = 6450 \times 1.10 = 7,095$$

$$205 \text{ units} = 7,095$$

$$1 \text{ unit} = \frac{7095}{205} = 34.6097\dots$$

$$100 \text{ units (Installment)} = 3460.97 \approx ₹3,461$$

**Q.61** An airplane flying at a constant height of  $3000\sqrt{3}$  m is observed at an angle of elevation of  $60^\circ$ . After 15 seconds, the angle of elevation becomes  $30^\circ$ . What is the speed of the plane?

- A. 720km/hr
- B. 1440km/hr
- C. 800km/hr
- D. 960km/hr

**Answer:** B

**Sol: Given:**

$$\text{Height (h)} = 3000\sqrt{3} \text{ m}$$

Angles:  $60^\circ$  to  $30^\circ$ .

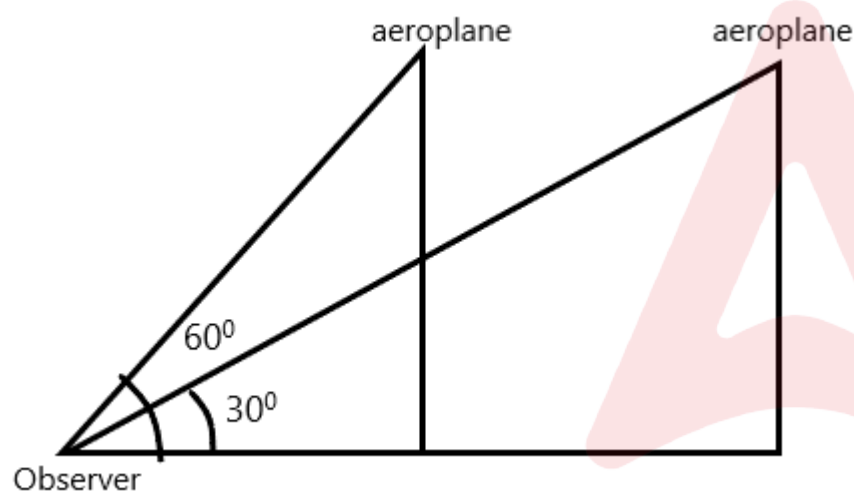
Time = 15 seconds.

**Formula Used:**

$$\text{Distance} = h(\cot 30^\circ - \cot 60^\circ)$$

$$\text{Speed} = \text{Distance} / \text{Time}$$

**Solution:**



Using  $h = 3000\sqrt{3}$  m for calculation:

$$\begin{aligned} \text{Distance} &= 3000\sqrt{3}\left(\sqrt{3} - \frac{1}{\sqrt{3}}\right) \\ &= 3000\sqrt{3}\left(\frac{3-1}{\sqrt{3}}\right) \end{aligned}$$

$$= 3000\sqrt{3}\left(\frac{2}{\sqrt{3}}\right)$$

$$= 6000 \text{ m.}$$

$$\text{Speed} = \frac{6000}{15} = 400 \text{ m/s.}$$

Convert to km/hr:

$$400 \times \frac{18}{5} = 80 \times 18 = 1440 \text{ km/hr.}$$

**Final Answer**

So the correct answer is (b)

**Q.62** Pipes P and Q can fill a tank in 12 hours and 15 hours respectively. Pipe R can empty it in 20 hours. If all three pipes are opened together, how long will it take to fill the tank?

- A. 10 hours
- B. 12 hours
- C. 15 hours
- D. 18 hours

**Answer:** A

**Sol: Given:**

P fills in 12 hrs, Q in 15 hrs, R empties in 20 hrs.

**Formula Used:**

$$\text{Net Rate} = \frac{1}{P} + \frac{1}{Q} - \frac{1}{R}$$

**Solution:**

$$\text{Work per hour} = \frac{1}{12} + \frac{1}{15} - \frac{1}{20}$$

LCM of 12, 15, 20 is 60.

$$\text{Rate} = \frac{5 + 4 - 3}{60} = \frac{6}{60} = \frac{1}{10}$$

Time taken = 10 hours.

**Final Answer**

So the correct answer is (a)

**Q.63** A shopkeeper marks his goods 40% above the cost price and allows a discount of 25%. What is his gain or loss percent?

- A. 5% Loss
- B. 5% Gain
- C. 10% Gain
- D. No Profit No Loss

**Answer:** B

**Sol: Given:**

Markup = 40%

Discount = 25%

**Formula Used:**

$$\text{Successive percentage: } x - y - \frac{xy}{100}$$

**Solution:**

Let CP = 100.

Marked Price = 140.

$$\text{Discount} = 25\% \text{ of } 140 = \frac{1}{4} \times 140 = 35.$$

Selling Price = 140 - 35 = 105.

Gain = 105 - 100 = 5.

Gain % = 5%.

**Final Answer**

So the correct answer is (b)

**Q.64** Two cyclists start from a junction. One travels North at 15 km/h and the other travels West at 20 km/h. How far apart are they after 2 hours?

- A. 50 km
- B. 70 km
- C. 35 km
- D. 45 km

**Answer:** A

**Sol: Given:**

Speed 1 (North) = 15 km/h.

Speed 2 (West) = 20 km/h.

Time = 2 hours.

**Formula Used:**

$$\text{Distance} = \sqrt{d_1^2 + d_2^2} \text{ (Pythagoras Theorem)}$$

**Solution:**

Distance North = 15 × 2 = 30 km.

Distance West = 20 × 2 = 40 km.

$$\text{Separation} = \sqrt{30^2 + 40^2}$$

$$= \sqrt{900 + 1600}$$

$$= \sqrt{2500}$$

$$= 50 \text{ km}$$

**Final Answer**

So the correct answer is (a)

**Q.65** A square lawn has a side of 50 meters. A path of 2.5 meters width is constructed inside along its boundary. Find the difference between the outer and inner perimeters.

- A. 10 meters
- B. 20 meters
- C. 15 meters
- D. 25 meters

**Answer:** B

**Sol: Given:**

Side of square = 50 m.

Path width = 2.5 m (inside).

**Formula Used:**

Perimeter =  $4 \times$  side.

**Solution:**

Outer side = 50 m. Outer Perimeter =  $4 \times 50 = 200$  m.

Inner side =  $50 - 2(2.5) = 50 - 5 = 45$  m.

Inner Perimeter =  $4 \times 45 = 180$  m.

Difference =  $200 - 180 = 20$  meters.

**Final Answer**

So the correct answer is (b)

**Q.66** The sides of a triangle are in the ratio 5:12:13. If the perimeter is 60 cm, find the length of the longest side.

- A. 24 cm
- B. 26 cm
- C. 20 cm
- D. 13 cm

**Answer:** B

**Sol: Given:**

Ratio = 5:12:13.

Perimeter = 60 cm.

**Formula Used:**

Perimeter = Sum of sides.

**Solution:**

Let sides be  $5x$ ,  $12x$ ,  $13x$ .

$5x + 12x + 13x = 60$

$30x = 60 \implies x = 2$ .

Longest side =  $13x = 13 \times 2 = 26$  cm.

**Final Answer**

So the correct answer is (b)

**Q.67** Which of the following numbers is a perfect square and is divisible by 9?

- A. 100
- B. 196
- C. 225
- D. 400

**Answer:** C

**Sol: Given:**

Options: 100, 196, 225, 400.

**Formula Used:**

Divisibility by 9: Sum of digits must be divisible by 9.

**Solution:**

A: 100 (Sum 1) - No.

B: 196 (Sum 16) - No.

C: 225 (Sum 9) - Yes. Also  $15^2 = 225$ .

D: 400 (Sum 4) - No.

**Final Answer**

So the correct answer is (c)

**Q.68** By selling an article for ₹810, a man loses 10%. What is the cost price?

- A. ₹900
- B. ₹891
- C. ₹729
- D. ₹1000

**Answer:** A

**Sol: Given:**

SP = ₹810.

Loss = 10%.

**Formula Used:**

$$SP = CP \times \frac{100 - \text{Loss}\%}{100}$$

**Solution:**

$$810 = CP \times \frac{90}{100}$$

$$CP = \frac{810 \times 100}{90}$$

$$CP = 9 \times 100 = 900.$$

**Final Answer**

So the correct answer is (a)

**Q.69** The average of 5 numbers is 20. If one number, which is 20, is removed, what is the average of the remaining 4 numbers?

- A. 19
- B. 21
- C. 20
- D. 25

**Answer:** C

**Sol: Given:**

Average of 5 numbers = 20.

Removed number = 20.

**Formula Used:**

Average = Sum / Count.

**Solution:**

$$\text{Sum} = 20 \times 5 = 100.$$

$$\text{New Sum} = 100 - 20 = 80.$$

$$\text{New Count} = 4.$$

$$\text{New Average} = 80 / 4 = 20.$$

**Final Answer**

So the correct answer is (c)

**Q.70** A person sold an article at a loss of 10%. Had he sold it for ₹150 more, he would have gained 20%. What is the cost price?

- A. ₹400
- B. ₹500
- C. ₹600
- D. ₹450

**Answer:** B

**Sol: Given:**

Difference between +20% (gain) and -10% (loss) is ₹150.

**Formula Used:**

Percentage Difference = Value Difference.

**Solution:**

Total gap = 20 - (-10) = 30%.

30% of CP = 150.

$$CP = \frac{150}{30} \times 100$$

$$CP = 5 \times 100 = 500.$$

**Final Answer**

So the correct answer is (b)

**Q.71** A candidate scored 360 marks out of 600. What is the percentage of marks obtained?

- A. 55%
- B. 60%
- C. 65%
- D. 70%

**Answer:** B

**Sol: Given:**

Marks Scored = 360.

Total Marks = 600.

**Formula Used:**

$$\text{Percentage} = \frac{\text{Scored}}{\text{Total}} \times 100$$

**Solution:**

$$\frac{360}{600} \times 100$$

$$= \frac{36}{6} \times 10$$

$$= 6 \times 10 = 60\%$$

**Final Answer**

So the correct answer is (b)

**Q.72** Which of the following is an irrational number?

- A.  $\sqrt{16}$
- B. 3.14
- C.  $\frac{22}{7}$
- D.  $\pi$

**Answer:** D

**Sol: Given:**

Options:  $\sqrt{16}$ , 3.14,  $\frac{22}{7}$ ,  $\pi$ .

**Solution:**

A:  $\sqrt{16} = 4$  (Rational).

B: 3.14 (Terminating decimal, Rational).

C:  $\frac{22}{7}$  (Fraction, Rational).

D:  $\pi$  (Non-terminating non-recurring decimal, Irrational).

**Final Answer**

So the correct answer is (d)

**Q.73** If the binary number  $10010_2$  is divided by  $11_2$ , the quotient in decimal system is:

- A. 4

- B. 5
- C. 6
- D. 8

**Answer:** C

**Sol: Given:**

Binary numbers:  $10010_2$  and  $11_2$ .

**Solution:**

Convert to decimal:

$$10010_2 = 1(2^4) + 0 + 0 + 1(2^1) + 0 = 16 + 2 = 18.$$

$$11_2 = 1(2^1) + 1(2^0) = 2 + 1 = 3.$$

Divide:  $18 / 3 = 6$ .

**Final Answer**

So the correct answer is (c)

**Q.74** A container is filled with liquid to 80% of its capacity. If 20 liters are removed, it becomes 60% full. What is the total capacity?

- A. 80 liters
- B. 100 liters
- C. 120 liters
- D. 150 liters

**Answer:** B

**Sol: Given:**

Change from 80% to 60% by removing 20 liters.

**Solution:**

$$\text{Difference in percentage} = 80\% - 60\% = 20\%.$$

20% of Capacity = 20 Liters.

1% = 1 Liter.

100% = 100 Liters.

**Final Answer**

So the correct answer is (b)

**Q.75** Find the equation of the line passing through the points (2, 3) and (4, 7).

- A.  $y = 2x - 1$
- B.  $y = 2x + 1$
- C.  $y = x + 1$
- D.  $y = 3x - 3$

**Answer:** A

**Sol: Given:**

Points (2, 3) and (4, 7).

**Formula Used:**

$$\text{Slope } m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Equation: } y - y_1 = m(x - x_1)$$

**Solution:**

$$\text{Slope } m = \frac{7 - 3}{4 - 2} = \frac{4}{2} = 2.$$

Using point (2, 3):

$$y - 3 = 2(x - 2)$$

$$y - 3 = 2x - 4$$

$$y = 2x - 1.$$

**Final Answer**

So the correct answer is (a)

**Q.76** Choose the correct active form of the given sentence:  
Admission was denied to her parents by the institution.

- A. Her parents was denied admission by the institution.

- B. The institution denied admission to her parents.
- C. her parents will be denied admission by the institution.
- D. The institution has been denying admission to her parents.

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Passive to Active):**

- Given sentence is in **passive voice**: "Admission was denied to her parents by the institution."
- Identify the parts:
  - **Object (receiver of action)**: admission
  - **Verb (passive)**: was denied
  - **Agent (doer)**: the institution
  - **Indirect object**: to her parents
- Rule: In passive to active conversion, the agent (introduced by **by**) becomes the **subject**, and the object becomes the **object**. The verb changes from **was + V3** to **V2** (simple past) because the passive is in simple past.
- Active structure: **Subject + V2 + Object + (to/for + indirect object)**
- Thus: **The institution denied admission to her parents.**

**Why other options are incorrect:**

- (A) "Her parents was denied admission..." is grammatically wrong because **parents** is plural, so it should be **were**, and it also keeps the passive structure, not a correct active form.
- (C) changes the tense to future ("will be denied") and also has improper capitalization; it does not match the original meaning and tense.
- (D) changes tense/aspect to present perfect continuous ("has been denying"), which is not given in the original sentence.

So the correct answer is (b)

**Q.77** Fill in the blank with the appropriate article:

The council debated at length over whether \_\_\_\_\_ rise in tuition charges was defensible in view of the prevailing economic conditions.

- A. a
- B. an
- C. the
- D. no article

**Answer:** C

**Sol:** The correct option is (C).

**Explanation (Articles):**

- We use **the** (definite article) when we refer to something **specific** or already understood from the context.
- Here, "whether **the** rise in tuition charges was defensible" refers to a particular rise being discussed by the council (a known, definite issue).
- Therefore, the correct sentence is: "...over whether **the** rise in tuition charges was defensible..."

**Why other options are incorrect:**

- (A) **a**: "a rise" would suggest a non-specific, indefinite rise, which does not fit because the council is debating a particular rise.
- (B) **an**: "an" is used before vowel sounds, but "rise" starts with the consonant sound /r/, so "an rise" is incorrect.
- (D) **no article**: Without an article ("whether rise..."), the noun becomes grammatically unnatural in this context.

So the correct answer is (c)

**Q.78** What does the idiom "to keep the wolf away from the door" mean?

- A. To avoid financial distress
- B. To escape immediate physical danger
- C. To guard against enemies
- D. To avoid taking risks

**Answer:** A

**Sol:** The correct option is (A).

**Idiom Meaning:** to keep the wolf away from the door means to manage somehow so that one does not suffer from hunger, poverty, or financial hardship. (Hindi meaning: आर्थिक तंगी से बचना)

**Step-by-step reasoning:**

- In idioms, "wolf" symbolically represents **hunger and poverty**.
- "Away from the door" suggests preventing hardship from entering one's life.
- Hence, the idiom refers to earning just enough to meet basic needs and avoid financial trouble.

**Example:** He took a second job to keep the wolf away from the door.

**Other related idioms and meanings:**

- **make ends meet** – to manage with the money one has (गुज़ारा करना)
- **live from hand to mouth** – to live with barely enough money for basic needs (मुश्किल से गुज़ारा)
- **tighten one's belt** – to spend less due to financial difficulty (खर्च कम करना)

So the correct answer is (a)

**Q.79** Change the following from active to passive:

The director was expected to have completed the script revisions before filming began.

- The script revisions were expected to have completed by the director before filming began.
- The script revisions were expected to have been completed by the director before filming began.
- The script revisions were being expected to have been completed by the director before filming began.
- The script revisions were expected to being completed by the director before filming began.

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Active to Passive with perfect infinitive):**

- Given sentence: "The director was expected **to have completed** the script revisions..."
- Here, the main verb phrase is **was expected** (past passive form of "expect"), and after it we have a **perfect infinitive: to have completed**.
- Rule: When a perfect infinitive (**to have + V3**) is made passive, it becomes **to have been + V3**.
- Object in active sense: **the script revisions**. This becomes the subject in passive construction.
- Therefore, correct passive form: **The script revisions were expected to have been completed by the director before filming began.**

**Why other options are incorrect:**

- (A) "to have completed" is not converted to passive; it should be "to have **been** completed."
- (C) introduces "were being expected," which changes the meaning and aspect unnecessarily and is not required by the original structure.
- (D) "to being completed" is grammatically incorrect; the correct passive infinitive forms are "to be completed" or "to have been completed."

So the correct answer is (b)

**Q.80** Choose the option that best expresses the same sentence in indirect speech:

I said to her, "Do your parents live in Mumbai?"

- I asked her whether her parents live in Mumbai.
- I asked her whether her parents lived in Mumbai.
- I told her whether her parents lived in Mumbai.
- I said to her whether her parents live in Mumbai.

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Direct to Indirect Speech: Yes/No question):**

- The given sentence is an interrogative (question): "Do your parents live in Mumbai?"
- Rule 1: For yes/no questions, we use **if** or **whether** in indirect speech.
- Rule 2: Reporting verb "said to" changes to **asked** when reporting a question.
- Rule 3 (Backshifting): When the reporting verb is in the past ("said"), present simple in the reported speech generally changes to past simple.

- So, "live" becomes lived.
- Correct conversion: I asked her whether her parents lived in Mumbai.

Why other options are incorrect:

- (A) does not backshift "live" to "lived" even though the reporting verb is past.
- (C) uses "told," which is not used for questions; "told" is used for statements/commands.
- (D) keeps "said to" and also keeps present tense; it is not a proper indirect speech structure.

So the correct answer is (b)

**Q.81** Select the most appropriate synonym of the given word. INTRANSIGENT

- A. Unyielding
- B. Neutral
- C. Agreeable
- D. Adaptable

**Answer:** A

**Sol:** The correct option is (A).

**INTRANSIGENT:** Someone who is intransigent is **unwilling to change their views, refuse compromise, and remain stubborn** even when persuasion is given. (Hindi meaning: अड़ियल)

**Example:** The manager was intransigent about the deadline and refused any extension.

Why (A) Unyielding is correct:

- **Unyielding** means **not giving way, not softening, and not ready to compromise**. (Hindi meaning: अडिग)
- This meaning matches "intransigent" because both indicate firmness and refusal to change.

**Example:** She remained unyielding in her decision despite criticism.

**Synonyms (for INTRANSIGENT):** stubborn, inflexible, uncompromising, obstinate.

**Antonyms (for INTRANSIGENT):** flexible, compliant, agreeable, accommodating.

Meanings of all other options:

- (B) **Neutral:** not taking sides; impartial (Hindi meaning: तटस्थ)
- (C) **Agreeable:** pleasant; willing to accept or consent (Hindi meaning: सहमत/मनभावन)
- (D) **Adaptable:** able to adjust to new conditions (Hindi meaning: अनुकूलनीय)

So the correct answer is (a)

**Q.82** Which of the following best describes the grammatical structure of the sentence:

"This entails that simultaneity is observer-dependent: what appears simultaneous to one observer may not be so to another..."

Read the passage and answer the question:

"Minkowski proposed that space and time are not separate arenas but fused into a single four-dimensional continuum, an idea that naturally follows from Einstein's Special Relativity. Within this model, time ceases to be an absolute Newtonian backdrop and instead becomes interlaced with the three spatial dimensions to form space-time. Events are located as points in this space-time, and their separation is measured not by ordinary Euclidean distance but by the relativistic interval, which remains invariant across reference frames. This entails that simultaneity is observer-dependent: what appears simultaneous to one observer may not be so to another moving relative to the first.

When gravity is introduced through Einstein's General Relativity, the picture deepens further. Gravity is reconceived not as a Newtonian force but as the curvature of space-time produced by mass-energy. Objects travel along geodesics—paths determined by the geometry of curved space-time. A striking consequence is gravitational time dilation: clocks nearer a massive body tick more slowly than clocks farther away. This has been empirically verified, including observations that satellite clocks run slightly faster than clocks on Earth due to weaker gravitational influence."

- A. Simple sentence
- B. Complex sentence
- C. Compound sentence
- D. Compound-complex sentence

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Context + Grammar):**

The sentence is: "This entails **that** simultaneity is observer-dependent: what appears simultaneous to one observer may not be so to another..."

- It has one main clause: **This entails**.
- It is followed by a subordinate clause introduced by **that: that simultaneity is observer-dependent**.
- Further, it contains an additional dependent idea after the colon: **what appears simultaneous to one observer may not be so to another**. The "what" clause functions as a dependent clause explaining the statement.
- A **complex sentence** contains **one independent clause** and **one or more dependent (subordinate) clauses**.
- Therefore, the best description is **Complex sentence**.

**Why other options are incorrect:**

- **(A) Simple sentence:** A simple sentence has only one independent clause and no dependent clause; here, "that" and "what" introduce dependent clauses.
- **(C) Compound sentence:** A compound sentence has two independent clauses joined by a coordinating conjunction; that structure is not present.
- **(D) Compound-complex:** This requires at least two independent clauses plus at least one dependent clause; the given sentence does not clearly contain two independent clauses.

So the correct answer is (b)

**Q.83** What is the closest meaning of "geodesics" in the context of the passage?

Read the passage and answer the question:

"Minkowski proposed that space and time are not separate arenas but fused into a single four-dimensional continuum, an idea that naturally follows from Einstein's Special Relativity. Within this model, time ceases to be an absolute Newtonian backdrop and instead becomes interlaced with the three spatial dimensions to form space-time. Events are located as points in this space-time, and their separation is measured not by ordinary Euclidean distance but by the relativistic interval, which remains invariant across reference frames. This entails that simultaneity is observer-dependent: what appears simultaneous to one observer may not be so to another moving relative to the first.

When gravity is introduced through Einstein's General Relativity, the picture deepens further. Gravity is reconceived not as a Newtonian force but as the curvature of space-time produced by mass-energy. Objects travel along geodesics—paths determined by the geometry of curved space-time. A striking consequence is gravitational time dilation: clocks nearer a massive body tick more slowly than clocks farther away. This has been empirically verified, including observations that satellite clocks run slightly faster than clocks on Earth due to weaker gravitational influence."

- A. The most natural straight-like paths in curved space-time
- B. Vibrations travelling through space as waves
- C. Circular tracks created only by orbital pull
- D. Fixed reference points used for measurement

**Answer:** A

**Sol:** The correct option is (A).

**Explanation (Meaning from the passage):**

- The passage states: "Objects travel along **geodesics**—paths determined by the geometry of curved space-time."
- So, **geodesics** are the **natural paths** followed by objects when space-time is curved. They are the closest equivalent of a "straight line" in a curved geometry.
- Thus, the closest meaning is: **The most natural straight-like paths in curved space-time**.

**Why other options are incorrect:**

- **(B)** refers to waves/vibrations, which relates to phenomena like electromagnetic waves or gravitational waves, not geodesics.
- **(C)** limits the meaning to circular tracks due to orbit, but geodesics can be many forms depending on curvature and are not restricted to circular orbits.
- **(D)** describes fixed reference points, which is unrelated to the idea of a path determined by geometry.

So the correct answer is (a)

**Q.84** . In the sentence "Gravity is reconceived not as a Newtonian force but as the curvature of space-time produced by mass-energy," the word "curvature" most nearly refers to:

Read the passage and answer the question:

"Minkowski proposed that space and time are not separate arenas but fused into a single four-dimensional continuum, an idea that naturally follows from Einstein's Special Relativity. Within this model, time ceases to be an absolute Newtonian backdrop and instead becomes interlaced with the three spatial dimensions to form space-time. Events are located as points in this space-time, and their separation is measured not by ordinary Euclidean distance but by the relativistic interval, which remains invariant across reference frames. This entails that simultaneity is observer-dependent: what appears simultaneous to one observer may not be so to another moving relative to the first. When gravity is introduced through Einstein's General Relativity, the picture deepens further. Gravity is reconceived not as a Newtonian force but as the curvature of space-time produced by mass-energy. Objects travel along geodesics—paths determined by the geometry of curved space-time. A striking consequence is gravitational time dilation: clocks nearer a massive body tick more slowly than clocks farther away. This has been empirically verified, including observations that satellite clocks run slightly faster than clocks on Earth due to weaker gravitational influence."

- A. Folding of solid matter
- B. Bending limited only to planetary orbits
- C. Warping of the structure of space and time
- D. Distortion of instruments by energy fields

**Answer:** C

**Sol:** The correct option is (C).

**Explanation (Vocabulary in context):**

- The passage says: "Gravity is reconceived not as a Newtonian force but as the **curvature of space-time** produced by mass-energy."
- Here, **curvature** does not mean bending of a physical object; it refers to the way mass-energy changes the **geometry** of space and time.
- This "warping" affects how objects move (they follow geodesics), which is the main idea of General Relativity.
- Therefore, "curvature" most nearly refers to **warping of the structure of space and time**.

**Why other options are incorrect:**

- (A) "Folding of solid matter" is unrelated; space-time is not solid matter.
- (B) is too narrow and incorrect; curvature is not limited to planetary orbits only.
- (D) refers to instruments being distorted, which is not what the passage explains.

So the correct answer is (c)

---

**Q.85** Select the most appropriate antonym of the given word. Impervious

- A. Impregnable
- B. Permeable
- C. Unshakable
- D. Detached

**Answer:** B

**Sol:** The correct option is (B).

**IMPERVIOUS:** Impervious means **not allowing liquid, air, or any substance to pass through**; it can also mean not affected by something. (Hindi meaning: अभेद्य / अप्रभावित)

**Example:** The raincoat is impervious to water.

**Why (B) Permeable is correct:**

- **Permeable** means **allowing liquids or gases to pass through**. (Hindi meaning: पारगम्य)
- This is the direct opposite of "impervious," which means not allowing passage.

**Example:** Sand is permeable, so water drains through it easily.

**Synonyms (for IMPERVIOUS):** impermeable, impenetrable, resistant, unaffected.

**Antonyms (for IMPERVIOUS):** permeable, penetrable, absorbent, vulnerable.

**Meanings of all other options:**

- **(A) Impregnable:** unable to be captured or broken into; very strong (Hindi meaning: दुर्गम/अजेय)
- **(C) Unshakable:** firm; not likely to change (Hindi meaning: अडिग)
- **(D) Detached:** not involved; separated (Hindi meaning: अलग/निरलिप्त)

So the correct answer is (b)

**Q.86** Which of the following is the correct indirect speech conversion of the given sentence?

Neha said, "Hurrah! I have cleared the final interview."

- Neha happily said that she has cleared the final interview.
- Neha joyfully exclaimed that she had cleared the final interview.
- Neha expressed with excitement that she has cleared the final interview.
- Neha said with joy that she clears the final interview.

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Direct to Indirect Speech: Exclamation):**

- "Hurrah!" expresses **joy**; therefore, reporting verb should change from "said" to **exclaimed with joy / joyfully exclaimed**.
- Rule 1: Interjection "Hurrah!" is removed and its भावना (emotion) is expressed through the reporting verb.
- Rule 2 (Pronoun change): "I" changes to "she" because Neha is speaking.
- Rule 3 (Tense backshift): Present perfect "have cleared" changes to past perfect "had cleared" when the reporting verb is in the past.
- Thus the correct indirect speech is: **Neha joyfully exclaimed that she had cleared the final interview.**

**Why other options are incorrect:**

- **(A)** keeps "has cleared" (no backshift), which is incorrect with past reporting verb.
- **(C)** also keeps "has cleared" and is less standard in exam pattern compared to "exclaimed with joy."
- **(D)** uses present tense "clears," which changes meaning and is grammatically wrong here.

So the correct answer is (b)

**Q.87** Identify the error in the sentence:

Of the four contestants, he was the slower.

- slower
- was
- contestants
- four

**Answer:** A

**Sol:** The correct option is (A).

**Explanation (Degrees of Comparison):**

- In the sentence, comparison is among **four contestants** (more than two persons).
- Rule: When comparison is among **more than two**, we generally use the **superlative degree** (fastest/slowest), not the comparative (faster/slower).
- "slower" is a **comparative** form and is used when comparing **two** items only.
- Correct sentence should be: "Of the four contestants, he was the **slowest**."

**Grammatical rule used:**

Comparative degree is used for two; superlative degree is used for more than two.

**Example:**

Among the three players, Rahul is the **best** (not better).

**Information booster:** The structure "of the + number/group" strongly indicates superlative usage (the tallest of the five, the smartest of the class).

So the correct answer is (a)

**Q.88** Choose the correct one-word substitution for the sentence below:

"In his very old age, he often behaves foolishly, and people find it hard to tolerate him."

- A. Decrepitude
- B. Dotage
- C. Adolescence
- D. Prudence

**Answer:** B

**Sol:** The correct option is (B).

**Explanation:** The sentence describes a person in **very old age** who behaves **foolishly or irrationally**, often due to senility. The word that expresses this state is **Dotage**. (Hindi meaning: बुढ़ापे की सठियाहट)

Dotage refers to a period of life when an elderly person becomes weak-minded or foolish, often because of old age. This exactly matches the idea of foolish behaviour in extreme old age.

**Example:** In his dotage, he began repeating the same stories every day.

**Meanings of the other options:**

- (A) **Decrepitude:** extreme old age with physical weakness and decline (Hindi meaning: जर्जरता)
- (C) **Adolescence:** the stage between childhood and adulthood (Hindi meaning: किशोरावस्था)
- (D) **Prudence:** wise and careful behaviour; good judgment (Hindi meaning: विवेक)

So the correct answer is (b)

**Q.89** Which of the following is incorrectly spelled?

- A. Obsolescence
- B. Scrapple
- C. Vanquish
- D. Capitulation

**Answer:** D

**Sol:** The correct option is (D).

**Explanation (Spelling):**

- Option (D) "Capitulation" is incorrectly spelt.
- The correct spelling is **Capitulation**, meaning **the act of surrendering or giving up resistance, usually on agreed terms**. (Hindi meaning: आत्मसमर्पण)

**Example:** The enemy's capitulation ended the long conflict.

**Parts of speech:** "Capitulation" is a **noun** (name of an act/state).

**Meanings of all the given options:**

- (A) **Obsolescence:** the state of becoming outdated or no longer used (Hindi meaning: अप्रचलन)
- (B) **Scrapple:** a food item made from pork scraps mixed with cornmeal and spices (Hindi meaning: मांस-आधारित व्यंजन)
- (C) **Vanquish:** to defeat completely (Hindi meaning: पराजित करना)
- (D) **Capitulation:** incorrect spelling; correct is **capitulation** (आत्मसमर्पण)

So the correct answer is (d)

**Q.90** Read the sentence below and choose the meaning of the idiom that best fits the context:

"Ms. Rao: We still have a few minutes before the meeting begins. I'll just sit back and take forty winks."  
What does the idiom "take forty winks" mean in this context?

- A. Chat casually for a while
- B. Take a brief nap
- C. Prepare notes quickly
- D. Watch something quietly

**Answer:** B

**Sol:** The correct option is (B).

**Idiom Meaning:** take forty winks means to take a **short sleep** or a brief nap, usually for a few minutes. (Hindi meaning: थोड़ी देर की झपकी लेना)

**Reasoning from context:**

- Ms. Rao says there are a few minutes before the meeting.
- "sit back" suggests relaxing, and "take forty winks" refers to quickly resting.
- Therefore, it clearly indicates a brief nap.

**Example:** I took forty winks after lunch and felt refreshed.

**Other related idioms and meanings:**

- **catch some Zs** – to sleep for a short time (झपकी लेना)
- **nap** – a short sleep (छोटी नींद)
- **sleep like a log** – to sleep very deeply (गहरी नींद सोना)

So the correct answer is (b)

**Q.91** Rearrange the parts of the sentence in the correct order:

- Ancient mythologies
- P. preserving cultural memory through oral traditions
- Q. while adapting to modern themes and retellings
- R. influencing contemporary fiction, cinema, and thought
- S. have transcended eras and borders,

- A. PRSQ
- B. RPQS
- C. PRQS
- D. SQRP

**Answer:** D

**Sol:** The correct option is (D).

**Sentence Breakdown:**

1. **Fixed Start:** "Ancient mythologies" (**Subject**)

2. **S:** "have transcended eras and borders," (**Main Verb/Action**) - This is the only part that provides a predicate for the subject.
3. **Q:** "while adapting to modern themes and retellings" (**Subordinate Clause**) - This explains *how* they transcended time.
4. **R:** "influencing contemporary fiction, cinema, and thought" (**Result/Effect**) - This explains the impact of that adaptation.
5. **P:** "preserving cultural memory through oral traditions" (**Additional Detail/Function**) - This fits as a concluding thought or a parallel action.

Logical Order:

The most coherent structure follows the subject with its primary action, then explores the evolution of that action.

- **Subject:** Ancient mythologies
- **Verb: S** (have transcended...)
- **Evolution: Q** (while adapting...)
- **Impact: R** (influencing...)
- **Method: P** (preserving...)

**Sequence: SQR P**

**Q.92** Choose the correct active voice form from the given options:  
The application may not be approved by him.

- A. He may not approve the application.
- B. He might not approve the application.
- C. He should not have approved the application.
- D. He may not have approved the application.

**Answer:** A

**Sol:** The correct option is (A).

**Explanation (Passive to Active with modal):**

- Passive sentence: "The application **may not be approved** by him."
- Here, modal verb is **may** and passive structure is: **may + be + V3**.
- Rule: To convert to active voice, keep the modal the same and change the verb to base form: **may + V1**.
- Agent "by him" becomes subject "He". Object "the application" remains object.
- Active structure: **He may not approve the application.**

**Why other options are incorrect:**

- (B) uses "might," which changes the degree of possibility; the original uses "may."
- (C) changes modal meaning to obligation/regret ("should not have"), not present in the original sentence.
- (D) changes the structure to perfect ("may not have approved"), which indicates past possibility, not the simple modal passive given.

So the correct answer is (a)

**Q.93** Choose the one that correctly represents the sentence in direct speech:

Rohan admitted that he did not have enough time to revise his notes the previous day.

- A. Rohan said, "I don't have enough time to revise my notes the previous day."
- B. Rohan said, "I didn't have enough time to revise my notes yesterday."
- C. Rohan said, "I didn't have enough time to revise my notes the previous day."
- D. Rohan said, "I hadn't had enough time to revise my notes yesterday."

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Indirect to Direct Speech):**

- Indirect sentence: "Rohan admitted that he did not have enough time to revise his notes the previous day."
- We must convert it into direct speech by restoring the original speaker's words.
- Pronoun change: "he" becomes "I" because Rohan is speaking in direct speech.
- Time expression change: "the previous day" in indirect speech becomes **yesterday** in direct speech.
- Tense: "did not have" (past simple) remains appropriate as "didn't have" in direct speech.
- Thus: Rohan said, "I didn't have enough time to revise my notes yesterday."

**Why other options are incorrect:**

- (A) uses present tense "don't have" and keeps "the previous day," which is incorrect for direct speech time reference.
- (C) keeps "the previous day" instead of converting it to "yesterday," which is less standard for direct speech conversion.
- (D) uses past perfect "hadn't had," which changes the tense unnecessarily and does not match the reported meaning here.

So the correct answer is (b)

**Q.94** Select the most appropriate synonym of the given word. PREFUNCTORY

- A. Cursory
- B. Thorough
- C. Passionate
- D. Elaborate

**Answer:** A

**Sol:** The correct option is (A).

**PREFUNCTORY:** Prefunctory means done in a **hurried, careless, and routine manner**, without real interest or attention. (Hindi meaning: औपचारिक/उपरी)

**Example:** He gave a prefunctory apology and left immediately.

**Why (A) Cursory is correct:**

- **Cursory** means **quick and not detailed; superficial**. (Hindi meaning: सरसरी)
- A prefunctory action is typically superficial and done without care, which matches "cursory."

**Example:** She took a cursory glance at the report before signing it.

**Synonyms (for PREFUNCTORY):** superficial, routine, mechanical, perfunctory.

**Antonyms (for PREFUNCTORY):** thorough, careful, attentive, conscientious.

**Meanings of all the other given options:**

- (B) **Thorough:** complete and detailed (Hindi meaning: विस्तृत/पूर्ण)
- (C) **Passionate:** showing strong feelings or enthusiasm (Hindi meaning: जोशीला)
- (D) **Elaborate:** very detailed and complicated (Hindi meaning: विस्तृत/जटिल)

So the correct answer is (a)

**Q.95** Select the most appropriate antonym of the given word. Lucid

- A. Transparent
- B. Confusing
- C. Fluent
- D. Bright

**Answer:** B

**Sol:** The correct option is (B).

**LUCID:** Lucid means **clear and easy to understand**, especially in thought, expression, or writing. (Hindi meaning: स्पष्ट)

**Example:** The teacher gave a lucid explanation of the topic.

**Why (B) Confusing is correct:**

- **Confusing** means **unclear, puzzling, and difficult to understand**. (Hindi meaning: भ्रमित करने वाला)
- This is the opposite of lucid, which means clear.

**Example:** The instructions were confusing and many students made mistakes.

**Synonyms (for LUCID):** clear, intelligible, comprehensible, plain.

**Antonyms (for LUCID):** confusing, unclear, obscure, ambiguous.

**Meanings of all the other given options:**

- **(A) Transparent:** easy to see through; clear (Hindi meaning: पारदर्शी)
- **(C) Fluent:** able to speak/write smoothly (Hindi meaning: धाराप्रवाह)
- **(D) Bright:** giving much light; intelligent (Hindi meaning: चमकीला/तेज)

So the correct answer is (b)

**Q.96** Improve the sentence by selecting the correct form of tense from the options:

She stated that she \_\_\_\_\_ the assignment before the deadline.

- A. will finish
- B. has finished
- C. had finished
- D. finishes

**Answer:** C

**Sol:** The correct option is (C).

**Explanation (Sequence of Tenses):**

- Reporting verb is in the past: **stated**.
- The finishing of the assignment happened **before** another past point ("before the deadline") and is reported from a past viewpoint.
- Rule: When an action is completed **before** another past action/time, we use **Past Perfect: had + V3**.
- So the correct sentence is: "She stated that she **had finished** the assignment before the deadline."

**Why other options are incorrect:**

- **(A) will finish:** future tense does not fit because the statement is about completion before a deadline.
- **(B) has finished:** present perfect is not suitable with a past reporting verb in this pattern and does not clearly show completion before a past deadline.
- **(D) finishes:** simple present is incorrect in reported speech with past reporting verb and past-time reference.

So the correct answer is (c)

**Q.97** Fill in the blank with the appropriate adverb:

The ordinance was enforced \_\_\_\_\_, without any public hearing.

- A. arbitrarily
- B. instinctively
- C. methodically
- D. progressively

**Answer:** A

**Sol:** The correct option is (A).

**Explanation:**

- The phrase "without any public hearing" shows that the ordinance was imposed **without proper procedure** and possibly in an unfair or random manner.
- **Arbitrarily** means **in a random, capricious, or unfair way, based on personal decision rather than rules.** (Hindi meaning: मनमाने ढंग से)
- Therefore, "The ordinance was enforced **arbitrarily**..." is grammatically and contextually correct.

**Example:** Rules cannot be applied arbitrarily; they must be consistent.

**Why other options are incorrect:**

- (B) **instinctively**: means by instinct, automatically (Hindi: स्वाभाविक रूप से); it does not match the idea of lacking public hearing.
- (C) **methodically**: means in a systematic way (Hindi: व्यवस्थित रूप से); it contradicts the implied unfairness/procedural absence.
- (D) **progressively**: means gradually over time (Hindi: क्रमिक रूप से); it does not fit "without any public hearing."

So the correct answer is (a)

**Q.98** Improve the sentence by selecting the appropriate tense of the highlighted word:

He played for an hour when I saw him asleep on the sofa.

- A. had played
- B. has played
- C. will have played
- D. had been playing

**Answer:** D

**Sol:** The correct option is (D).

**Explanation (Past Continuous action before a past event):**

- The sentence has two past references: (1) an activity continuing for a duration ("for an hour"), and (2) a past moment: "when I saw him asleep."
- It implies that the action (playing) was going on for some time **before** the moment I saw him asleep, and it provides duration.
- For an action that was continuing up to a past point and emphasizes duration, we use **Past Perfect Continuous: had been + V1 + ing.**
- Correct sentence: "He **had been playing** for an hour when I saw him asleep on the sofa."

**Grammatical rule used:**

Past Perfect Continuous is used for an action that started in the past and continued up to another past time, often with "for/since."

**Example:** She had been studying for two hours when the lights went out.

**Why other options are incorrect:**

- (A) **had played**: past perfect shows completion, but does not emphasize continuous duration leading up to the past moment as clearly as past perfect continuous.
- (B) **has played**: present perfect does not fit because the context is entirely in the past ("when I saw").
- (C) **will have played**: future perfect is irrelevant in a past-time context.

So the correct answer is (d)

**Q.99** Fill in the blank with the correctly spelt word:

The ruler's \_\_\_\_\_ policies provoked widespread dissent.

- A. despotick
- B. despotik
- C. despotic
- D. dispotic

**Answer:** C

**Sol:** The correct option is (C).

**Explanation (Correct spelling + contextual fit):**

- The sentence needs an adjective describing harsh, tyrannical rule: "The ruler's \_\_\_\_\_ policies..."
- The correct spelling is **despotic**, meaning **relating to a despot; tyrannical and oppressive**. (Hindi meaning: तानाशाही)
- Therefore, "despotic policies" correctly conveys policies made by a tyrant and fits the context of "widespread dissent."

**Example:** The people protested against the despotic regime.

**Explain why other options are incorrect:**

- (A) **despotick**: incorrect spelling; "-ick" ending is wrong here.
- (B) **despotik**: incorrect spelling; "k" ending is not used.
- (D) **dispotic**: incorrect spelling; "dis-" is wrong; correct root is "despot."

**Information booster:** The noun is **despot** (तानाशाह) and the adjective is **despotic** (तानाशाही).

So the correct answer is (c)

**Q.100** Which of the following is the correct spelling of the word?

- A. Aesthatic
- B. Aesthetic
- C. Aesthetisc
- D. Aesthestic

**Answer:** B

**Sol:** The correct option is (B).

**Explanation (Correct spelling):**

- Option (B) "Aesthetic" is the correctly spelt word.
- **Aesthetic** means **related to beauty, art, and the appreciation of pleasing appearance**. (Hindi meaning: सौंदर्यपरक)

**Example:** The architect focused on the aesthetic appeal of the building.

**Parts of speech:** "Aesthetic" is commonly used as an **adjective** (aesthetic design) and also as a **noun** in some contexts (modern aesthetics).

**Meanings of all the given options:**

- (A) **Aesthatic**: incorrect spelling; intended meaning is "aesthetic" (सौंदर्यपरक)
- (B) **Aesthetic**: related to beauty/art (Hindi: सौंदर्यपरक)
- (C) **Aesthetisc**: incorrect spelling; extra "s" placement is wrong.
- (D) **Aesthestic**: incorrect spelling; letter order is incorrect.

So the correct answer is (b)