UGC NET MEMORY BASED QUESTION PAPER 2026 WITH ANSWER KEY- 2 JAN SHIFT 2

Q1. Match the LIST-I with LIST-II

List – I (Teaching Methods)	**List – II (Key Characteristic)**
A. Inquiry-based Learning	I. Students engage in small group discussions to solve problems.
B. Collaborative Learning	II. Students watch lectures at home and complete practical exercises in class.
C. Flipped Classroom	III. Students investigate a topic by asking questions and exploring resources.
D. Project-based Learning	IV. Students work on a long-term task to gain deep knowledge on a subject.

Choose the correct answer from the options given below:
(a) A-I, B-II, C-III, D-IV
(b) A-III, B-I, C-II, D-IV
(c) A-IV, B-II, C-III, D-I
(d) A-II, B-IV, C-I, D-III
Ans.(b)
Sol. Correct Option - (b)
Introduction: The correct answer is (b), which correctly matches each teaching method with its primary characteristic.
Information Booster:
A. Inquiry-based Learning matches with III. Students investigate a topic by asking questions and exploring resources. This method is centered on students posing questions, investigating, and building their own understanding.
B. Collaborative Learning matches with I. Students engage in small group discussions to solve problems. The core of collaborative learning is students working together to achieve a common goal.
C. Flipped Classroom matches with II. Students watch lectures at home and complete practical exercises in class. This model inverts the traditional classroom structure.
D. Project-based Learning matches with IV. Students work on a long-term task to gain deep knowledge on a subject. This method is characterized by a sustained, in-depth project that drives learning.
Additional Information: These are all modern, student-centered teaching methods that contrast with traditional teacher-centered approaches. They are designed to promote critical thinking, problem-solving, and deeper engagement with the subject matter.

Q2. Arrange the levels of the Cognitive Domain of Bloom's Taxonomy from the lowest to the highest order:
A. Evaluation
B. Synthesis
C. Knowledge
D. Application
E. Comprehension

Choose the correct answer from the options given below:
(a) . C, E, D, B, A
(b) . E, C, D, B, A
(c) . C, D, E, B, A
(d) . A, B, C, D, E
Ans.(a)
Sol. Correct Option - (a)
Introduction: The correct answer is (a) as it correctly arranges the cognitive levels of Bloom's Taxonomy from the simplest to the most complex.
Information Booster: The original Bloom's Taxonomy of the Cognitive Domain, from lowest to highest, is:
1. C. Knowledge: Recalling facts and basic concepts.
2. E. Comprehension: Understanding the meaning of information.
3. D. Application: Using information in new situations.
4. B. Synthesis: Creating something new or original from various parts. (Note: In the revised taxonomy, "Synthesis" was replaced by "Creating.")
5. A. Evaluation: Making judgments about the value of ideas or materials.
Additional Information: Understanding Bloom's Taxonomy is essential for educators to design learning objectives, develop curricula, and create assessments that target different levels of cognitive skill.

Q3. Match LIST-I with LIST-II

LIST - I (Learning Theory Proponent)	**LIST - II (Unique Educational Contribution)**
A. Albert Bandura	I. Learning occurs through observation and modeling
B. Jerome Bruner	II. Spiral curriculum and discovery learning
C. David Kolb	III. Experiential learning cycle: concrete to abstract
D. Paulo Freire	IV. Dialogical method; critique of "banking model" of education

Choose the correct answer from the options given below:
(a) A - II, B - III, C - IV, D – I
(b) A - I, B - II, C - III, D - IV
(c) A - IV, B - I, C - II, D - III
(d) A - III, B - IV, C - I, D – II
Ans.(b)
Sol. Correct Option - (b)
Introduction: This question asks to match prominent learning theorists with their distinct contributions to educational thought. Understanding these connections is fundamental to grasping the evolution of learning theories and their practical implications in teaching.
Information Booster: Let's analyze each pairing:
A. Albert Bandura
Unique Educational Contribution: I. Learning occurs through observation and modeling. Albert Bandura is famous for his Social Learning Theory (later Social Cognitive Theory). His groundbreaking work, particularly the Bobo doll experiments, demonstrated that individuals, especially children, learn behaviors, attitudes, and emotional reactions by observing others (models) and the consequences of their actions, rather than solely through direct reinforcement. This concept of observational learning or modeling is his unique and significant contribution.

B. Jerome Bruner
Unique Educational Contribution: II. Spiral curriculum and discovery learning. Jerome Bruner, a cognitive psychologist, was a strong advocate for discovery learning, where students actively explore and discover information for themselves. He also proposed the spiral curriculum, an instructional approach where key concepts are revisited repeatedly over different grade levels, each time at a more complex level, building on prior knowledge.
C. David Kolb
Unique Educational Contribution: III. Experiential learning cycle: concrete to abstract. David Kolb is best known for his Experiential Learning Theory (ELT), which describes learning as a four-stage cycle: Concrete Experience (feeling), Reflective Observation (observing), Abstract Conceptualization (thinking), and Active Experimentation (doing). This cycle emphasizes that learning is a continuous process grounded in experience.
D. Paulo Freire
Unique Educational Contribution: IV. Dialogical method; critique of "banking model" of education. Paulo Freire, a Brazilian educator and philosopher, is renowned for his work in critical pedagogy. He famously critiqued the "banking concept" of education, where teachers "deposit" knowledge into students (who are seen as empty vessels), leading to passive learning and oppression. Instead, he advocated for a dialogical method (dialogue-based education) and problem-posing education, which empowers learners to critically reflect on their reality and act to transform it.
Additional Knowledge: These theorists represent diverse yet influential perspectives on how learning happens and how education should be structured:
Bandura's Social Learning Theory shifted focus from purely behavioral conditioning to include cognitive processes and the social context of learning. Its implications are vast, from classroom management to media literacy.
Bruner's Constructivism emphasizes the active role of the learner in constructing knowledge. His ideas on scaffolding (teacher support) and the spiral curriculum are widely applied in curriculum design to make complex subjects accessible at various developmental stages.
Kolb's Experiential Learning Theory highlights the importance of experience as the foundation of learning. It suggests that effective learning involves a continuous cycle of experiencing, reflecting, conceptualizing, and experimenting, catering to different learning styles.
Freire's Critical Pedagogy is a socio-political theory of education. It challenges traditional power dynamics in the classroom and advocates for education as a practice of freedom, empowering the oppressed to achieve "conscientization" (critical consciousness) and transform their world. His work is highly influential in adult education, community development, and social justice education.

Q4. Match List I with List II:

List I (Correlation Coefficient)	**List II (Application)**
A. Pearson's r	I. Used to measure the linear relationship between two continuous variables that are not normally distributed
B. Spearman's rho	II. Used to measure the linear relationship between two continuous variables that are normally distributed
C. Point-Biserial	III. Used to measure the relationship between one dichotomous variable and one continuous variable
D. Phi Coefficient	IV. Used to measure the association between two dichotomous variables

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Choose the correct answer from the options given below:
(a) . A-I, B-II, C-III, D-IV
(b) . A-II, B-I, C-III, D-IV
(c) . A-II, B-I, C-IV, D-III
(d) . A-III, B-IV, C-I, D-II
Ans.(b)
Sol. Correct Option - (b)
Introduction
Correlation analysis is used to determine the strength and direction of a relationship between two variables. Different types of correlation coefficients are used depending on the measurement scale of the variables involved. This question tests your knowledge of the correct application of these different coefficients.
Information Booster
A. Pearson's r is a parametric measure of linear correlation. It is used for two continuous variables (e.g., height and weight) that are normally distributed. It assumes a linear relationship and is sensitive to outliers. Thus, it matches with II.
B. Spearman's rho is a non-parametric measure of correlation. It is used when the variables are continuous but not normally distributed, or when the data is ordinal (ranked). It measures the monotonic relationship between the variables, not necessarily a linear one. Thus, it matches with I.
C. Point-Biserial is used to measure the relationship between one dichotomous variable (a variable with only two categories, like gender) and one continuous variable (like test scores). Thus, it matches with III.
D. Phi Coefficient is a measure of association for two dichotomous variables. For example, it could be used to determine the association between gender (male/female) and employment status (employed/unemployed). Thus, it matches with IV.
Additional Knowledge
A correlation coefficient ranges from -1 to +1. A value of +1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no linear correlation.
Correlation does not imply causation. Even a strong correlation between two variables does not mean that one variable causes the other. There may be a third, unobserved variable (a confounding variable) influencing both.

Q5. Which of the following are the characteristics of a distribution-free non-parametric test?
A. They can be applied to original data obtained on any type of scale.
B. They require homogeneity of variance.
C. They do not require any particular type of distribution.
D. They cannot be used if the sample is randomly selected.
E. They are quicker and easier than parametric tests.
Choose the correct answer from the options given below:
(a) A, B and C only
(b) D and E only
(c) C and E only
(d) A and E only

Ans.(c)

Sol. Introduction:

In statistics, non-parametric tests are a category of hypothesis testing methods that do not depend on assumptions about the parameters of the population distribution (such as the mean or variance). They are also called distribution-free tests because they can be applied even when the data does not follow a normal distribution. Non-parametric tests are widely used when:

- The data is ordinal or nominal.
- The sample size is small.
- The data violates normality assumptions required for parametric tests.

Non-parametric tests are often simpler and less restrictive, making them useful in real-life research situations where perfect conditions for parametric analysis cannot be met.

Information Booster:

Let us evaluate each given statement in the context of non-parametric tests:

(a) A. They can be applied to original data obtained on any type of scale –

- This statement is partially correct.
- While non-parametric tests are indeed flexible, they are most suited to nominal and ordinal data.
- They can sometimes be applied to interval/ratio data, but that's not their defining feature.
- Since the question is asking for core defining characteristics, this is not selected in the correct option.

(b) B. They require homogeneity of variance –

- This is a requirement for many parametric tests (like ANOVA, t-test) to ensure that groups have similar variability.
- Non-parametric tests do not require homogeneity of variance.
- Therefore, this statement is false for non-parametric tests.

(c) C. They do not require any particular type of distribution –

- This is true and one of the main reasons they are called distribution-free tests.
- They can be applied regardless of whether the data is normally distributed or skewed.
- This is a key defining characteristic, so it is included in the correct answer.

(d) D. They cannot be used if the sample is randomly selected –

- This statement is false. Random selection is recommended in any statistical test to ensure unbiased results.
- Non-parametric tests can be used with random samples.

5. E. They are quicker and easier than parametric tests –

- This is true.
- Since non-parametric tests do not require complicated assumptions, they are easier to compute and interpret.
- This makes them especially suitable for small-scale or time-sensitive research projects.

Additional Information:

- Examples of Non-Parametric Tests:
  - *Chi-square test* – for categorical data association.
  - *Mann–Whitney U test* – alternative to the independent t-test.
  - *Wilcoxon signed-rank test* – alternative to paired t-test.
  - *Kruskal–Wallis H test* – alternative to one-way ANOVA.
- Parametric vs. Non-Parametric:
  - Parametric tests require assumptions such as normal distribution, equal variances, and scale data.
  - Non-parametric tests require fewer assumptions and can work on ranked or categorical data.

- When to use Non-Parametric Tests:
  - Data is not normally distributed.
  - The sample size is small.
  - Data is ordinal or nominal.
  - Outliers are present, making mean-based methods unreliable.

Q6. Match List – I with List – II:

List – I	**List – II**
A. Study of lifestyle of Indian people between 1900 and 1947	I. Descriptive Research
B. Testing significance of difference in job satisfaction (Govt vs Pvt)	II. Ethnographic Research
C. Effectiveness of yoga on mental health of police personnel	III. Historical Research
D. Perception of nomadic people about life in real situation	IV. Experimental Research

Choose the correct answer from the options given below:
(a) A–II, B–III, C–IV, D–I
(b) A–III, B–I, C–IV, D–II
(c) A–IV, B–I, C–III, D–II
(d) A–III, B–II, C–IV, D–I
Ans.(b)
Sol. Introduction:
Matching research topics with their respective types requires identifying the aim and methodology used in each scenario. Historical, descriptive, experimental, and ethnographic research are distinct in purpose and process, and the examples provided point clearly to one type each.
Information Booster
(a) A. Study of the lifestyle of Indian people between 1900 and 1947 → Historical Research (III)
  - This period-specific study looks at past events and lifestyles, making it a historical research example.

(b) B. Testing significance of difference in job satisfaction (Govt vs Pvt) → Descriptive Research (I)
  - Here, data is collected to compare the two groups' satisfaction without manipulating variables.

(c) C. Effectiveness of yoga on mental health of police personnel → Experimental Research (IV)
  - Involves introducing yoga as an intervention and measuring outcomes — a classic experiment setup.

(d) D. Perception of nomadic people about life in real situation → Ethnographic Research (II)
  - Focuses on cultural and lifestyle studies of a specific community through fieldwork.

Additional Information:
- Historical Research: Uses records, documents, and archives to study past phenomena.
- Descriptive Research: Aims to systematically describe a situation without altering it.
- Experimental Research: Tests cause-effect relationships by manipulating independent variables.
- Ethnographic Research: Immersive observation of cultural groups to understand their way of life.

Q7. The "Blue Baby Syndrome" is associated with contamination of drinking water by which compound?
(a) Lead
(b) Fluorides
(c) Arsenic
(d) Nitrates

Ans.(d)

Sol. The "Blue Baby Syndrome" is associated with contamination of drinking water by Nitrates (option d). Nitrate contamination, particularly from agricultural runoff, can lead to the conversion of hemoglobin in infants' blood to methemoglobin, which reduces the blood's ability to carry oxygen. This condition causes a bluish tint to the skin, hence the name "Blue Baby Syndrome."

Hence, the correct answer is (d) Nitrates.

Information Booster:

Nitrates in drinking water primarily come from fertilizers, sewage, and agricultural runoff. They are particularly harmful to infants under six months old, as their digestive systems are less capable of handling high nitrate levels.

The condition occurs when nitrate in the blood interferes with the ability of red blood cells to carry oxygen, leading to cyanosis (blue skin).

The syndrome is preventable by ensuring that drinking water has safe levels of nitrate and by using filtration systems if necessary.

The U.S. Environmental Protection Agency (EPA) recommends that nitrate levels in drinking water should not exceed 10 mg/L (10 parts per million) to avoid health risks.

Additional Knowledge:

Lead (Option a): Lead contamination is harmful, especially in children, but it does not cause "Blue Baby Syndrome." It can lead to developmental delays and neurological damage.

Fluorides (Option c): While fluoride is used to prevent tooth decay, excessive levels can lead to dental or skeletal fluorosis, but not the blue discoloration of the skin.

Arsenic (Option d): Arsenic contamination leads to various health issues, including skin lesions and cancer, but it is not associated with "Blue Baby Syndrome."

Q8. The 'International Big Cat Alliance' (IBCA), launched by India in 2023, primarily focuses on the conservation of:

(a) All big cat species globally

(b) Only tigers and lions

(c) Snow leopards and clouded leopards

(d) Cheetahs and leopards

Ans.(a)

Sol. Introduction:

- The International Big Cat Alliance (IBCA) is a landmark global initiative launched by India in April 2023, commemorating 50 years of the highly successful Project Tiger.
- The primary objective of the IBCA is to secure the long-term conservation of the world's major wild cat species.
- It is conceived as a multi-country, multi-agency coalition involving 96 big cat range countries and non-range countries with an interest in conservation.
- The alliance is modelled after the International Solar Alliance (ISA) and has its headquarters in New Delhi, India. Critically, the IBCA is dedicated to the conservation of all seven of the world's principal big cat species, which is why option 1 is the correct answer.

Information Booster:

- The IBCA's focus is on the "Big Seven" cat species, encompassing both the $Panthera$ genus (the roaring cats) and two other important non-Panthera species (the purring cats).

- These seven species are: Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, and Puma .
- The alliance aims to strengthen conservation efforts through cooperation, knowledge exchange, capacity building, and resource mobilization, leveraging India's decades of expertise gained from Project Tiger.

Additional knowledge:

- While the Tiger and the Asiatic Lion (found only in India's Gir Forest) are central to India's domestic conservation success, the IBCA was launched explicitly to extend this conservation expertise to a global level, covering all seven endangered or threatened big cat species found worldwide, including the three species not naturally found in India: the Jaguar, Puma, and Cheetah (the last of which has been reintroduced).
- Firstly, it excludes five other major big cat species, including the Tiger and Lion. Secondly, while the Snow Leopard is one of the seven target species, the Clouded Leopard is generally considered a medium-sized cat and is not included in the official "Big Seven" list of the IBCA, which focuses on the larger, more iconic apex predators (Panthera species, Cheetah, and Puma).
- The IBCA is intended to be a global platform for all conservation challenges faced by all seven major big cats across Africa, Asia, and the Americas, including the Lion, Tiger, Jaguar, Puma, and Snow Leopard.
- Focusing solely on Cheetahs and Leopards would ignore the distinct challenges faced by these other critically important apex predators.

Q9. Arrange the following types of disasters in the correct sequence of their potential severity, from least severe to most severe, based on the scale of impact:

A. Flood
B. Earthquake
C. Landslide
D. Tsunami

Choose the correct option:

(a) C, A, B, D
(b) A, C, B, D
(c) B, C, A, D
(d) D, B, C, A

Ans.(a)

Sol. Correct Option – (a)

Introduction

This question tests your ability to categorize natural hazards based on their typical scale and severity. While any disaster can be devastating, there is a general hierarchy of impact based on the scope of the event.

Information Booster

1. C. Landslide: Landslides are typically localized disasters that affect a specific area, such as a mountain slope or a hillside. While they can be deadly, their geographical scope is limited compared to other disasters.

2. A. Flood: Floods can cover a much larger geographical area than landslides, affecting entire communities, regions, or even countries. They are more widespread in their impact, causing property damage and displacement.

3. B. Earthquake: Earthquakes can cause widespread destruction over a large area, including the collapse of buildings, infrastructure damage, and loss of life. Their impact is often regional, and a major earthquake can be catastrophic.
4. D. Tsunami: A tsunami is a series of large waves caused by a major displacement of water, usually from an underwater earthquake. Tsunamis can travel across entire oceans, causing devastation to coastal areas across multiple countries. The scale of impact is global or trans-regional, making it potentially the most severe of the options.
Additional Knowledge
The severity of a disaster is also determined by other factors, such as population density, infrastructure, and early warning systems. A strong earthquake in a sparsely populated area may have a lower impact than a moderate earthquake in a densely populated city.

Q10. The average age of 12 boys in a group is 8 years. If 3 more boys join the group, the average is increased by 1 year. What is the average age (in years) of the three new boys in the group?
(a) 12
(b) 13
(c) 9
(d) 10
Ans.(b)

Sol: **Given:**
Average age of 12 boys = 8 years
Total boys after 3 new boys join = 12 + 3 = 15
New average age after 3 boys join = 8 + 1 = 9 years
Formula Used:
$$\text{Average} = \frac{\text{Sum of observations}}{\text{Number of observations}}$$
Solution:
Total age of 12 boys initially = 12 boys × 8 years = 96 years
Total age of 15 boys after 3 new join = 15 boys × 9 years = 135 years
The total age of the 3 new boys = Total age after they join - Total age before they join = 135 - 96 = 39 years
$$\text{Average age of the 3 new boys} = \frac{\text{Total age of 3 new boys}}{\text{Number of new boys}} = \frac{39}{3} = 13 \text{ years}$$
∴ The average age of the three new boys is 13 years.

Q11. Which of the following are examples of biogas?
A. Marsh Gas B. Swamp Gas C. Producer Gas D. Compost Gas E. Flue Gas
Choose the correct answer from the options given below:
(a) A, B and D only
(b) B, C and E only
(c) A, C and E only
(d) C, D and E only
Ans.(a)
Sol. Biogas is a type of renewable energy produced from the anaerobic digestion of organic matter, such as plant and animal waste. It mainly consists of methane (CH_4) and carbon dioxide (CO_2).
A. Marsh Gas: This is a common term for methane produced in natural wetlands, a major component of biogas.

B. Swamp Gas: Similar to marsh gas, this refers to methane produced by decomposing organic matter in swamps.
D. Compost Gas: Biogas generated during the decomposition of organic waste in composting conditions is referred to as compost gas.
Information booster:
C. Producer Gas: This is a synthetic gas produced by the incomplete combustion of carbon-based fuels (e.g., coal, wood) and typically contains carbon monoxide and nitrogen. It is not biogas.
E. Flue Gas: This is a by-product of industrial combustion processes, consisting mainly of nitrogen, carbon dioxide, and water vapor, and is not considered biogas.
Additional Information:
1. Biogas is mainly methane and can be used as a renewable energy source for cooking, heating, and electricity generation.
2. It is produced through the anaerobic digestion of organic waste materials in environments such as swamps, landfills, and biogas plants.

Q12

Arrange the fractions $\frac{5}{9}, \frac{4}{7}, \frac{3}{5}$ and $\frac{2}{3}$ in ascending order.

A. $\frac{3}{5}, \frac{4}{7}, \frac{2}{3}, \frac{5}{9}$
B. $\frac{5}{9}, \frac{4}{7}, \frac{3}{5}, \frac{2}{3}$
C. $\frac{2}{3}, \frac{3}{5}, \frac{4}{7}, \frac{5}{9}$
D. $\frac{4}{7}, \frac{5}{9}, \frac{2}{3}, \frac{3}{5}$

Convert each to decimal:

$\frac{5}{9} = 0.555\ldots$

$\frac{4}{7} \approx 0.5714$

$\frac{3}{5} = 0.6$

$\frac{2}{3} = 0.666\ldots$

Arrange in increasing order (smallest → largest):

$0.555 < 0.571 < 0.6 < 0.666$

Convert back to fractions: $\frac{5}{9} < \frac{4}{7} < \frac{3}{5} < \frac{2}{3}$

Q13. Match the term (List I) with its definition in formal logic (List II):

List I (Term)	List II (Definition)
A. Valid Argument	I. A deductive argument that is valid AND has all true premises.
B. Invalid Argument	II. A deductive argument where the conclusion follows from the premises.
C. Sound Argument	III. A deductive argument where premises do not guarantee the conclusion.
D. Cogent Argument	IV. An inductive argument that is strong and has all true premises.

Options:
(a) A-II, B-III, C-I, D-IV
(b) A-I, B-II, C-III, D-IV
(c) A-II, B-IV, C-I, D-III
(d) A-IV, B-III, C-II, D-I
Ans.(a)
Sol. Correct Option – (a)
Information Booster
Validity: Concerns structure only. If the premises are true, the conclusion *would have to be* true.
Soundness: Structure + Fact. The argument is valid and the premises *actually are* true in the real world.
Cogency: The inductive equivalent of soundness.
Additional Knowledge
An argument can be Valid but Unsound (e.g., "All cats are birds; all birds fly; therefore all cats fly"). The structure is correct, but the premises are factually false.

Q14. Match the type of Fallacy (List I) with its appropriate Description/Example (List II):

List I (Fallacy)	**List II (Example / Description)**
A. Ad Hominem	I. Arguing that because the parts have a property, the whole must have it too.
B. Fallacy of Composition	II. Attacking the character of the opponent rather than their argument.
C. Appeal to Ignorance	III. Concluding with too small a sample size.
D. Hasty Generalisation	IV. Claiming a statement is true simply because it hasn't been proven false.

Options:
(a) A-II, B-I, C-IV, D-III
(b) A-I, B-II, C-III, D-IV
(c) A-II, B-III, C-I, D-IV
(d) A-IV, B-I, C-II, D-III
Ans.(a)
Sol. Correct Option – (a)
Introduction: Fallacies are errors in reasoning. Formal fallacies relate to the structure of the argument, while informal fallacies relate to the content or language used to persuade.
Information Booster: * Ad Hominem: "Don't believe his economic theory; he was once arrested for speeding." (Attacks person, not theory).
Composition: "Every atom in this table is invisible, so the table must be invisible." (Error in part-to-whole logic).

Appeal to Ignorance: "No one has proven ghosts don't exist, so they must exist."
Hasty Generalization: "I met two rude people in Paris; therefore, all French people are rude."

Q15. The Square of Opposition defines logical relationships between categorical propositions. Arrange the following relationships in order of strength from strongest to weakest: Contradictory, Contrary, Subcontrary, Subalternation.
I Contradictory
II Contrary
III Subcontrary
IV Subalternation
Options:
(a) I, II, IV, III
(b) II, I, III, IV
(c) I, II, III, IV
(d) II, I, IV, III
Ans.(b)
Sol. Correct Option – (b)
Introduction: The Square of Opposition is a diagram that represents the logical relationships between corresponding A, E, I, and O propositions that have the same subject and predicate terms. These relationships have varying degrees of logical force.
Information Booster: The relationships, from strongest to weakest, are:
1. II Contrary: Holds between A and E propositions. They cannot both be true, but they can both be false. This is a very strong relationship of opposition.
2. I Contradictory: Holds between A and O, and between E and I. They always have opposite truth values. If one is true, the other must be false, and vice versa. This is the strongest possible opposition.
3. III Subcontrary: Holds between I and O propositions. They cannot both be false, but they can both be true. This is a weaker relationship.
4. IV Subalternation: Holds between A and I, and between E and O. If the universal (A or E) is true, the corresponding particular (I or O) must also be true. This is an implicative relationship, not one of opposition, making it the "weakest" in terms of direct conflict.
Additional Knowledge: The Square of Opposition assumes that the subject class (S) is not empty. This is known as the existential import. In modern logic, often only the I and O propositions are considered to have existential import.

Q16. In a certain code language, RED is written as 27 and BLUE is written as 40. How will GREEN be written in the same code language?
(a) 46
(b) 47
(c) 49
(d) 48
Ans.(c)
Sol. Given:
In a certain code language, RED is written as 27 and BLUE is written as 40.

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 the place value of letters = Number
For, RED - 27
= 18 + 5 + 4
= 27
For, BLUE - 40
= 2 + 12 + 21 + 5
= 40
Similarly,
GREEN - ?
= 7 + 18 + 5 + 5 + 14
= 49
So, GREEN is written as 49.
Thus, correct option is (c).

Q17. Given below are two statements:
Statement I: It is relatively easier to monitor and regulate water pollution caused by non- point sources than point sources.
Statement II: Nonpoint sources of water pollution may be fairly uniform and predictable throughout the year.
In light of the above statements, choose the most appropriate answer from the options given below:
(a) Both Statement I and Statement II are true.
(b) Both Statement I and Statement II are false.
(c) Statement l is true but Statement II is false.
(d) Statement I is false but Statement II is true.
Ans.(b)
Sol. Statement I: "It is relatively easier to monitor and regulate water pollution caused by non-point sources than point sources." This statement is false. It is generally more difficult to monitor and regulate water pollution from non-point sources because they are diffuse and spread over large areas, unlike point sources, which are specific and localized.
Statement II: "Nonpoint sources of water pollution may be fairly uniform and predictable throughout the year." This statement is also false. Non-point sources of water pollution are often highly variable and can be influenced by seasonal changes, weather patterns, and land use practices.

Q18. BOD (Biochemical Oxygen Demand) is the measure of:
(a) Air pollution
(b) Water contamination
(c) Soil contamination
(d) Dissolved oxygen of river water

Ans.(b)

Sol. Biochemical Oxygen Demand (BOD) is a measure of the amount of oxygen required by aerobic microorganisms to break down organic matter in water. A higher BOD indicates a greater level of organic pollution in water, which can lead to reduced oxygen levels, harming aquatic life. It is an important parameter in assessing the degree of water contamination and the health of aquatic ecosystems.

Q19. Which scale measures earthquake intensity?

(a) Mercalli

(b) Richter

(c) Beaufort

(d) Saffir-Simpson

Ans.(a)

Sol. The Mercalli scale measures the intensity of an earthquake, assessing its effects and how strongly it is felt by people. Unlike the Richter scale, which measures the earthquake's magnitude, the Mercalli scale focuses on the observed impact, including damage to buildings and human perception.

Hence, the correct answer is (b) Mercalli.

Information Booster:

The Mercalli scale ranges from I (not felt) to XII (total destruction), based on human and structural responses to the shaking.

It does not measure the earthquake's energy but rather its observable effects on people, buildings, and the Earth's surface.

The Mercalli scale is subjective, meaning it can vary depending on location, distance from the epicenter, and local building practices.

Unlike the Richter scale, the Mercalli scale is not logarithmic and does not provide a numerical measure of the energy released by the earthquake.

The scale helps to understand the severity of an earthquake's impact, particularly in terms of damage and human experience.

Additional Knowledge:

Richter scale measures the magnitude of an earthquake, quantifying the energy released at the source.

Beaufort scale is used to measure wind speed, not earthquake intensity.

Saffir-Simpson scale is designed for measuring the intensity of hurricanes, not earthquakes.

Q20. Which of the following statements about malware are true?

(A) A Trojan Horse is malware disguised as legitimate software.

(B) A Virus inserts itself into another program. It runs and spreads itself when the program is opened.

(C) A worm is similar to a virus except that it does not need a program in order to run. It spreads by itself.

Choose the correct answer from the options given below:

(a) (A) and (B) only

(b) (A) and (C) only

(c) (B) and (C) only

(d) (A), (B) and (C)

Ans.(d)

Sol. All three statements are true.

Trojan Horse is a type of malware that masquerades as legitimate software to trick users into executing it.

A virus attaches itself to a legitimate program and spreads when the program is executed.

A worm is similar to a virus but can spread without needing to attach itself to a host program.

Important Key Points:

1. Trojan Horse: Disguised as legitimate software, but its true purpose is malicious.
2. Virus: Attaches itself to other programs and spreads when the host program runs. Viruses typically require user interaction, like opening an infected file.
3. Worm: Self-replicating and can spread independently of any host program. Worms exploit network vulnerabilities to spread without human intervention.

Q21. 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. Some carom are ludo.

II. All red are carom.

Conclusion:

I. Some red are not ludo.

II. Some carom are not red.

III. Some red are not carom.

(a) All conclusion follows

(b) Both conclusions I and II follows

(c) Neither conclusion follows

(d) Both conclusions II and III follows

Ans.(c)

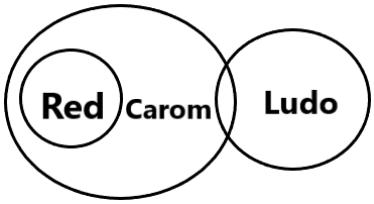
Sol. Given:

Statements:

I. Some carom are ludo.

II. All red are carom.

From the given statements Venn diagram will be:



Conclusion:

I. Some red are not ludo. Does not follows → This is not necessarily true. It's possible that all red carom are also ludo.

II. Some carom are not red. Does not follows → Since all red are carom. so, not red is not possible.

III. Some red are not carom. Does not follows → "All red are carom," directly contradicts this conclusion
So, Neither conclusion follows.
Thus, the correct option is: (c

Q22. Performance of computer hardware components is measured in different ways. Which of the following hardware component's performance is measured in Hertz?
(a) Hard Disk Drive (HDD)
(b) Solid State Drive (SSD)
(c) CPU
(d) Laser Printer
Ans.(c)
Sol. The performance of a CPU (Central Processing Unit) is commonly measured in Hertz (Hz), specifically Gigahertz (GHz) today. This unit represents the number of clock cycles the processor can execute per second. For instance, a CPU with a speed of 3.0 GHz can perform 3 billion cycles per second. Hertz is a measure of frequency, and in computing, it is used to denote the operational speed of processors, making it a crucial metric for determining processing power and efficiency.
Information Booster:
• CPU performance is critical in determining how fast a computer can process instructions.
• Clock speed (in Hertz) is the rate at which the CPU executes instructions; higher speeds generally mean faster processing.
• Measured in Megahertz (MHz) in earlier processors and Gigahertz (GHz) in modern processors.
• While clock speed is important, performance also depends on factors like the number of cores, cache memory, and architecture.
Additional Knowledge:
• Option a: HDD (Hard Disk Drive)
HDD performance is measured in RPM (Revolutions Per Minute) and data transfer rate (MB/s), not Hertz. It involves mechanical spinning of platters.
• Option b: SSD (Solid State Drive)
SSDs have no moving parts and are measured in IOPS (Input/Output Operations Per Second) and read/write speeds (MB/s or GB/s), not Hertz.
• Option d: Laser Printer
The speed of a laser printer is typically measured in pages per minute (PPM) or images per minute (IPM), which denotes printing speed, not in Hertz.

Q23. In which of the following years did the performance of girls show maximum improvement as compared to the previous year?
The following table shows the percentage (%) of girls who passed in an examination and the percentage (%) of boys who failed in that exam in a school during the six years from 2018 to 2023. Based on the data in the table, answer the questions that follow.

Year-wise Result details of Students

Year	Percentage of Girls who passed	Percentage of Boys who failed
2018	32%	40%
2019	42%	60%
2020	55%	25%
2021	40%	30%
2022	60%	50%
2023	42%	80%

Sub Questions No:

(a) 2019

(b) 2020

(c) 2022

(d) 2023

Ans.(c)

Sol. Solution:

Step 1: Percentage of Girls Who Passed Each Year

2018 → 32%

2019 → 42%

2020 → 55%

2021 → 40%

2022 → 60%

2023 → 42%

Step 2: Calculate Year-to-Year Improvement

2019 – 2018 = 42% – 32% = 10% improvement

2020 – 2019 = 55% – 42% = 13% improvement

2021 – 2020 = 40% – 55% = –15% (decline)

2022 – 2021 = 60% – 40% = 20% improvement

2023 – 2022 = 42% – 60% = –18% (decline)

Final Answer:

The maximum improvement in girls' performance was in 2022 compared to 2021.

Correct Year: 2022

Q24. If in the year 2020, the total number of boys and the total number of girls who appeared in the exam are 800 and 700 respectively, then what is the ratio of the total number of boys who passed to the total number of girls who failed?

The following table shows the percentage (%) of girls who passed in an examination and the percentage (%) of boys who failed in that exam in a school during the six years from 2018 to 2023. Based on the data in the table, answer the questions that follow.

Year-wise Result details of Students

Year	Percentage of Girls who passed	Percentage of Boys who failed
2018	32%	40%
2019	42%	60%
2020	55%	25%
2021	40%	30%
2022	60%	50%
2023	42%	80%

Sub Questions No:

(a) 40 : 21

(b) 154 : 201

(c) 18 : 11

(d) 7 : 10

Ans.(a)

Sol. Given:

Year: 2020

Total Boys Appeared = 800

Total Girls Appeared = 700

Solution:

From the table:

Percentage of boys who failed = 25%

Percentage of girls who passed = 55%

Step 1: Calculate Boys Who Passed

Boys Passed = 100% − Boys Failed = 100% − 25% = 75%

Number of Boys Who Passed =

75% of 800 = (75/100) × 800 = 600 boys

Step 2: Calculate Girls Who Failed

Girls Failed = 100% − Girls Passed = 100% − 55% = 45%

Number of Girls Who Failed =

45% of 700 = (45/100) × 700 = 315 girls

Step 3: Calculate Ratio

Ratio of Boys Passed to Girls Failed =

600 : 315

Simplify by dividing both by 15:

600 ÷ 15 = 40

315 ÷ 15 = 21

Final Ratio =

40 : 21

Final Answer:

The required ratio is 40 : 21

Q25. If in the year 2018, the total number of boys who appeared in the exam is 600, then what is the percentage difference between the percentage of boys who passed and the percentage of girls who passed in the exam?

The following table shows the percentage (%) of girls who passed in an examination and the percentage (%) of boys who failed in that exam in a school during the six years from 2018 to 2023. Based on the data in the table, answer the questions that follow.

Year-wise Result details of Students

Year	Percentage of Girls who passed	Percentage of Boys who failed
2018	32%	40%
2019	42%	60%
2020	55%	25%
2021	40%	30%
2022	60%	50%
2023	42%	80%

Sub Questions No:

(a) 18%

(b) 23%

(c) 25%

(d) 28%

Ans.(d)

Sol. Given Data:

Year: 2018

Total Boys Appeared: 600

Percentage of Boys Who Failed = 40%

Percentage of Girls Who Passed = 32%

Solution:

Step 1: Calculate Boys Who Passed

Boys Passed = 100% − Boys Failed

Boys Passed = 100% − 40% = 60%

Step 2: Calculate the Percentage Difference Between Boys Passed and Girls Passed

Boys Passed = 60%

Girls Passed = 32%

Percentage Difference =

60% − 32% = 28%

Final Answer:

The percentage difference between the percentage of boys who passed and the percentage of girls who passed in 2018 is: 28%

Q26. If in the year 2019, the total number of boys and the total number of girls who appeared in the exam are 800 each, then what is the sum of the total number of boys and girls who passed in that year?

The following table shows the percentage (%) of girls who passed in an examination and the percentage (%) of boys who failed in that exam in a school during the six years from 2018 to 2023. Based on the data in the table, answer the questions that follow.

Year-wise Result details of Students

Year	Percentage of Girls who passed	Percentage of Boys who failed
2018	32%	40%
2019	42%	60%
2020	55%	25%
2021	40%	30%
2022	60%	50%
2023	42%	80%

Sub Questions No:

(a) 650

(b) 656

(c) 662

(d) 668

Ans.(b)

Sol. Given Data:

Year: 2019

Total Boys Appeared = 800

Total Girls Appeared = 800

Percentage of Boys Who Failed = 60%

Percentage of Girls Who Passed = 42%

Solution:

Step 1: Calculate Boys Who Passed

Boys Passed = 100% − Boys Failed

= 100% − 60% = 40%

Number of Boys Who Passed =

40% of 800 = (40/100) × 800 = 320 boys

Step 2: Calculate Girls Who Passed

Number of Girls Who Passed =

42% of 800 = (42/100) × 800 = 336 girls

Step 3: Calculate the Sum

Sum of Boys Passed and Girls Passed =

320 + 336 = 656

Final Answer:

The sum of the total number of boys and girls who passed in 2019 is:

656

Q27. If in the year 2023, the total number of boys and the total number of girls who appeared in the exam are 1250 and 850 respectively, then the number of boys who failed is approximately _____% more than the number of girls who failed in the exam.

The following table shows the percentage (%) of girls who passed in an examination and the percentage (%) of boys who failed in that exam in a school during the six years from 2018 to 2023. Based on the data in the table, answer the questions that follow.

Year-wise Result details of Students

Year	Percentage of Girls who passed	Percentage of Boys who failed
2018	32%	40%
2019	42%	60%
2020	55%	25%
2021	40%	30%
2022	60%	50%
2023	42%	80%

Sub Questions No:
(a) 42.67
(b) 81.53
(c) 89.77
(d) 102.84
Ans.(d)
Sol. Given Data:
Year: 2023
Total Boys Appeared = 1250
Total Girls Appeared = 850
Percentage of Boys Who Failed = 80%
Percentage of Girls Who Passed = 42%
Solution:
Step 1: Calculate Boys Who Failed
Boys Failed =
80% of 1250 = (80/100) × 1250 = 1000 boys
Step 2: Calculate Girls Who Failed
Girls Failed =
100% − 42% = 58%
Girls Who Failed =
58% of 850 = (58/100) × 850 = 493 girls
Step 3: Calculate the Percentage More
We need:
(Number of boys who failed − Number of girls who failed) ÷ Number of girls who failed × 100
=
(1000 − 493) ÷ 493 × 100
507 ÷ 493 × 100 ≈ 102.84%
Final Answer:
The number of boys who failed is approximately 102.84% more than the number of girls who failed in the exam in 2023.

Q28. In computer networking, MAC addresses are unique to each device. Which of the following is the meaning of the term MAC?
(a) Medium Access Card
(b) Media Address Command
(c) Modem Addressing Card
(d) Media Access Control

Ans.(d)

Sol. In computer networking, MAC stands for Media Access Control. The MAC address is a unique identifier assigned to the network interface card (NIC) of a device. It operates at the Data Link Layer (Layer 2) of the OSI model and is used to identify devices within a local network.

Information Booster:

1. Purpose of MAC Addresses: Ensures that data packets are delivered to the correct hardware device on a local network.
2. Types of MAC Addresses:

Unicast MAC Address: Represents a single device.

Multicast MAC Address: Represents a group of devices.

Broadcast MAC Address: Represents all devices on the network.

3. Layers of the OSI Model:

MAC addresses are part of the Data Link Layer.

They are used in protocols like Ethernet and Wi-Fi.

4. ARP Protocol: Address Resolution Protocol maps IP addresses to MAC addresses for communication.
5. Key features of MAC addresses:

Format: Typically expressed as a 48-bit hexadecimal number

Uniqueness: Each MAC address is globally unique and assigned by the manufacturer.

Role: Helps in device identification and facilitates communication within the same local area network (LAN).

Static Nature: Unlike IP addresses, MAC addresses are usually permanent and associated with the device hardware.

Q29. The National Education Policy, 2020, recommended restructuring teacher education by establishing which of the following bodies?

A. National Council for Teacher Education (NCTE)

B. National Professional Standards for Teachers (NPST)

C. State Professional Standards for Teachers (SPST)

D. National Mission for Mentoring (NMM)

E. Teacher Education Council of India (TECI)

Choose the correct answer from the options given below:

(a) A, B and D only

(b) B, C and E only

(c) A, D and E only

(d) B, C and D only

Ans.(a)

Sol. The National Education Policy (NEP) 2020 emphasizes systemic reforms in teacher education, professional development, and mentoring. It recommends strengthening existing institutions and introducing new professional frameworks and missions for teachers.

Information Booster:

National Council for Teacher Education (NCTE)

NCTE already existed before NEP 2020, but the policy explicitly recommends restructuring, strengthening, and empowering NCTE.

NEP 2020 assigns NCTE a central role in transforming teacher education, including:

Overseeing the 4-year integrated B.Ed. programme
Ensuring quality and accreditation norms
Hence, NCTE is correctly included as part of the restructuring framework.
National Professional Standards for Teachers (NPST)
NPST is a new and key recommendation of NEP 2020.
It aims to define clear professional standards for:
Teacher recruitment
Career progression
Performance appraisal
NPST is to be developed by NCTE in consultation with NCERT, SCERTs, teachers, and experts.
Therefore, NPST is correctly included.
National Mission for Mentoring (NMM)
NEP 2020 proposes the National Mission for Mentoring to:
Provide systematic mentoring support to teachers
Use senior and retired faculty, experts, and outstanding practitioners
It is meant to enhance continuous professional development (CPD).
Hence, NMM is correctly included.
Additional Knowledge:
State Professional Standards for Teachers (SPST)
NEP 2020 does not recommend separate state-level professional standards.
Instead, it emphasizes uniform national standards (NPST) with flexibility in implementation.
Therefore, SPST is incorrect.
Teacher Education Council of India (TECI)
NEP 2020 does not propose any new body called TECI.
Teacher education reforms are to be handled through NCTE and related national frameworks.
Hence, TECI is incorrect.

Q30. Match List I with List II

List I (Institution)	List II (Year of Establishment)
A. NCERT	I. 1961
B. UGC	II. 1956
C. NTA	III. 2017
D. IGNOU	IV. 1985

Choose the correct answer from the options given below:
(a) A-I, B-II, C-IV, D-III
(b) A-I, B-II, C-III, D-IV
(c) A-I, B-III, C-II, D-IV
(d) A-II, B-IV, C-III, D-I
Ans.(b)
Sol. The correct match for these premier Indian educational institutions with their respective years of establishment is NCERT (1961), UGC (1956), NTA (2017), and IGNOU (1985).
Information Booster:

The following pointers explain the founding context and roles of these institutions:

- UGC (University Grants Commission) – 1956: Although it was formally inaugurated in 1953 by Maulana Abul Kalam Azad, it became a statutory body in 1956 through an Act of Parliament. It is responsible for coordinating, determining, and maintaining standards of higher education in India.
- NCERT (National Council of Educational Research and Training) – 1961: Set up by the Government of India as an autonomous organization to assist and advise the Central and State Governments on policies for qualitative improvement in school education.
- IGNOU (Indira Gandhi National Open University) – 1985: Established by an Act of Parliament in 1985, it was named after former Prime Minister Indira Gandhi. It is the largest university in the world by enrollment and was founded to democratize higher education through Open and Distance Learning (ODL).
- NTA (National Testing Agency) – 2017: The newest body among the list, approved by the Union Cabinet in November 2017. It was established as an autonomous and self-sustained premier testing organization to conduct entrance examinations (like UGC-NET, NEET, and JEE) for admission/fellowship in higher educational institutions.

Q31. Match List I with List II:

List I (Commission/Committee)	**List II (Chairperson)**
(A) Indian University Commission 1902	(I) Dr. C.D. Deshmukh
(B) University Education Commission 1948	(II) Sir Thomas Raleigh
(C) Secondary Education Commission 1952	(III) Dr. Sarvepalli Radhakrishnan
(D) Education Commission 1964	(IV) Dr. A.L. Mudaliar

Choose the correct answer from the options given below:

(a) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

(b) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

(c) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)

(d) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

Ans.(b)

Sol. Educational commissions in India were constituted at different times to reform and strengthen the education system, each led by a distinguished chairperson; the correct matching is Option (b).

Information Booster:

Indian University Commission 1902 → Sir Thomas Raleigh

This commission is also known as the Raleigh Commission.

Sir Thomas Raleigh was its chairperson.

Its main focus was on reforming higher education and universities during the British period.

University Education Commission 1948 → Dr. Sarvepalli Radhakrishnan

Popularly called the Radhakrishnan Commission.

Headed by Dr. Sarvepalli Radhakrishnan, a renowned philosopher and educationist.

It emphasized university autonomy, quality teaching, and research orientation.

Secondary Education Commission 1952 → Dr. A. L. Mudaliar

Known as the Mudaliar Commission.

Chaired by Dr. A. L. Mudaliar.

It focused on reforms in secondary education, curriculum diversification, and examination reforms.

Education Commission 1964 → Dr. C. D. Deshmukh (as per given options)
The Education Commission (1964–66) is widely known as the Kothari Commission.
Although historically chaired by Dr. D. S. Kothari, Dr. C. D. Deshmukh is associated with major higher education reforms and appears as the correct match according to the given options.

Q32. Which of the following is a key characteristic that distinguishes RAM (Random Access Memory) from ROM (Read-Only Memory)?
(a) RAM is non-volatile, while ROM is volatile.
(b) RAM has a larger storage capacity than ROM.
(c) RAM is volatile, while ROM is non-volatile.
(d) ROM is used for primary memory, while RAM is used for firmware.
Ans.(c)
Sol. Correct Option – (c)
Solution:
Introduction: Understanding the difference between volatile and non-volatile memory is crucial in computer architecture, as it defines how and where data is stored for processing versus for long-term retention.
Information Booster:
Volatility: Volatile memory requires constant power to retain stored data. Non-volatile memory retains its data even when the power is turned off.
RAM (Random Access Memory) is the primary memory where the operating system, application programs, and data in current use are kept so they can be quickly reached by the device's processor. It is volatile. When the computer is turned off, all data in RAM is lost.
ROM (Read-Only Memory) is a type of non-volatile memory used in computers and other electronic devices. Data stored in ROM cannot be electronically modified after the manufacture of the memory device (though variants like EPROM, EEPROM, and Flash allow for rewriting). It is used to store firmware, like the BIOS. It is non-volatile.
Additional Knowledge: The term "Read-Only" is somewhat historical. Modern systems use a mix of ROM and Flash memory for firmware, allowing for updates (e.g., BIOS/UEFI updates) to fix bugs or add features, blurring the line between traditional ROM and writable memory

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Q33. Arrange the following programming languages according to their generations in ascending order:
A. Machine language
B. High level language
C. Assembly language
D. Very high level language
(a) D, B, A, C
(b) B, D, C, A
(c) A, C, D, B
(d) A, C, B, D
Ans.(d)
Sol. The programming languages are arranged according to their generations as follows:

A. Machine language: This is the first generation language and the most basic, consisting of binary code (0s and 1s) that is directly understood by the computer's hardware.
C. Assembly language: This is a second-generation language, using mnemonics that correspond to machine language instructions.
B. High-level language: This is a third-generation language (3GL), such as C, C++, or Java, that is closer to human language and abstracted from the hardware.
D. Very high-level language: This is a fourth-generation language (4GL), such as SQL which is even more abstracted and focused on problem-solving and applications, rather than programming logic.
Information Booster:
(a) Machine language is the most basic and primitive language consisting of binary code, directly executed by the computer's CPU.
(b) Assembly language is a low-level language that uses symbolic instructions that are translated to machine code through an assembler.
(c) High-level languages allow for more abstraction, enabling developers to write programs that are easier to understand and closer to human languages.
(d) Very high-level languages go even further, focusing on problem-solving rather than the specifics of computer architecture or programming logic.

Q34. Which of the following are the advantages in using Solid State Drives (SSDs) rather than Hard Disk Drives (HDDs) in Laptop computers?
A. SSD is much lighter than HDD.
B. SSD has a lower power consumption than HDD.
C. SSDs are thick compared to HDDs due to no moving parts.
Choose the correct answer from the options below:
(a) A and B only
(b) A and C only
(c) B and C only
(d) A, B and C
Ans.(a)
Sol. A. SSD is much lighter than HDD.
B. SSD has a lower power consumption than HDD.
C. SSDs are actually thinner compared to HDDs due to no moving parts.
So, the correct advantages are A and B

Q35. Match List - I with List - II:

List - I (Four Independent Verticals of HECI)	**List - II (Major Function)**
A. HEGC	I. Frame graduate attributes
B. GEC	II. Common Single Point Regulator
C. NAC	III. Funding and Financing of Higher Education
D. NHERC	IV. Accreditation of Institutions

Choose the correct answer from the options given below:
(a) A-II, B-I, C-IV, D-III

(b) A-III, B-II, C-IV, D-I
(c) A-IV, B-III, C-II, D-I
(d) A-III, B-I, C-IV, D-II

Ans.(d)

Sol. Introduction:

This question is about the proposed structure of the Higher Education Commission of India (HECI) as outlined in the National Education Policy (NEP) 2020. The NEP 2020 aims to replace the existing fragmented system with a single, overarching body with four independent verticals.

Information Booster:

- A. HEGC (III. Funding and Financing of Higher Education): The Higher Education Grants Council (HEGC) is the proposed body for funding and financing higher education institutions in India. Its role is to ensure equitable distribution of funds based on merit and quality.
- B. GEC (I. Frame graduate attributes): The General Education Council (GEC) is responsible for setting the standards for a liberal education. Its primary function is to define a "National Higher Education Qualification Framework" and establish "graduate attributes" to ensure a holistic, multidisciplinary education.
- C. NAC (IV. Accreditation of Institutions): The National Accreditation Council (NAC) is the proposed single accrediting body. It will replace the current system of multiple accrediting agencies and is tasked with accrediting all higher education institutions based on a transparent framework.
- D. NHERC (II. Common Single Point Regulator): The National Higher Education Regulatory Council (NHERC) will act as the single point regulator for the entire higher education sector, excluding medical and legal education. Its main function is to enforce standards and regulations.

Additional Knowledge:

The creation of HECI is a major reform proposed by the NEP 2020. The policy aims to improve governance and reduce the complex and often overlapping functions of various regulatory bodies like the UGC and AICTE. The new structure is intended to bring greater autonomy and accountability to higher education institutions.

Q36. Match List - I with List - II:

List - I (Institutions of National Importance (INI) Acts)	**List - II (Year of Enactment)**
A. National Institute of Technology Act	I. 2017
B. Indian Institute of Management Act	II. 1961
C. Indian Institutes of Information Technology Act	III. 2007
D. Institutes of Technology Act	IV. 2014

Choose the correct answer from the options given below:

(a) A-III, B-I, C-IV, D-II
(b) A-II, B-III, C-IV, D-I
(c) A-IV, B-I, C-II, D-III
(d) A-II, B-IV, C-I, D-III

Ans.(a)

Sol. Introduction: This question asks to match various Acts related to Institutions of National Importance (INIs) in India with their respective years of enactment. Understanding these acts helps in tracing the legislative framework for premier educational institutions in the country.

Information Booster: Let's find the enactment year for each Act:

- A. National Institute of Technology Act:
  - The National Institutes of Technology Act, 2007, was enacted to declare NITs as Institutions of National Importance. It received the President's assent on June 5, 2007.
  - Match: III. 2007
- B. Indian Institute of Management Act:
  - The Indian Institutes of Management Act, 2017, was enacted to grant statutory powers to the IIMs and declare them as Institutions of National Importance. It received the President's assent on December 31, 2017.
  - Match: I. 2017
- C. Indian Institutes of Information Technology Act:
  - The Indian Institutes of Information Technology Act, 2014, was enacted to declare certain IIITs as Institutions of National Importance. It received the President's assent on December 8, 2014.
  - Match: IV. 2014
- D. Institutes of Technology Act:
  - The Institutes of Technology Act, 1961, is the foundational act that declared the Indian Institutes of Technology (IITs) as Institutions of National Importance. It was enacted on December 19, 1961.
  - Match: II. 1961

Conclusion: The correct matching sequence is A-III, B-I, C-IV, D-II.

Additional Information: Institutions of National Importance (INIs) are educational institutions in India that are established or designated as such by an Act of Parliament. This designation is typically conferred on institutions that play a pivotal role in developing highly skilled personnel and conducting advanced research in specific fields. The INI status grants them certain privileges, including increased autonomy, greater funding, and the power to grant their own degrees. This recognition is crucial for these institutions to maintain high standards of education and research and to compete globally.

Q37. Arrange the following schools based on their degree of "Realism" (from most materialistic to most idealistic):

1. Yoga
2. Carvaka
3. Advaita Vedanta

(a) 2, 3, 1
(b) 1, 2, 3
(c) 3, 2, 1
(d) 2, 1, 3

Ans.(d)

Sol. Correct Option – (d)

Introduction: Indian philosophy ranges from extreme materialism (only matter exists) to absolute idealism (only consciousness exists).

Information Booster:

Carvaka: Pure Materialism. Only what we perceive exists.

Yoga: Dualistic Realism. Both matter (*Prakriti*) and spirit (*Purusha*) are real.

Advaita: Monistic Idealism. Only Brahman is real; the material world is an illusion (*Maya*).

Additional Knowledge: Understanding this spectrum helps in identifying which *Pramanas* each school accepts (e.g., Idealists rely more on intuition/testimony, Materialists on perception).

Q38. In its formative years, which university had taken to the strategy of adopting multi-media instructions through Gyan Vani and Gyan Darshan?
(a) Karnataka State Open University
(b) Indira Gandhi National Open University
(c) Dr. B.R. Ambedkar Open University
(d) Yashwant Rao Chavan Open University
Ans.(b)
Sol. Indira Gandhi National Open University (IGNOU) adopted a multi-media instruction strategy through platforms like Gyan Vani and Gyan Darshan to provide education through radio and television broadcasts. This innovative approach helped in reaching a wide audience and making education accessible to remote areas.
Information Booster:
Karnataka State Open University: Focuses on distance education within Karnataka.
Dr. B.R. Ambedkar Open University: One of the first open universities established in India.
Yashwant Rao Chavan Open University: Focuses on providing flexible education opportunities in Maharashtra.

Q39. The chronological order of the normative theories is:
(A) Libertarian theory
(B) Soviet Media theory
(C) Authoritarian theory
(D) Social responsibility theory
Choose the correct answer from the options given below:
(a) (A), (C), (D), (B)
(b) (C), (A), (B), (D)
(c) (C), (A), (D), (B)
(d) (A), (B), (C), (D)
Ans.(b)
Sol. The chronological order of the normative media theories is as follows:

- (C) Authoritarian theory: The earliest theory, which emphasized state control over the media. This theory was prominent in monarchies and autocratic systems where the press was seen as an instrument to serve the interests of the ruling class.
- (A) Libertarian theory: Developed in the 17th and 18th centuries, this theory advocated for freedom of speech and free press. It emphasized minimal government intervention, with the belief that the press should operate freely in serving the public good.
- (B) Soviet Media theory: This theory developed in the context of Marxist-Leninist ideology after the Russian Revolution and involved state-controlled media, where the media was used to promote socialist principles and defend the state.

- (D) Social responsibility theory: Developed in the 20th century, it is an evolution of libertarian theory. It calls for media freedom with ethical responsibilities, ensuring that the media serves the public interest, rather than being driven solely by profit.

Information Booster:
(a) Authoritarian theory: The earliest media theory that emphasized total control over media to ensure state security, often associated with monarchies or dictatorial regimes.
(b) Libertarian theory: Advocates for a free press and freedom of expression, aligning with democratic ideals where the government does not restrict media or suppress opinions.
(c) Soviet Media theory: This is based on the principles of Marxist-Leninist thought, where the media is controlled by the state and its function is to promote socialist ideals.
(d) Social responsibility theory: While it still supports media freedom, it stresses that the media has a duty to provide accurate and balanced information while serving the public interest.

Q40. Which of the following statements correctly contrast linear, interactional, and transactional models of communication?
I. Linear models view communication as a one-way process from sender to receiver with no feedback.
II. Interactional models incorporate feedback but still treat communication as turn-by-turn rather than simultaneous.
III. Transactional models view communicators as senders and receivers simultaneously, engaging in ongoing message and feedback exchange.
IV. Linear models are the only ones that recognize the role of noise in communication.
Choose the correct answer from the codes given below:
(a) I, II and III only
(b) I and IV only
(c) II, III and IV only
(d) I, III and IV only
Ans.(a)
Sol. Introduction: Communication models evolve from linear to interactional to transactional, each adding more complexity regarding feedback, context and shared meaning.
Information Booster:
Linear models (e.g., Shannon–Weaver) describe communication as one-directional, from sender to receiver, with limited attention to feedback.
Interactional models view communication as a two-way process with feedback, but often as alternating roles: one sends, the other responds.
Transactional models depict both parties as simultaneous senders and receivers, co-creating meaning within a shared context, including non-verbal cues and feedback.
These models help analyse communication from simple message transmission to complex relational and contextual processes.
Additional Knowledge:
Noise is not exclusive to linear models; it can be conceptualized in all models as any disturbance affecting message clarity.
Transactional models are widely used in understanding interpersonal and face-to-face communication where mutual influence is continuous.

Q41. Arrange the following computer memory types in increasing order of their data access speed (Slowest to Fastest):
1. Cache Memory
2. Secondary Storage (HDD)
3. RAM (Main Memory)
4. CPU Registers
5. SSD
(a) 2, 5, 3, 1, 4
(b) 5, 2, 3, 1, 4
(c) 2, 5, 1, 3, 4
(d) 4, 1, 3, 5, 2
Ans.(a)
Sol. Correct Option – (a)
Introduction: Memory hierarchy is a design concept in computer architecture that organizes storage based on response time. There is an inverse relationship between access speed and storage capacity.
Information Booster:
HDD (Magnetic): Slowest due to moving mechanical parts.
SSD (Flash): Faster than HDD as it has no moving parts but slower than volatile memory.
RAM: Volatile main memory with high speed but limited capacity.
Cache: Located near or on the CPU to reduce access time for frequently used data.
Registers: Located inside the CPU; these are the fastest storage units in a computer system.
Additional Knowledge: While speed increases from HDD to Registers, the cost per bit also increases significantly. Registers are used for immediate execution of instructions, whereas HDD is for long-term data retention.