Bihar BET Sample General Paper 2

Q1. In a higher education institution, the evaluation system used involves giving students continuous, non-graded feedback on specific performance criteria throughout a course, followed by a final, single summative grade. This evaluation approach is best described as an integration of:
(a) Diagnostic and Predictive Evaluation
(b) Criterion-referenced and Norm-referenced Evaluation
(c) Formative and Summative Evaluation
(d) Continuous and Comprehensive Evaluation CCE
Ans.(c)
Sol. Correct Option – (c)
Introduction
The evaluation system described is an integration of Formative and Summative Evaluation.
Information Booster
• Formative Evaluation: This is conducted *during* the instructional process. Its purpose is to provide continuous, non-graded feedback to both the student (to improve learning) and the teacher (to improve teaching). The key phrase "continuous, non-graded feedback on specific performance criteria throughout a course" aligns perfectly with the function of formative assessment.
• Summative Evaluation: This is conducted *at the end* of a unit, course, or program. Its purpose is to assign a final value or grade, determining the extent to which the student has achieved the instructional objectives. The phrase "final, single summative grade" clearly indicates this function.
Additional Knowledge
• Diagnostic Evaluation aims to identify the student's learning difficulties or weaknesses *before* instruction begins.
• Criterion-referenced Evaluation compares a student's performance against a predefined set of learning standards (criteria), irrespective of other students' scores.
• Norm-referenced Evaluation compares a student's performance against the performance of a peer group (the 'norm').
• Continuous and Comprehensive Evaluation (CCE) is a system, often implemented at the school level, that covers both scholastic and co-scholastic aspects, including both formative and summative elements. However, the specific *function* described in the prompt is the integration of formative (feedback) and summative (grading) roles.

Q2. A teacher is designing a lesson plan for a group of adult learners who have returned to education after a significant break. The most critical characteristic that the teacher must primarily address in this planning, according to Andragogy, is the:
(a) Learners desire for high-stakes assessment immediately following the instruction.
(b) Learners self-concept of being responsible for their own decisions and learning.
(c) Learners dependence on the teacher to select all learning materials and goals.
(d) Learners uniform prior subject-matter knowledge base and academic skills.
Ans.(b)
Sol. Correct Option – (b)
Introduction

The theory of Andragogy, pioneered by Malcolm Knowles, which distinguishes adult learning from pedagogy (child learning) by focusing on core assumptions about adult learners. According to Andragogy (the art and science of teaching adults), the most critical characteristic a teacher must address in planning is the learners' self-concept of being responsible for their own decisions and learning.

Information Booster

Knowles's core assumptions of adult learning (Andragogy) are:

1. Need to Know: Adults need to know *why* they are learning something.
2. Self-Concept (Crucial Point): Adults have a self-concept of being self-directed and responsible for their own lives. They resist learning situations that violate this self-concept. The teacher must move from a 'sage on the stage' to a facilitator role.
3. Prior Experience: Adults bring a wealth of experience, which is a rich resource for learning.
4. Readiness to Learn: Adults are ready to learn things they need to cope with real-life problems.
5. Orientation to Learning: Adults are generally problem-centered rather than subject-centered in their learning orientation.
6. Motivation: Adults are motivated by internal drivers (e.g., self-esteem, better quality of life), not just external pressure.

Additional Knowledge

The adult learner's self-concept as a self-directed human being means the learning design must emphasize participation, choice, and relevancy. Option (c) is incorrect because adults generally resist dependence; option (d) is incorrect because adults often have *diverse* prior knowledge; and option (a) is incorrect because assessment structure is secondary to the foundational self-concept issue in Andragogy.

Q3. Arrange the following steps of the Micro-Teaching cycle in the correct chronological sequence:

1. Re-plan the lesson based on feedback.
2. Teach the prepared lesson to a small group.
3. Plan the micro-lesson.
4. Re-teach the revised lesson.
5. Receive constructive feedback from the supervisor/peers.
6. Re-feedback and evaluation.

(a) 3, 2, 5, 1, 4, 6
(b) 3, 5, 2, 1, 4, 6
(c) 2, 3, 5, 1, 4, 6
(d) 3, 2, 1, 5, 4, 6

Ans.(a)

Sol. Correct Option – (a)

Introduction

Micro-teaching is a scaled-down training technique focused on practising and improving specific teaching skills, which is a key component of pre-service and in-service teacher education programs.

Information Booster

The cycle follows a continuous loop of practice and refinement. The standard cycle steps are:

1. Plan: Selecting a specific skill and preparing a short lesson (e.g., 5-10 minutes).
2. Teach: Executing the lesson to a small group of students or peers.
3. Feedback: The most crucial stage, where the teacher receives immediate, constructive feedback.
4. Re-plan: Modifying the lesson plan and strategy based on the feedback received.
5. Re-teach: Teaching the revised lesson to a different, or the same, small group.

6. Re-feedback/Evaluation: Receiving feedback on the re-taught lesson to confirm improvement.
Additional Knowledge
The duration of the Micro-Teaching cycle (Plan-Teach-Feedback) is often cited as 36 minutes (6 minutes each for teaching and feedback, followed by 12 minutes for re-plan, 6 minutes for re-teach, and 6 minutes for re-feedback). The fundamental principle is that by isolating a single skill (like 'skill of questioning' or 'skill of blackboard writing'), the trainee can focus on perfecting it.

Q4. Which of the following maxims of teaching focuses on the progression from observing specific cases or examples to formulating general rules or principles?
(a) From Simple to Complex
(b) From Concrete to Abstract
(c) From Induction to Deduction
(d) From Psychological to Logical
Ans.(c)
Sol. Correct Option – (c)
Introduction
Maxims of teaching are guiding principles derived from educational psychology and experience, offering general rules for effective presentation of content and management of the learning process.
Information Booster
• Induction: The process of reasoning that moves from specific examples/observations to a general conclusion/rule. In teaching, this means presenting several examples first and then helping students derive the rule (e.g., showing 5 examples of the 'Present Perfect Tense' before teaching the formula).
• Deduction: The process of reasoning that starts with a general rule/principle and applies it to specific instances. In teaching, this means stating the rule first and then illustrating it with examples.
• From Induction to Deduction: This maxim suggests that instruction should first involve students in inductive reasoning to discover the principle, which makes the learning active and meaningful, and then use deductive reasoning to apply and practice the principle.
Additional Knowledge
Other important maxims include:
• From Concrete to Abstract: Begin teaching with tangible objects or real-life experiences before moving to theoretical ideas.
• From Known to Unknown: Link new knowledge to what the student already knows. This is vital for assimilation and meaningful learning.

Q5. Match the teaching models in List I with their primary proponents/developers in List II.

List I (Teaching Model)	List II (Proponent/Developer)
A. Synectics Model	1. Benjamin Bloom
B. Mastery Learning Model	2. William Glasser
C. Classroom Meeting Model	3. William J. J. Gordon
D. Inquiry Training Model	4. Joseph J. Schwab

Options:
(a) A-3, B-1, C-2, D-4
(b) A-4, B-3, C-1, D-2
(c) A-3, B-4, C-2, D-1
(d) A-2, B-1, C-4, D-3

Ans.(a)

Sol. Correct Option – (a)

Introduction

List I (Teaching Model)	List II (Proponent/Developer)
A. Synectics Model	3. William J. J. Gordon
B. Mastery Learning Model	1. Benjamin Bloom
C. Classroom Meeting Model	2. William Glasser
D. Inquiry Training Model	4. Joseph J. Schwab

Information Booster

• A. Synectics Model (William J. J. Gordon): This model is designed to stimulate creative thinking through the use of analogies and metaphors (making the strange familiar, and the familiar strange). It's focused on group processes for problem-solving.

• B. Mastery Learning Model (Benjamin Bloom): This model is predicated on the idea that virtually all students can learn well if they are provided with the prerequisite knowledge, sufficient time, and high-quality instruction. It emphasizes using formative assessment to provide corrective instruction.

• C. Classroom Meeting Model (William Glasser): Glasser's approach is rooted in reality therapy and emphasizes establishing a supportive classroom environment where students participate in democratic discussions to solve class problems and make decisions, fostering responsibility and self-discipline.

• D. Inquiry Training Model (Joseph J. Schwab): While Inquiry-based learning has many contributors (like Bruner), Schwab is often associated with the structure of inquiry, particularly in science education, stressing the importance of disciplinary structure in curriculum development.

Additional Knowledge

Teaching models are prescriptive frameworks that guide teachers in structuring their instruction. Other important models include the 'Social Inquiry Model' by Massialas and Cox, and the 'Conceptual Attainment Model' by Jerome Bruner. The selection of a model depends heavily on the teaching objective (cognitive, affective, or psychomotor).

Q6. Arrange the following steps of qualitative data analysis in the correct order

i. Coding the data

ii. Transcribing the data

iii. Identifying themes

iv. Interpreting the findings

(a) ii, iii, i, iv

(b) i, ii, iii, iv

(c) iii, ii, i, iv

(d) ii, i, iii, iv

Ans.(d)

Sol. Correct Option – (d)

Introduction

Qualitative research requires systematic interpretation of textual or visual data. Understanding the correct order of analysis ensures credibility and trustworthiness of results.

Information Booster

Data must first be *transcribed* before analysis. Then researchers *code the data* into meaningful units. After coding, they proceed to *identify themes*, grouping related ideas. Finally, *interpreting the findings* provides meaning, connections, and conclusions. Thus, the correct order is ii i iii iv.

Additional Knowledge

• Coding may be open, axial, or selective. • Themes represent patterns across data. • Interpretation connects themes to research questions and theory. • Qualitative analysis aims for depth, not generalisation.

Q7. Match List I with List II

List I (Research Term)	List II (Meaning)
A. Triangulation	1. Checking data accuracy through multiple methods or sources
B. Moderating Variable	2. Variable that influences the strength of relationship between two variables
C. Delimitation	3. Boundaries set by the researcher intentionally
D. Null Hypothesis	4. Statement predicting no relationship between variables

Choose the correct answer from the options given below

(a) A1 -B2 -C3- D4

(b) A2 -B1 -C4 -D3

(c) A3- B4- C2- D1

(d) A4 -B3 -C1 -D2

Ans.(a)

Sol. Correct Option – (a)

Introduction

Understanding advanced research terminology is essential for interpreting research articles, constructing methodologies, and analysing results.

Information Booster

A correctly aligns with 1 because triangulation enhances validity through multiple methods. B matches with 2 because moderating variables affect the strength or direction of the relationship between variables. C corresponds to 3 because delimitations are intentionally chosen boundaries like scope or population. D corresponds to 4 because the null hypothesis always states no relationship or no difference.

Additional Knowledge

• Triangulation may be methodological, theoretical, or data-based. • Moderators are different from mediators, which explain the relationship. • Delimitations differ from limitations, which are constraints not under researcher control. • Null hypothesis is central in significance testing.

Q8. Arrange the following steps of the quantitative research process in the correct order

i. Formulating hypothesis

ii. Reviewing related literature

iii. Selecting research design

iv. Collecting data

(a) ii, I, iii, iv

(b) i, ii, iii, iv

(c) ii, iii, I, iv

(d) iii, ii, i, iv

Ans.(a)

Sol. Correct Option – (a)

Introduction

Quantitative research follows a structured, linear progression where each stage builds upon the previous one. Understanding this sequence is essential in developing scientific rigour.

Information Booster

The process begins with *reviewing literature*, which identifies gaps. Next is *formulating hypothesis*, based on insights from the literature. Then, *selecting the research design* determines how data will be collected and analysed. Finally, researchers proceed with *data collection*. Thus the correct sequence is ii i iii iv.

Additional Knowledge

• Literature review prevents duplication of previous studies. • Hypothesis links variables and predicts relationships. • Research design influences validity and reliability. • Quantitative studies often use surveys, experiments, and structured observations.

Q9. Which of the following best defines systematic sampling?

(a) Selecting every kth element from a population list

(b) Selecting participants based on convenience

(c) Dividing population into subgroups and selecting randomly from each

(d) Selecting units until saturation is reached

Ans.(a)

Sol. Correct Option – (a)

Introduction

Sampling is crucial in research aptitude because it determines how representative the selected participants are. Systematic sampling is one of the widely used probability sampling techniques.

Information Booster

Systematic sampling selects every kth element from an ordered population list, after choosing a random starting point. Option (b) refers to convenience sampling. Option (c) describes stratified sampling. Option (d) refers to theoretical sampling, mainly used in grounded theory. Thus the precise definition is selecting every kth element.

Additional Knowledge

• Systematic sampling is simpler than simple random sampling. • It may introduce periodicity bias if the list has repeating patterns. • Commonly used in large surveys and census processes.

Q10. Match List I with List II

List I (Research Paradigm)	List II (Characteristic)
A. Constructivist	1. Reality is socially constructed through interaction
B. Positivist	2. Focus on objective measurement and quantification
C. Transformative	3. Research aims to challenge social inequities
D. Pragmatic	4. Emphasises solutions using multiple methods

Choose the correct answer from the options given below

(a) A1- B2- C3- D4

(b) A3 -B1 -C4 -D2

(c) A4- B3- C1- D2

(d) A2 -B4- C1- D3

Ans.(a)

Sol. Correct Option – (a)

Introduction

Research aptitude requires awareness of major research paradigms, as each paradigm guides how data is collected, interpreted, and understood. The paradigms influence the researcher's worldview, methodological choices, and interpretations.

Information Booster

A corresponds to 1 because the constructivist paradigm views knowledge as socially constructed through human interaction and shared meanings. B matches with 2 because positivism emphasises objectivity, quantification, and empirical verification. C matches with 3 because the transformative paradigm challenges oppression and supports social justice through research. D matches with 4 because pragmatism seeks workable solutions using both qualitative and quantitative methods.

Additional Knowledge

• Constructivism is rooted in the ideas of Vygotsky and Piaget. • Positivism is linked to Auguste Comte. • Transformative research is central to critical theory. • Pragmatism was promoted by John Dewey and Charles Peirce.

Q11. Which of the following best explains the concept of proxemics in communication?

(a) The study of hand and body movements

(b) The study of tone, pitch, and rhythm of speech

(c) The study of physical distance in human interaction

(d) The study of symbols and signs used in messages

Ans.(c)

Sol. Correct Option – (c)

Introduction

Non-verbal communication includes multiple elements such as gestures, facial expressions, and spatial behaviour. Proxemics is one of the most important sub-components because it influences comfort, meaning, and context in communication.

Information Booster

Proxemics refers to the use of physical distance and spatial arrangement between individuals during communication. It includes personal, intimate, social, and public distances. Options (b), (c), and (d) describe paralanguage, kinesics, and semiotics respectively. Hence the correct definition is related to the study of physical distance.

Additional Knowledge

Proxemics was popularised by Edward T. Hall. Cultural differences strongly influence acceptable distance zones. Proxemics affects group communication, classroom interaction, and leadership dynamics.

Q12. Match List I with List II

List I (Barrier)	List II (Example)
A. Semantic Barrier	1. Using ambiguous words such as bank for both river and finance
B. Psychological Barrier	2. Listener refuses to accept message due to prejudice
C. Organizational Barrier	3. Long communication chains delay message accuracy
D. Mechanical Barrier	4. Poor internet connection distorts communication

Choose the correct answer from the options given below

(a) A1 B3 C2 D4

(b) A2 B1 C4 D3

(c) A3 B1 C2 D4

(d) A1 B2 C3 D4

Ans.(d)

Sol. Correct Option – (d)

Introduction

Understanding the types of barriers in communication is essential for identifying why messages fail or are misunderstood. Each barrier has a distinct cause and requires specific corrective measures.

Information Booster

Semantic barrier aligns with 1 because ambiguous or confusing words cause misinterpretation. Psychological barrier aligns with 2 because prejudice, attitudes, or emotions can influence reception. Organizational barrier aligns with 3 due to structural issues like lengthy hierarchical chains. Mechanical barrier aligns with 4 because technical faults affect the transmission. Thus, the correct match is A1 B2 C3 D4.

Additional Knowledge

Semantic barriers often arise due to vocabulary differences or technical jargon. Psychological barriers include fear, mistrust, or low confidence. Organizational barriers are common in multi-layered institutions. Mechanical barriers are increasing with digital communication reliance.

Q13. Arrange the following stages of mass communication in the correct sequence

i. Encoding the message

ii. Selecting the media platform

iii. Transmitting to a large audience

iv. Receiving audience feedback

(a) i, ii, iii, iv

(b) ii, i, iii, iv

(c) i, iii, ii, iv

(d) ii, iii, I, iv

Ans.(a)

Sol. Correct Option – (a)

Introduction

Mass communication involves structured steps designed to reach large, diverse audiences. Understanding its sequential order enhances clarity regarding how media messages are created and disseminated.

Information Booster

Encoding the message is always the first step because the communicator must prepare content. Next, selecting the media platform determines how and where the message will be delivered. Then, the message is transmitted to the audience. Finally, collecting feedback completes the communication loop. Hence the correct order is i ii iii iv.

Additional Knowledge

Mass communication channels include television, radio, newspapers, and digital platforms. Encoding requires language, symbols, and visuals. Audience feedback may be delayed and indirect due to mass scale.

Q14. Arrange the following teacher actions for removing communication barriers in the correct logical sequence

i. Identifying the barrier

ii. Modifying the message

iii. Selecting an appropriate channel

iv. Seeking feedback for clarity

(a) i, ii, iii, iv
(b) ii, I, iii, iv
(c) i, iii, ii, iv
(d) iii, i, ii, iv
Ans.(a)
Sol. Correct Option – (a)
Introduction
Removing communication barriers requires a systematic process to ensure that the message reaches the receiver clearly and effectively. A rational sequence ensures clarity and successful interaction.
Information Booster
The process begins with identifying the barrier because understanding the problem is essential before taking action. After identification, the message must be modified so that it becomes clearer or more appropriate. Following modification, selecting a suitable channel ensures the message is transmitted effectively. Finally, seeking feedback verifies that the receiver understood the message correctly. Therefore, the correct order is i ii iii iv.
Additional Knowledge
Feedback plays a central role in ensuring the accuracy of communication. Channels may be formal or informal, oral or written. Barriers can be psychological, semantic, or organizational in nature and require customised solutions.

Q15. Match List I with List II

List I (Model)	List II (Key Feature)
A. Berlo's SMCR Model	1. Emphasises source, message, channel, and receiver elements
B. Schramm's Model	2. Focuses on overlapping fields of experience
C. Helical Model	3. Communication grows gradually like a spiral
D. Transactional Model	4. Stresses simultaneous sending and receiving

Choose the correct answer from the options given below
(a) A1 B2 C3 D4
(b) A2 B1 C4 D3
(c) A4 B3 C2 D1
(d) A3 B1 C2 D4
Ans.(a)
Sol. Correct Option – (a)
Introduction
Communication aptitude includes understanding classical and modern models that explain how messages are encoded, transmitted, and interpreted. Each model has a unique focus that helps explain the complexities of communication processes.
Information Booster
Berlo's SMCR model matches with 1 because it emphasises source, message, channel, and receiver. Schramm's model aligns with 2, as it emphasises the importance of overlapping fields of experience for effective communication. The helical model aligns with 3, as it compares communication to a growing spiral. The transactional model aligns with 4 because communication is viewed as a simultaneous two-way process. Hence, A1 B2 C3 D4 is the correct match.
Additional Knowledge
Berlo's model stresses communication skills, attitudes, and knowledge. Schramm introduced the concept of encoder–decoder roles. Helical model was developed by Frank Dance. Transactional model explains feedback and shared meaning continuously.

Q16. The process of committing a Straw Man fallacy typically involves which of the following sequences?
I Refute the distorted argument.
II Distort or exaggerate the opponent's original argument.
III Present the distorted version as the opponent's actual position.
(a) II, III, I
(b) I, II, III
(c) III, II, I
(d) II, I, III
Ans.(a)
Sol. Correct Option – (a)
Introduction: Understanding the tactical steps of a fallacy helps in recognizing and countering it effectively in debate and discourse.
Information Booster: The sequence of a Straw Man attack is:
1. II Distort or exaggerate the opponent's original argument. The arguer first misrepresents the opponent's view, making it seem more extreme, simplistic, or ridiculous than it actually is.
2. III Present the distorted version as the opponent's actual position. The arguer then claims that this weakened version is what the opponent truly believes.
3. I Refute the distorted argument. Finally, the arguer easily knocks down the caricature they have created, creating the illusion of having defeated the opponent's real argument.
Additional Knowledge: A common counter to a Straw Man is to use the phrase "That's a Straw Man," and then restate your original position clearly: "I did not argue for [distorted version]. What I actually said was [original argument]. Let's debate that."

Q17. The fallacy of "Undistributed Middle" is primarily an error in the handling of which component of a syllogism?
(a) The quantifiers (All, Some, No)
(b) The quality of the propositions (Affirmative/Negative)
(c) The distribution of the middle term
(d) The truth value of the premises
Ans.(c)
Sol. Correct Option – (c)
Introduction: This question goes to the heart of the fallacy, testing the understanding of *why* the argument form is invalid.
Information Booster:
• The fallacy is explicitly named for the error it commits: the Undistributed Middle (c). The middle term is the term that appears in both premises but not in the conclusion. Its function is to link the major and minor terms.
• For the syllogism to be valid, the middle term must be distributed (i.e., refer to the entire class) in at least one of the premises. This ensures that the two parts of the middle term referred to in each premise actually connect.
• If the middle term is undistributed in both premises, it may refer to different parts of the class in each premise, failing to establish a necessary connection. For example, in "All cats are mammals. All dogs are mammals," the term "mammals" could be referring to different subsets (cat-mammals and dog-mammals), so no link between cats and dogs is established.
Additional Knowledge: The rules of distribution are:
• Distributed: Subject of A and E propositions; Predicate of E and O propositions.
• Undistributed: Predicate of A and I propositions; Subject of I and O propositions.

Q18. Match the following examples of inference with the correct type of Anumana:

Example of Inference	Type
A. Seeing a child who looks exactly like his father, one infers the father's features.	1. Purvavat
B. Seeing a dark cloud, one infers that it will rain.	2. Samanyatodrsta
C. Seeing a swollen river, one infers past rain.	3. Sesavat

Options:
(a) A-2, B-3, C-1
(b) A-3, B-1, C-2
(c) A-1, B-2, C-3
(d) A-2, B-1, C-3
Ans.(d)
Sol. Correct Option – (d)
Introduction: This question tests the practical application of the classification of inferences, requiring the identification of the underlying logical structure in everyday reasoning.
Information Booster:
• A-2: Samanyatodrsta: This inference is based on a general correlation or resemblance, not a direct cause-effect link. The inference about the father's features is based on the general correlation between a high degree of resemblance and parentage. It is an inference from a perceived quality (the child's looks) to a related fact (the father's looks) via a general rule of resemblance.
• B-1: Purvavat: This is a clear inference from a perceived cause to an unperceived effect. The dark cloud (cause) leads to the inference of future rain (effect).
• C-3: Sesavat: This is a clear inference from a perceived effect to an unperceived cause. The swollen river (effect) leads to the inference of past rain upstream (cause).
Additional Knowledge: These classifications show the breadth of application of Anumana. It is not limited to strict causality but extends to any domain where a secure Vyapti (universal relation) can be established, whether it be causal, essential, or based on a general uniformity in nature.

Q19. Arrange the five members (avayavas) of a Nyaya syllogism in their correct logical order:
I Udāharaṇa
II Nigamana
II Pratijñā
IV Upanaya
V Hetu
(a) III, V, I, IV, II
(b) III, I, V, IV, II
(c) I, III, V, IV, II
(d) II, III, V, I, IV
Ans.(a)
Sol. Correct Option – (a)
Introduction: The Nyaya school developed a formal, five-step syllogism to present an inference clearly and debatably. This structure, known as Pararthanumana (inference for others), is designed to demonstrate the reasoning process to another person systematically.
Information Booster: The correct sequence for proving "The mountain has fire" is:

1. III Pratijñā (Proposition): The statement of the thesis to be proved. (*There is fire on the mountain.*)
2. V Hetu (Reason): The reason offered in support of the thesis. (*Because there is smoke on the mountain.*)
3. I Udāharaṇa (Example): The universal concomitance (vyapti) along with a supporting instance. (*Wherever there is smoke, there is fire, as in a kitchen.*)
4. IV Upanaya (Application): The application of the universal rule to the specific case in question. (*And the mountain has such smoke [as is invariably associated with fire].*)
5. II Nigamana (Conclusion): The restatement of the thesis, now established by the reasoning. (*Therefore, there is fire on the mountain.*)
Additional Knowledge: This five-membered syllogism can be condensed into the three terms of Western logic: the Hetu and Upanaya form the minor premise, the Udāharaṇa is the major premise, and the Pratijñā and Nigamana together form the conclusion. The emphasis on the example (Udāharaṇa) highlights the empirical grounding valued in Indian logic.

Q20. A deductive argument is considered "sound" only if it meets two specific criteria. These are:
(a) It is invalid, but its conclusion is true.
(b) It is strong and its conclusion is probable.
(c) It is cogent and its premises are believable.
(d) It is valid, and its premises are true.
Ans.(d)
Sol. Correct Option – (d)
Introduction: Evaluating arguments requires applying precise criteria. For deductive arguments, the concepts of "validity" and "soundness" are the gold standards for assessment.
Information Booster:
• Validity: This is a property of the argument's *structure*. An argument is valid if the conclusion follows logically from the premises; the premises can't be true and the conclusion false.
• Soundness (d): This is a higher bar. An argument is sound only if it is 1) valid, and 2) all of its premises are actually true. A sound argument, therefore, guarantees a true conclusion.
• Option (a) describes a bad argument that luckily arrives at a true conclusion.
• Option (b) describes a strong inductive argument.
• Option (c) describes a cogent inductive argument (one that is strong and has true premises).
Additional Knowledge: An argument can be valid but unsound. For example: "All dogs can fly. Fido is a dog. Therefore, Fido can fly." The structure is valid, but the first premise is false, so the argument is unsound. An invalid argument can never be sound.

Q21. Arrange the following phases of the classic Waterfall model of the Software Development Life Cycle (SDLC) in their standard sequential order:
I. Implementation (Coding)
II. Requirements Gathering & Analysis
III. Deployment & Maintenance
IV. System Design
V. Testing
(a) II, IV, I, V, III
(b) II, I, IV, V, III
(c) IV, II, I, V, III
(d) I, II, IV, V, III

Ans.(a)

Sol. Correct Option – (a)

Introduction: The Software Development Life Cycle (SDLC) is a structured process for building software that aims to produce high-quality, cost-effective solutions. The Waterfall model is one of the oldest and most linear SDLC methodologies, where each phase must be fully completed before the next begins.

Information Booster: The correct sequential order in the Waterfall model is II, IV, I, V, III.

1. II. Requirements Gathering & Analysis: This is the foundational phase. Developers and stakeholders work together to document and analyze the system's requirements in detail. The output is a Software Requirements Specification (SRS) document.
2. IV. System Design: Based on the SRS, the system's architecture and design are created. This includes defining hardware requirements, system architecture, data structures, and interfaces. The output is a Design Document Specification (DDS).
3. I. Implementation (Coding): In this phase, developers write the actual code for the system based on the design documents. This is where the software is built.
4. V. Testing: Once the code is complete, it is rigorously tested against the requirements to identify and fix defects. This includes unit testing, integration testing, and system testing.
5. III. Deployment & Maintenance: After successful testing, the product is deployed in the production environment for the end-user. The maintenance phase involves fixing any issues that arise post-deployment and providing ongoing support.

Additional Knowledge: The Waterfall model's rigidity is its main drawback, as it is difficult to go back and change requirements once a phase is completed. This led to the development of more flexible and iterative models like Agile, Scrum, and DevOps, which embrace changing requirements and promote continuous delivery and feedback.

Q22. Match the following Indian government digital initiatives (Column A) with their primary target audience or purpose (Column B):

Column A: Digital Initiative	Column B: Primary Target Audience/Purpose
1. SWAYAM	A. A digital repository of Indian theses for researchers and scholars.
2. National Digital Library (NDL)	B. Providing high-quality online courses to all learners from school to university.
3. Shodhganga	C. A national platform for school teachers for training and resources.
4. DIKSHA	D. A single-window access to educational resources for all levels of learners.

Options:

(a) 1-B, 2-D, 3-A, 4-C

(b) 1-D, 2-B, 3-C, 4-A

(c) 1-B, 2-A, 3-D, 4-C

(d) 1-C, 2-D, 3-A, 4-B

Ans.(a)

Sol. Correct Option – (a)

Introduction: The Government of India has launched several flagship digital initiatives to leverage ICT for expanding access, improving quality, and bridging the digital divide in education. Each platform serves a distinct and complementary role.

Information Booster:

• 1. SWAYAM - B: SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds) is a Massive Open Online Course (MOOC) platform. Its purpose is to offer high-quality online courses from school education to postgraduate levels, developed by the best teachers across the country.

• 2. National Digital Library (NDL) - D: The NDL, developed by IIT Kharagpur, is a virtual repository of learning resources. It functions as a single-window portal that aggregates content from multiple sources, providing access to students, teachers, and lifelong learners across all disciplines and educational levels.

• 3. Shodhganga - A: Shodhganga is a digital repository set up by the INFLIBNET Centre. It is designed specifically to host Indian theses and dissertations, making research conducted in Indian universities accessible to scholars globally and preventing plagiarism.

• 4. DIKSHA - C: DIKSHA (Digital Infrastructure for Knowledge Sharing) is the national platform for school education. It provides teachers, students, and parents with learning materials, training resources, and assessment tools aligned with the school curriculum.

Additional Knowledge: The Academic Bank of Credit (ABC) is another crucial digital initiative under NEP 2020 that integrates with SWAYAM. It digitally stores academic credits earned from various recognized HEIs, including online courses, enabling flexible and multidisciplinary learning.

Q23. Match the following network topologies (Column A) with their most accurate description or key characteristic (Column B):

Column A: Network Topology	Column B: Description/Characteristic
1. Bus Topology	A. All nodes are connected to a central device, making fault isolation easy.
2. Star Topology	B. A single cable acts as the backbone; a cable break can bring down the entire network.
3. Mesh Topology	C. Data travels in a circular path, and each node regenerates the signal.
4. Ring Topology	D. Every node is connected to every other node, providing high redundancy.

Options:

(a) 1-B, 2-A, 3-D, 4-C

(b) 1-A, 2-B, 3-C, 4-D

(c) 1-B, 2-C, 3-A, 4-D

(d) 1-C, 2-D, 3-B, 4-A

Ans.(a)

Sol. Correct Option – (a)

Introduction: Network topology defines the physical or logical arrangement of nodes and connections in a network. The choice of topology impacts cost, reliability, scalability, and performance, making it a fundamental concept in networking.

Information Booster:

• 1. Bus Topology - B: In a bus topology, all devices are connected to a single central cable, the "bus." This is a simple and low-cost design, but it has a critical weakness: if the main cable fails, the entire network becomes inoperable.

• 2. Star Topology - A: In this common topology, all nodes are connected to a central connecting device, such as a hub or switch. Its primary advantage is that a failure in one node's cable does not affect the rest of the network, making fault isolation and troubleshooting straightforward.

• 3. Mesh Topology - D: In a true mesh topology, every node has a dedicated point-to-point connection to every other node. This creates a highly robust and fault-tolerant network because if one connection fails, traffic can be rerouted through many alternative paths. However, it is very expensive to implement.
• 4. Ring Topology - C: Nodes are connected in a closed loop, with each device connected to exactly two neighbors. Data travels in one direction (unidirectional), and each node acts as a repeater to regenerate and retransmit the signal to the next node. A break in the ring can disrupt the entire network unless a dual-ring design is used.
Additional Knowledge: In practice, hybrid topologies are often used. For example, a "star-bus" topology might connect multiple star networks using a bus backbone. The star topology is dominant in modern Local Area Networks (LANs) due to its balance of cost, performance, and ease of management.

Q24. In a relational database management system (RDBMS), a primary key is uniquely identified by which of the following properties?
(a) It can contain duplicate values for different rows.
(b) It can have a NULL (empty) value.
(c) Its value must be unique for each row and cannot be NULL.
(d) It is used solely for establishing relationships with other tables, not for identifying records.
Ans.(c)
Sol. Correct Option – (c)
Introduction: In a Relational Database Management System (RDBMS), data is organized into tables (relations). To maintain data integrity and enable efficient retrieval, keys are used. The primary key is the most important constraint in a table.
Information Booster: A primary key is a column (or a set of columns) that uniquely identifies each row in a table. It is defined by two fundamental and non-negotiable properties:
1. Uniqueness: No two rows can have the same value in the primary key column(s).
2. Non-Nullability: The primary key column(s) cannot contain a NULL value.
Therefore, option (c) "Its value must be unique for each row and cannot be NULL" is the correct and complete definition.
• (a) This is the opposite of the uniqueness constraint. A column with duplicates would be a very poor primary key.
• (b) Allowing NULL values would violate the requirement that every row must be uniquely identifiable.
• (d) While the primary key is indeed used to establish relationships (as a foreign key in another table), its primary purpose is to uniquely identify each record within its own table.
Additional Knowledge: A table can have only one primary key. A candidate key is any column that could be chosen as the primary key. A surrogate key is an artificial primary key (like an auto-incremented ID number) created when no natural, simple key exists in the data itself. This is often preferred for performance and consistency.

Q25. Arrange the following paradigms of the World Wide Web in the chronological order of their emergence:
I. Web 2.0
II. Semantic Web (Web 3.0)
III. Web 1.0
IV. Web 4.0 (Symbiotic Web)

(a) III, I, II, IV
(b) I, II, III, IV
(c) III, II, I, IV
(d) II, I, III, IV
Ans.(a)
Sol. Correct Option – (a)
Introduction: The evolution of the web represents a fundamental shift in how users interact with information and each other online. Each stage builds upon the previous one, introducing new capabilities and changing the dynamics of content creation and consumption.
Information Booster: The correct chronological sequence is III, I, II, IV.
• III. Web 1.0 (The Read-Only Web, approx. 1990-2004): This was the first stage of the World Wide Web, characterized as a largely static, "read-only" environment. Users were passive consumers of content created by a small number of developers. Websites were basic HTML pages with minimal interactivity.
• I. Web 2.0 (The Read-Write Web, approx. 2004-present): This paradigm shift introduced user-generated content, social media, and interactivity. Platforms like Facebook, YouTube, and Wikipedia empowered users to become active contributors, fostering collaboration and community building. Technologies like AJAX enabled richer user experiences.
• II. Semantic Web (Web 3.0, approx. 2010-present): Often called the "intelligent web," its goal is to make internet data machine-readable. By adding metadata and using standards like RDF and OWL, it aims to create a web of data where software agents can perform complex tasks, understand context, and provide more relevant information to users.
• IV. Web 4.0 (The Symbiotic Web, emerging): This is a prospective future stage where the interaction between humans and machines will become seamless and symbiotic. It envisions a truly immersive experience with technologies like Artificial Intelligence (AI) operating as a "global brain," and the lines between human thought and digital interaction blurring through brain-computer interfaces.
Additional Knowledge: The term "Web 3.0" is also increasingly associated with the *decentralized web*, which leverages blockchain technology to give users ownership and control over their data and digital assets, challenging the centralized model of Web 2.0 giants. This represents another, parallel vision for the web's future.

Q26. Which of the following is the primary focus of the 'Global Stocktake' outcome finalized at COP28 (2023)?
(a) Phasing out all fossil fuels by 2030
(b) Transitioning away from fossil fuels in energy systems
(c) Establishing a global carbon tax mechanism
(d) Creating a new climate finance architecture
Ans.(b)
Sol. Correct Option – (b)
Introduction:
- The first Global Stocktake under the Paris Agreement was a landmark moment at COP28, representing a comprehensive assessment of collective progress toward achieving the agreement's purpose and long-term goals.

Information Booster:
- The Global Stocktake concluded that the world is not on track to meet the Paris Agreement goals and called for accelerating action across mitigation, adaptation, and finance.

- The most significant outcome was the agreement on "transitioning away from fossil fuels in energy systems in a just, orderly and equitable manner."
- This represents the first time fossil fuels are explicitly mentioned in a COP decision, though it stopped short of calling for a "phase out."
- The stocktake also called for tripling renewable energy capacity and doubling energy efficiency improvements by 2030.

Additional Knowledge:

- India played a crucial role in shaping the language to ensure equity and differentiation between developed and developing countries in the transition.

Q27. The 'Common but Differentiated Responsibilities and Respective Capabilities' (CBDR-RC) principle is a cornerstone of which international agreement?

(a) Montreal Protocol
(b) Paris Agreement
(c) Basel Convention
(d) Ramsar Convention

Ans.(b)

Sol. Correct Option – (b)

Introduction: The CBDR-RC principle is a fundamental aspect of international environmental law that acknowledges the different circumstances and capacities of countries in addressing global environmental problems.

Information Booster:

- The CBDR-RC principle recognizes that while all states have a shared responsibility to address global environmental problems, developed countries should take the lead due to their historical contributions to environmental issues and greater financial and technological capacities.
- This principle is explicitly embedded in the Paris Agreement (Article 2.2), guiding its implementation and the provision of support from developed to developing countries.
- While the principle was also present in the UNFCCC and the Kyoto Protocol, the Paris Agreement operationalizes it in a more nuanced way, expecting action from all parties but with different levels of stringency and support.

Additional Knowledge:

- The principle has been a point of contention in climate negotiations, with developed countries increasingly arguing that major emerging economies should also take on greater responsibilities.

Q28. Match the following landmark international environmental agreements with the year of their adoption.

List-I (International Agreement)	List-II (Year of Adoption)
A. Paris Agreement	1. 1987
B. Kyoto Protocol	2. 2015
C. Montreal Protocol	3. 1992
D. Convention on Biological Diversity (CBD)	4. 1997

Codes:

(a) A-2, B-4, C-1, D-3
(b) A-4, B-2, C-1, D-3
(c) A-2, B-4, C-3, D-1
(d) A-1, B-3, C-4, D-2

Ans.(a)
Sol. Correct Option – (a)
Introduction: Understanding the chronology of major international environmental agreements is crucial to appreciate the evolution of global environmental governance and the shifting focus from specific issues to comprehensive frameworks.
Information Booster:
• A. Paris Agreement (Matches with 2): Adopted in 2015 under the UNFCCC, this agreement aims to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels.
• B. Kyoto Protocol (Matches with 4): Adopted in 1997, it operationalized the UNFCCC by committing industrialized countries to limit and reduce greenhouse gas emissions according to agreed individual targets.
• C. Montreal Protocol (Matches with 1): Adopted in 1987, this landmark agreement is focused on protecting the ozone layer by phasing out the production of numerous substances responsible for ozone depletion.
• D. Convention on Biological Diversity (CBD) (Matches with 3): Opened for signature at the 1992 Earth Summit in Rio de Janeiro, it is dedicated to promoting sustainable development and conserving biological diversity.
Additional Knowledge:
• The Kigali Amendment (2016) to the Montreal Protocol aims to phase down the production and consumption of hydrofluorocarbons (HFCs), potent greenhouse gases.

Q29. The 'Jal Jeevan Mission' aims to achieve which of the following specific targets by 2024?
(a) Provide functional household tap connection to every rural household.
(b) Interlink all major rivers of India.
(c) Achieve 100% wastewater treatment in urban areas.
(d) Create artificial glaciers in all Himalayan states.
Ans.(a)
Sol. Correct Option – (a)
Introduction: This question tests specific knowledge about one of India's most ambitious water supply missions, which has significant implications for public health and rural development.
Information Booster:
• The Jal Jeevan Mission, launched in 2019, has the specific objective of providing functional household tap connection (FHTC) to every rural household by 2024.
• The mission focuses on ensuring "Har Ghar Jal" (water in every home) to improve the quality of life in rural areas and reduce the time burden, particularly on women and girls, who traditionally fetch water.
• The mission emphasizes service delivery at the household level rather than just community water sources, representing a paradigm shift in rural water supply.
Additional Knowledge:
• As of 2023, the mission has significantly increased tap water coverage in rural households from about 17% at its launch to over 60%, though the 2024 target remains challenging.

Q30. Arrange the following sources in the order of their increasing carbon dioxide emissions per unit of electricity generated (from lowest to highest).
i. Solar PV
ii. Natural Gas
iii. Coal
iv. Nuclear
(a) i, ii, iv, iii
(b) iv, i, ii, iii
(c) i, iv, ii, iii
(d) iv, i, iii, ii

Ans.(c)

Sol. Correct Option – (c)

Introduction:

- The "carbon intensity" of electricity generation is a critical metric for assessing the environmental impact of different energy sources.
- This lifecycle assessment includes emissions from construction, fuel extraction, and operation.

Information Booster:

- Solar PV: Has the lowest lifecycle emissions (approx. 40-50 g CO_2 eq /kWh).
- The emissions are primarily from manufacturing the panels. There are zero operational emissions.
- Nuclear: Also has very low lifecycle emissions (approx. 12-20 g CO_2 eq/ kWh), similar to wind.
- The emissions come from mining, plant construction, and waste management, but not from power generation itself.
- Natural Gas: A fossil fuel with significantly higher emissions (approx. 400-500 g CO_2 eq/kWh) than renewables and nuclear, but lower than coal due to its higher efficiency and cleaner combustion.
- Coal: Has the highest carbon intensity (approx. 820-1000 gCO_2eq/kWh) among common power sources due to its high carbon content and lower combustion efficiency.
- This hierarchy is a key reason for India's push for renewables under its Nationally Determined Contributions (NDCs) to the Paris Agreement.
- It is aiming for 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

Q31. Match the governance model in List I with its primary characteristic/focus in List II:

List I (Governance Model)	List II (Primary Characteristic/Focus)
A. Collegial Model	1. Market orientation and efficiency through managerialism
B. Bureaucratic Model	2. Shared decision-making among peers and faculty councils
C. Political Model	3. Rule-bound, hierarchical structure with clear authority
D. Managerial Model	4. Conflict resolution and power dynamics among stakeholder groups

Options:

(a) A-2, B-3, C-4, D-1

(b) A-3, B-2, C-1, D-4

(c) A-2, B-4, C-3, D-1

(d) A-4, B-1, C-2, D-3

Ans.(a)

Sol. Correct Option – (a)

Introduction: Governance models describe the manner in which decisions are made and power is distributed within a Higher Education Institution (HEI). Understanding these conceptual models is crucial for analyzing the effectiveness and accountability of university administration.

Model	Characteristic
A. Collegial	2. Shared decision-making among peers and faculty councils
B. Bureaucratic	3. Rule-bound, hierarchical structure with clear authority
C. Political	4. Conflict resolution and power dynamics among stakeholder groups
D. Managerial	1. Market orientation and efficiency through managerialism

Information Booster: The Shift in HEI Governance

Historically, most universities operated under the Collegial model, emphasizing academic freedom and faculty autonomy. However, global trends, driven by demands for accountability, funding constraints, and market competition, have led to a gradual shift toward the Managerial model (often associated with New Public Management or NPM), prioritizing efficiency, measurable outcomes, and strategic planning. The Political model acknowledges that HEIs are complex, fragmented organizations where resource allocation and goals are often contested through bargaining and influence.

Additional Knowledge: Statutory Bodies

In Indian HEIs, statutory bodies like the Syndicate/Executive Council (primary executive body), Academic Council (responsible for academic programs), and Finance Committee (oversees budget) often operate using a mix of these models, though their formal structure is highly bureaucratic. The growing influence of the Board of Governors (BoG) in central universities reflects a move towards greater managerial accountability.

Q32. Which of the following is the apex body responsible for open and distance learning in India?

(a) National Institute of Open Schooling

(b) Indira Gandhi National Open University

(c) UGC-DEB

(d) AICTE

Ans.(c)

Sol. The question asks to identify the apex regulatory body responsible for overseeing and maintaining standards in Open and Distance Learning (ODL) within the Indian higher education system, with the correct answer being the University Grants Commission - Distance Education Bureau (UGC-DEB).

Information Booster:

The University Grants Commission - Distance Education Bureau (UGC-DEB) is unequivocally the apex body for ODL in higher education. Here's a detailed explanation:

- Statutory Regulatory Role: The UGC is a statutory body established by an Act of Parliament. The Distance Education Bureau (DEB) is a dedicated wing within the UGC that acts as the national regulator for all higher education institutions offering programs through ODL mode.
- Grant of Recognition and Approval: No university or institution can offer diploma, degree, or postgraduate programs through distance mode without the prior approval of the UGC-DEB. It is the sole authority that grants recognition and approval to ODL programs.
- Standard-Setting and Monitoring: The DEB is responsible for formulating regulations and maintaining standards of education in the ODL system. This includes norms for curriculum design, student support services, admission procedures, evaluation methods, and infrastructure.
- Promotion and Coordination: Beyond regulation, the DEB's mandate is to promote and coordinate open and distance learning across the country, ensuring its quality and equity.
- Legal Backing: Its authority is derived from the UGC Act, 1956, and it operates under the specific UGC (Open and Distance Learning Programmes and Online Programmes) Regulations, which legally empower it to oversee this domain.

Additional Knowledge:

While the other institutions play crucial roles in the landscape of open learning, they are not the apex regulatory body for higher education in the ODL mode.

- National Institute of Open Schooling (NIOS): This institution is a national board for school-level education, similar to CBSE or ICSE, but operating through open schooling. It provides secondary and senior

secondary-level education, along with vocational courses. Its scope is pre-university and does not extend to regulating higher education (degree/diploma programs), which is the purview of the UGC-DEB.

- Indira Gandhi National Open University (IGNOU): IGNOU is a premier provider of open and distance education and is the largest open university in the world. It functions as a teaching university. While it played a pivotal role in promoting the ODL system in India and its Distance Education Council (DEC) was once the regulator, that regulatory function was transferred to the UGC in 2012. Therefore, IGNOU is now one of the many institutions that itself is regulated by the UGC-DEB.
- All India Council for Technical Education (AICTE): The AICTE is the apex regulatory body for technical education in India, covering streams like engineering, management, architecture, and pharmacy. Its jurisdiction is defined by the "technical" nature of the program, not the mode of delivery. It regulates technical programs offered in both regular and distance modes. However, for non-technical ODL programs (like Arts, Commerce, Sciences) and as the overarching coordinator for all higher education ODL, the UGC-DEB holds the supreme authority. There is a clear demarcation, with UGC-DEB being the general apex body for ODL.

Q33. Match List I (Body) with List II (Parent Ministry):

List I	List II
A. UGC	1. Ministry of Education
B. AICTE	2. Ministry of Education
C. ICAR	3. Ministry of Agriculture
D. NMC	4. Ministry of Health & Family Welfare

Options:
(a) A–1, B–2, C–3, D–4
(b) A–2, B–1, C–4, D–3
(c) A–3, B–4, C–1, D–2
(d) A–1, B–3, C–2, D–4
Ans.(a)
Sol. Correct Option – (a)
Introduction:
Understanding the affiliation of apex bodies with specific ministries helps in grasping how educational administration and policymaking are structured in India.
Information Booster:
- UGC and AICTE come under the Ministry of Education, responsible for higher and technical education policies.
- ICAR operates under the Ministry of Agriculture and Farmers Welfare, reflecting its focus on agricultural research and education.
- NMC is governed by the Ministry of Health and Family Welfare, ensuring quality in medical education and healthcare delivery.

Additional Knowledge:
This ministerial division promotes specialization and domain expertise. However, under NEP 2020, India aims to create an integrated Higher Education Commission of India (HECI) to coordinate all these apex-level activities efficiently.

Q34. Match the following government initiatives with the primary level of education they target:

List-I (Initiative)	List-II (Primary Target)
A- SWAYAM	1- School Education
B- NEAT	2- Faculty Training & Development
C- DIKSHA	3- Higher Education (MOOCs)
D- NISHTHA	4- Higher Education (Ed-Tech Integration)

Codes:
(a) 3 4 1 2
(b) 1 2 3 4
(c) 3 4 2 1
(d) 1 2 4 3
Ans.(a)
Sol. Correct Option – (a)
Introduction: This question assesses the knowledge of key digital learning initiatives and their specific target audiences within the Indian education system.
Information Booster:
• (A) SWAYAM (3): Study Webs of Active–Learning for Young Aspiring Minds is a government MOOC (Massive Open Online Course) platform designed to offer courses from grade 9 to post-graduation, but its core content and institutional partnerships are most robust in the Higher Education sector.
• (B) NEAT (4): The National Educational Alliance for Technology is an initiative under the Ministry of Education to use technology for better learning outcomes in Higher Education. It aims to create a ecosystem for the adoption of adaptive learning technologies by HEIs.
• (C) DIKSHA (1): The Digital Infrastructure for Knowledge Sharing platform is the national portal for School Education. It provides e-content for schools, QR-coded textbooks, and teacher training resources.
• (D) NISHTHA (2): National Initiative for School Heads' and Teachers' Holistic Advancement is an integrated programme for teacher training aimed at improving the quality of school education by building the capacities of school heads and teachers.
Additional Knowledge: SWAYAM courses allow for credit transfer upon passing the proctored final exam, making it a formal part of the higher education learning programme ecosystem.

Q35. The "Mahavihara" and "Vikramashila" were primarily centers for which school of Buddhist thought?
(a) Mahayana Buddhism
(b) Hinayana Buddhism
(c) Vajrayana Buddhism
(d) Zen Buddhism
Ans.(c)
Sol. Correct Option – (c)
Introduction: This question delves into the specific doctrinal affiliations of the major monastic universities, which shaped their curriculum and intellectual environment.
Information Booster: While Nalanda taught various Buddhist schools and other subjects, its core identity in its later period, along with Vikramashila, was strongly aligned with Mahayana Buddhism, and more specifically, with Vajrayana (Tantric) Buddhism. Vikramashila was almost exclusively a center for Vajrayana studies. The term "Mahavihara" (Great Monastery) is often used specifically to refer to Nalanda. Figures like Nagarjuna (Madhyamaka), Asanga (Yogacara), and Atisha (Vajrayana) were associated with these institutions.

Additional Knowledge: Valabhi, in contrast, was a stronghold of Hinayana Buddhism, particularly the Sammitiya school. Nagarjunakonda in Andhra Pradesh was a major center for the Caitika school of Mahayana Buddhism. The shift to Vajrayana in the Pala period is a significant characteristic of the final phase of Buddhism in India.

Directions (36-40): Read the following passage and answer the following questions based on the given passage.

All political parties must be mindful of the core values that invigorate Indian democracy

As the countdown for elections to the 17th Lok Sabha begins, the world's largest democracy has a chance to re-imagine itself. Over the last 16 general elections and numerous elections at lower levels, the resolute trust that the founding fathers of the Republic put in the parliamentary democratic system has been substantially proven wise. India did make some dangerous turns and show signs of fragility, especially during the Emergency in the 1970s, but in the long term it expanded the scope of its democracy through widening representation, devolution of power and redistribution of resources. This is not to overlook the various maladies that have afflicted the country's democracy, such as disinformation campaigns, corruption, disenfranchisement of the weaker sections of the society, the corroding influence of money and muscle power in elections, and divisive majoritarian tendencies. (i) The representative character of institutions has in general improved, women and religious minorities are alarmingly underrepresented. The exercise of elections itself is a matter of great pride for all Indians. The Election Commission of India has over the decades evolved itself into a fine institution and plays a critical role in the support of democracy. Its efforts to increase voter participation through a series of small steps over the years, including the use of the Electronic Voting Machines, have been praiseworthy.

The vulnerabilities of Indian democracy have been pronounced in the last five years, and some of its long-term gains have been undermined. Therefore, this election is more than an exercise to elect a new government. This should also be an occasion to reiterate and reinforce Indian democracy's core values, its representative character and its promise of a constant rejuvenation of the collective spirit. The ECI has announced a series of fresh measures to strengthen the integrity of the electoral process and curb some rapidly growing hazards such as the spread of falsehoods aimed at creating social polarisation for consolidation of votes. Measures such as better monitoring of social media campaigns, while steps in the right direction, are not in themselves adequate to deal with the challenges of these times. The stakes are high for all contenders this year, and Indian politics has reached a level of competitiveness where ground rules of engagement are routinely disregarded. Prime Minister Narendra Modi, who rode to power in 2014 on the agenda of material progress through Hindutva, has to defend his reign to seek a second term. His opponents sense an existential danger from him and are trying to mobilise those left behind or who feel disempowered by his governance. While furthering individual interests, all parties must realise that democracy itself is at stake if the campaign is aimed at communal polarisation. Though the promise of Indian democracy has not been fully realised, voters have remained committed to it. They turn up in large numbers to vote, and consider the very act of voting as empowerment. That trust should be upheld.

Q36. As per the passage given above, how has India managed to amplify its democratic base?

(i) allocation of resources in a way to achieve higher equality

(ii) dilated representation

(iii) decentralized structure of power-sharing

(a) Both (i) & (ii)

(b) Both (ii) & (iii)

(c) Both (i) & (iii)

(d) All (i), (ii), (iii)

Ans.(d)

Sol. To validate the answer, refer to the first paragraph of the passage given above, which mentions, "India did make some dangerous turns and show signs of fragility, especially during the Emergency in the 1970s, but in the long term it expanded the scope of its democracy through widening representation, devolution of power and redistribution of resources". We can infer the quoted text from all the three given statements. Hence, option (d) is the most suitable answer choice.

Q37. According to the passage given above, what has been the primary reasonability of the Election Commissions?

(a) to designate political party insignia and prohibit from allowing the same insignia by two different parties

(b) maintenance of the electoral rolls and establishing the schedules of elections

(c) empowered with prohibiting the dissemination or publication of voting trends

(d) sustenance of democracy through widening the voter engagement base

Ans.(d)

Sol. To validate the answer, refer to the last few lines of the first paragraph of the passage given above, which mentions, "The Election Commission of India has over the decades evolved itself into a fine institution and plays a critical role in the support of democracy. Its efforts to increase voter participation through a series of small steps over the years, including the use of the Electronic Voting Machines, have been praiseworthy." Here, the quoted text can be clearly inferred from the statement given in option (d). hence, option (d) is the most suitable answer choice.

Q38. What is the tone used by the author in the italicized statement (i) in the passage given above?

(a) introspective

(b) indignant

(c) irony

(d) bellicose

Ans.(c)

Sol. In the italicized statement indicates contradiction. Hence, option (c) is the most suitable answer choice.

Irony: a state of affairs or an event that seems deliberately contrary to what one expects and is often wryly amusing as a result.

Indignant: shows the author's anger towards the subject in a justified way

Bellicose: where two parties involved are aggressively hostile towards each other.

Grandiose: passages written in a descriptive or abstract style

Introspective: self-examine and reflect upon one's actions and feelings.

Q39. How can the upcoming general elections be "more than an exercise to elect new government"?

(a) They can provide the best expression of the electorate's political preferences.

(b) They can bolster India's core democratic values and representative character

(c) They can lead to persistent rejuvenation of India's essence of diversity and unity

(d) both (B) & (C)

Ans.(d)

Sol. To validate the answer, refer to the second paragraph of the passage given above, which mentions, "Therefore, this election is more than an exercise to elect a new government. This should also be an occasion to reiterate and reinforce Indian democracy's core values, its representative character and its promise of a constant rejuvenation of the collective spirit." Here, we can infer the quoted text from the statements given in options (b) and (c). Hence, option (d) is the most suitable answer choice.

Q40. Which of the following statements is true in context of the information available in the above passage?
(a) the Indian politics is facing a crisis where ground rules are paid heed
(b) for making the elections process fair, Election Commission has adopted measures to strengthen integrity of the electoral candidates.
(c) disenfranchisement of the wealthier sections of the society has created a democratic disorder
(d) emergency imposed in the 1970s posed a threat to Indian democracy.
Ans.(d)
Sol. To validate the answer, refer to the first paragraph of the passage given above, which mentions, "India did make some dangerous turns and show signs of fragility, especially during the Emergency in the 1970s, but in the long term it expanded the scope of its democracy through widening representation, devolution of power and redistribution of resources." From the quoted text, we can infer that the statement given in option (d) is correct. Hence, option (d) is the most suitable answer choice.

Q41. What is the ratio of the number of Type A cars produced in 2018 to the number of Type C cars produced in 2022?
Study the following table carefully and answer the questions given below. The table shows the production of three different types of cars (Type A, Type B, and Type C) by a company over five years (in thousands).
Data Table: Production of Cars (in thousands)

Year	Type A	Type B	Type C
2018	40	50	35
2019	45	48	40
2020	50	55	45
2021	55	60	50
2022	60	58	55

1. 5 : 8
(b) 8 : 11
(c) 4 : 5
(d) 9 : 10
Ans.(b)
Sol. Given:
• Type A cars in 2018 = 40
• Type C cars in 2022 = 55
Formula:
• Ratio = (Value 1) : (Value 2)
Solution:
1. Identify values:
Type A (2018) = 40
Type C (2022) = 55
2. Calculate Ratio:
40 : 55
Divide both sides by 5:
8 : 11
Answer: (b)

Q42. The production of Type B cars in 2021 is what percent more than the production of Type B cars in 2018?

Study the following table carefully and answer the questions given below. The table shows the production of three different types of cars (Type A, Type B, and Type C) by a company over five years (in thousands).

Data Table: Production of Cars (in thousands)

Year	Type A	Type B	Type C
2018	40	50	35
2019	45	48	40
2020	50	55	45
2021	55	60	50
2022	60	58	55

1. 20%
(b) 25%
(c) 15%
(d) 10%

Ans.(a)

Sol. Given:

- Type B cars in 2021 = 60
- Type B cars in 2018 = 50

Formula:

- Percentage Increase = [(Final Value − Initial Value) ÷ Initial Value] × 100

Solution:

1. Calculate Difference:
60 − 50 = 10
2. Calculate Percentage Increase:
(10 ÷ 50) × 100
= (1 ÷ 5) × 100 = 20%

Q43. What is the average number of Type C cars produced over the five years?

Study the following table carefully and answer the questions given below. The table shows the production of three different types of cars (Type A, Type B, and Type C) by a company over five years (in thousands).

Data Table: Production of Cars (in thousands)

Year	Type A	Type B	Type C
2018	40	50	35
2019	45	48	40
2020	50	55	45
2021	55	60	50
2022	60	58	55

1. 40
(b) 42
(c) 45
(d) 48

Ans.(c)

Sol. Given:
• Type C production: 35, 40, 45, 50, 55
Formula:
• Average = (Sum of all observations) ÷ (Total number of observations)
Solution:
1. Calculate Sum:
35 + 40 + 45 + 50 + 55 = 225
2. Calculate Average:
225 ÷ 5 = 45 (in thousands)

Q44. What is the difference between the total number of Type A cars produced in all five years and the total number of Type B cars produced in all five years?
Study the following table carefully and answer the questions given below. The table shows the production of three different types of cars (Type A, Type B, and Type C) by a company over five years (in thousands).
Data Table: Production of Cars (in thousands)

Year	Type A	Type B	Type C
2018	40	50	35
2019	45	48	40
2020	50	55	45
2021	55	60	50
2022	60	58	55

1. 15
(b) 18
(c) 25
(d) 21
Ans.(d)
Sol. Given:
• Type A: 40, 45, 50, 55, 60
• Type B: 50, 48, 55, 60, 58
Formula:
• Difference = Total Type B − Total Type A
Solution:
1. Calculate Total Type A:
40 + 45 + 50 + 55 + 60 = 250
2. Calculate Total Type B:
50 + 48 + 55 + 60 + 58 = 271
3. Calculate Difference:
271 − 250 = 21 (in thousands)

Q45. In 2020, the production of Type A cars was approximately what percent of the total production of all three types of cars in that year?
Study the following table carefully and answer the questions given below. The table shows the production of three different types of cars (Type A, Type B, and Type C) by a company over five years (in thousands).
Data Table: Production of Cars (in thousands)

Year	Type A	Type B	Type C
2018	40	50	35
2019	45	48	40
2020	50	55	45
2021	55	60	50
2022	60	58	55

1. 30%
(b) 33.33%
(c) 35%
(d) 38%
Ans.(b)
Sol. Given:
• Year 2020 production:
• Type A = 50
• Type B = 55
• Type C = 45
Formula:
• Required % = (Part ÷ Whole) × 100
Solution:
1. Calculate Total Production in 2020:
50 + 55 + 45 = 150
2. Calculate Percentage for Type A:
(50 ÷ 150) × 100
= (1 ÷ 3) × 100 = 33.33%

Q46 Convert $0.\overline{45}$ into fraction.

A. $\frac{7}{11}$
B. $\frac{11}{5}$
C. $\frac{5}{11}$
D. $\frac{11}{7}$

Q47. In an election contested by two candidates, one candidate got 26% of the total votes casted and lost by 2280 votes. Find the total number of votes casted.
(a) 4780
(b) 4250
(c) 4750
(d) 4080
Ans.(c)
Sol. Given:
Election contested by two candidates

One candidate got 26% of the total votes and lost by 2280 votes
Solution:
Total casted votes are 100%.
Out of 100%, one candidate got 26%
Other candidate got = 100% - 26% = 74%
Difference between their % = 74% - 26% = 48%
According to the question,

$$\Rightarrow 48\% = 2280$$

$$\Rightarrow 1\% = \frac{2280}{48} = \frac{95}{2}$$

$$\text{Total votes} = 100\% = 100 \times \frac{95}{2} = 4750$$

Q48. Which of the following is the smallest fraction?

A. $\frac{12}{15}$
B. $\frac{7}{12}$
C. $\frac{4}{7}$
D. $\frac{11}{16}$

Answer: C

Q49. Gita bought two dresses for ₹2,800 each. If she sells one at a profit of 10%, then at what profit percentage she should sell the other dress to make a profit of 15% on the whole?
(a) 5%
(b) 20%
(c) 10%
(d) 15%
Ans.(b)
Sol. Given:
Cost price of each dress is Rs. 2800
Sells one at a profit of 10%
Profit on whole is 15%
Formula Used:

S.P.=(100+P%100)×C.P.Profit=S.P.−C.P.Profit%=(ProfitC.P.)×100
S.P.=(
100
100+*P*%
)×C.P.
Profit=S.P.−C.P.
Profit%=(
C.P.
Profit
)×100
Solution:
Selling price of first dress: $S.P._1$ =

(100+10100)×2800=3080
(100
100+10
)×2800=3080
Total C.P. of both dresses: 2800 + 2800 = ₹5600
Required total S.P. for 15% overall profit:
(100+15100)×5600=6440
(100
100+15
)×5600=6440
Selling price of second dress: $S.P._2$ = 6440 − 3080 = ₹3360
Profit on second dress: $Profit_2$ = 3360 − 2800 = ₹560
Profit% on second dress =
(5602800)×100=20%.
(2800
560
)×100=20%.

Q50. Select the number from among the given options that can replace the question mark (?) in the following series.
37, 40, 49, 76, 157, ?
(a) 400
(b) 410
(c) 319
(d) 385
Ans.(a)
Sol. Given series:
37, 40, 49, 76, 157, ?
Step 1: Find the pattern between consecutive terms.
40 − 37 = 3
49 − 40 = 9
76 − 49 = 27
157 − 76 = 81
The differences are: 3, 9, 27, 81
Step 2: Observe the pattern in the differences.
Each difference is a multiple of 3:
$3=3_1$, $9=3_2$, $27=3_3$, $81=3_4$
So the next difference should be:
$3_5=243$
Step 3: Add 243 to the last term.
157+243=400
Final Answer: (a) 400