UGC NET Paper- 1 Memory Based Question -7 JAN 2026 SHIFT -1

Q1. Which of the following tools can be used for ICT enabled teaching?

A. Paper charts
B. Physical models
C. Projector
D. Black Board

Answer:

C

Sol: ICT (Information and Communication Technology)-enabled teaching involves the use of digital and electronic technologies to facilitate and enhance the learning process. A projector is an ICT tool because it allows teachers to display digital content, such as presentations, videos, and interactive materials, to a classroom using electronic means.

Information Booster 1. ICT Tools for Teaching: Include devices and platforms like projectors, smartboards, LMS (Learning Management Systems), and videoconferencing tools.

2. Benefits of ICT in Education: Enhanced engagement, interactive learning, access to diverse resources, and remote learning capabilities.

3. Examples of ICT Tools:

- Projectors: Display digital content in classrooms.
- Smartboards: Interactive whiteboards that allow real-time interaction.
- LMS: Platforms like Moodle, Google Classroom, and Blackboard.
- Tablets/Computers: Facilitate personalized learning.

Additional Knowledge · Paper Charts: Effective for visual learning but lack ICT elements.

- Physical Models: Useful for kinesthetic learning but are non-digital.
- Blackboards: Traditional tools suitable for face-to-face teaching but not considered part of ICT.

Q2. 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

Answer:

C

Sol: 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.

Q3. Which of the following is NOT a traditional role of a teacher?

A. Dissemination of knowledge
B. Creation of digital resources
C. Research and publications
D. Participating in FDPs and Seminars

Answer:

B

Sol: Research and publications are not traditionally seen as the primary roles of a teacher, especially in the context of elementary and secondary education. Historically, the role of a teacher focused on the dissemination of knowledge, guiding students, and participating in professional development activities such as Faculty Development Programs (FDPs) and seminars. However, in higher education, research and publications are increasingly important for teachers.

Q4. Which of the following electronic technologies is the key technology for making the third-generation electronic computer?

A. Transistor based
B. Integrated Circuit (IC) based
C. Vacuum tube based
D. Macroprocessor based

Answer:

B

Sol: Integrated Circuit (IC) based technology: The third generation of computers used integrated circuits (ICs) as their key technology. ICs allowed multiple transistors to be placed on a single silicon chip, significantly improving processing speed and efficiency while reducing the size and cost of computers.

Information Booster:

Generations of Computers:

First Generation: Used vacuum tubes for circuitry and magnetic drums for memory.

Second Generation: Replaced vacuum tubes with transistors.

Third Generation: Introduced Integrated Circuits (ICs), which combined transistors and other electronic components into a single chip.

Fourth Generation: Brought microprocessors, which integrated the entire central processing unit (CPU) onto a single chip.
Advantages of ICs in the Third Generation:
Smaller in size, faster processing speeds, and more reliable than previous generations.
Additional Knowledge:
Key Inventors: Jack Kilby and Robert Noyce are credited with independently inventing the integrated circuit in the late 1950s.

Q5. In the publication of a research paper, if an author is found to commit plagiarism of level 2 as per UGC Regulations 2018 on Plagiarism. The following penalty will be imposed:

A. Author shall be debarred from publishing in any journal for a period of 6 months
B. Author shall be asked to withdraw the paper and resubmit after corrections
C. Author shall be barred from submitting for 1 year
D. Author shall be required to submit a formal apology and the paper shall be retracted

Answer:
C
Sol: According to the UGC Regulations 2018, Level 2 plagiarism (similarities above 40% to 60%) results in the penalty where the author is asked to withdraw the manuscript and is debarred from publishing for one year, making the correct option (based on standard UGC rules) a combination of withdrawal and a 1-year suspension.
Information Booster: Explanation of the Correct Penalty (Level 2)
The University Grants Commission (UGC) classifies plagiarism into four levels based on the percentage of similarity. For Level 2 (Similarities above 40% to 60%), the following penalties are strictly imposed:
• Withdrawal of Manuscript: The author is officially asked to withdraw the submitted or published manuscript from the journal or publication house.
• Debarment from Publishing: The author is debarred from publishing any work in any journal for a specific period. Under UGC 2018 rules for research papers, this debarment period is one year.
• Institutional Notification: The Head of the Department/Institution is notified of the violation for further administrative record-keeping.
Additional Knowledge:
Summary of UGC Plagiarism Levels & Penalties
The UGC Regulations 2018 (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) define the following levels for Research Papers:

Level	Similarity Percentage	Penalty Imposed
Level 0	Up to 10%	No Penalty. Minor similarities are accepted.
Level 1	Above 10% to 40%	Author is asked to withdraw the manuscript and submit a revised version.
Level 2	Above 40% to 60%	Withdrawal of manuscript + Author debarred from publishing for one year.
Level 3	Above 60%	Withdrawal of manuscript + Author debarred from publishing for two years.

Self-Plagiarism: It is important to note that these regulations also apply to "self-plagiarism" (recycling one's own previous work without citation).

• Theses and Dissertations: The penalties for Level 2 in a Thesis/Dissertation are even stricter: the student is debarred from submitting a revised script for a period of one year, and for Level 3, the registration for the program is cancelled.

Q6. Match the following sampling techniques with their appropriate descriptions and applications.

List-I (Sampling Technique)	**List-II (Description & Application)**
A. Stratified Random Sampling	1. Selecting every nth element from sampling frame - Efficient for large populations
B. Cluster Sampling	2. Dividing population into homogeneous subgroups - Ensures representation of all segments
C. Systematic Sampling	3. Using readily available participants - Prone to bias but convenient
D. Purposive Sampling	4. Selecting natural groups randomly - Cost-effective for geographically dispersed populations

Codes:

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

Answer:

A

Sol: Introduction: Sampling is a critical aspect of research design that determines both the efficiency of data collection and the generalizability of findings. Different sampling techniques serve different research purposes and constraints.

Information Booster:

• A. Stratified Random Sampling (Matches with 2): Involves dividing population into homogeneous subgroups (strata) and randomly sampling from each. Ensures representation of all key segments (e.g., sampling equal numbers from different income groups).

• B. Cluster Sampling (Matches with 4): Involves selecting natural groups (clusters) randomly and studying all members within chosen clusters. Cost-effective for geographically dispersed populations (e.g., selecting schools rather than individual students).

• C. Systematic Sampling (Matches with 1): Involves selecting every nth element from a sampling frame after random start. Efficient for large populations but risks periodicity bias if patterns exist in the frame.

• D. Purposive Sampling (Matches with 3): A non-probability technique involving selecting participants based on specific characteristics or knowledge. Prone to bias but useful for qualitative studies seeking information-rich cases.

Additional Knowledge:

• Snowball sampling is another non-probability technique where existing participants recruit future participants, particularly useful for studying hidden populations. The sampling method choice depends on research objectives, resources, and required generalizability.

Q7. Triangulation is a method of research adopted by:

A. Qualitative Research
B. Quantitative Research
C. Applied Research
D. Both A and B

Answer:

D

Sol: Triangulation is a technique used in both qualitative research and quantitative research. In qualitative research, triangulation is used to increase the credibility and validity of the findings by using multiple data sources, methods, or researchers. In quantitative research, triangulation can be used to enhance the reliability and robustness of the results by combining different data collection methods or measurement tools.

Information Booster:

1. Qualitative research often employs triangulation to cross-check findings from various sources, such as interviews, observations, and documents, to ensure reliability.
2. Quantitative research uses triangulation by combining different types of data or using multiple methods to test hypotheses and ensure the results' consistency.
3. Triangulation helps in overcoming the biases and limitations that can arise from using a single method or data source.
4. In both qualitative and quantitative research, triangulation increases the validity, reliability, and depth of research findings.
5. Triangulation may involve data triangulation (using different data sources), methodological triangulation (using different research methods), and investigator triangulation (using multiple researchers to collect or analyze data).

Additional Knowledge:

- Applied Research: Focuses on practical applications of knowledge. While triangulation can be used here, it is more widely associated with qualitative and quantitative research methods.

Q8. Arrange the following components of research design in the logical order of planning a research study:

1. Identifying variables
2. Framing research questions
3. Selecting a suitable design (e.g., experimental, survey, etc.)
4. Operationalizing variables

A. 2 – 1 – 4 – 3
B. 1 – 2 – 4 – 3
C. 2 – 1 – 3 – 4
D. 1 – 4 – 2 – 3

Answer:

C

Sol: The correct order is:

1. Framing research questions (2) – to define what the research intends to investigate.
2. Identifying variables (1) – to specify independent, dependent, or control variables.
3. Selecting a suitable research design (3) – depending on the problem and variables.
4. Operationalizing variables (4) – defining how each variable will be measured.

Information booster:

- Research questions drive the entire research design.
- Variables must be aligned with research objectives.
- Research design is selected based on how the variables and questions interact.
- Operationalization converts abstract variables into measurable indicators.
- Correct sequencing prevents conceptual and methodological errors.
- Helps in valid data collection and hypothesis testing.
- Common mistake: starting with methods before defining questions.

Additional Knowledge:

- Framing questions (2) gives direction and clarity to the study.
- Identifying variables (1) helps in recognizing the scope and limits.
- Selecting a design (3) requires matching research type to problem.
- Operationalizing (4) gives clarity to instruments and tools.

Q9. Identify the correct order of some of the words A-E given below to complete the following paragraph which explains the role carried out by different parts of the CPU.

Part of the CPU that (i) holds programs and data currently in use is called _____(ii); performs calculation and logical operations is called _____ and (iii); tells input and output devices how to carry out instructions is called _____

(A) Control Unit
(B) ASCII
(C) Immediate Access Store
(D) ALU
(E) SSD

Choose the correct answer from the options given below:

A. (D), (A), (B)
B. (C), (D), (A)
C. (C), (E), (A)
D. (B), (D), (E)

Answer:

B

Sol: Immediate Access Store (C): Holds programs and data currently in use.
ALU (D): Performs calculations and logical operations.
Control Unit (A): Directs input/output device operations.

Information Booster:

CPU Components:

1. IAS: Temporary data storage for processing.
2. ALU: Executes arithmetic and logic tasks.

3. Control Unit: Coordinates overall CPU activity.
Additional Knowledge:
Option (c): Incorrect, as EEE (SSD) is a storage device, not part of the CPU.
Option (d): ASCII is unrelated to CPU roles.

Q10. Which of the following components are part of the central processing unit (CPU) of the Von Neumann model for a computer system?
A. Arithmetic Logic Unit (ALU)
B. Hard Disk Drive (HDD)
C. Memory Address Register (MAR)
D. Solid State Drive (SSD)
E. Control Unit (CU)
Choose the correct answer from the options given below:

A. A and E only
B. B, C and D only
C. A and C only
D. A, C and E only

Answer:
D
Sol: In the Von Neumann model, the central processing unit (CPU) consists of several components. The correct components that are part of the CPU include:
Arithmetic Logic Unit (ALU): Responsible for performing mathematical operations (such as addition, subtraction, and logical operations) on data.
Memory Address Register (MAR): Holds the memory address of data that the CPU needs to access.
Control Unit (CU): Manages the execution of instructions, coordinates data movement, and controls other hardware components.
Therefore, the answer is (d) A, C, and E only. The ALU, MAR, and CU are essential parts of the CPU in the Von Neumann architecture.
Information booster: The other options (B and D) are not part of the CPU itself. Hard Disk Drives (HDDs) and Solid State Drives (SSDs) are storage devices, not CPU components.

Q11. Select the 'RIGHT' combination of statements.
A. Role of Teacher's personality is very important-Idealism
B. Role of Teacher's personality is of limited importance-Pragmatism
C. Role of Teacher's personality is very important-Pragmatism
D. Role of Teacher's personality is not of limited importance -Naturalism
Choose the correct answer from the options given below:

A. A and B only
B. B and C only
C. C and D only
D. A and C only

Answer:

A

Sol: Introduction:

This question tests the understanding of how different schools of philosophy in education—Idealism, Pragmatism, and Naturalism—view the role and importance of the teacher's personality. Each philosophy has a distinct perspective on the teacher's function, which directly influences how central their personal character is to the educational process.

Information Booster: Philosophical Perspectives on the Teacher's Role

Let's analyze the core belief of each philosophy regarding the teacher:

- A. Role of Teacher's personality is very important - Idealism
  - Correct. Idealists (e.g., Plato, Hegel) believe the teacher is a crucial, exemplary figure. The teacher is seen as a role model, a guide to the world of ideas, and a "spiritual engineer" who helps students realize their highest potential. Their personality, character, and moral integrity are paramount in inspiring students.
- B. Role of Teacher's personality is of limited importance - Pragmatism
  - Correct. Pragmatists (e.g., John Dewey) view the teacher as a facilitator, a guide on the side, rather than a supreme authority. The focus is on the child's experiences, problem-solving, and democratic social interaction. The teacher's personal personality is less important than their skill in structuring learning environments and provoking student inquiry.
- C. Role of Teacher's personality is very important - Pragmatism
  - Incorrect. This statement is a direct contradiction of the pragmatist view (as explained in B). Pragmatism emphasizes process and method over the teacher's personal influence.
- D. Role of Teacher's personality is not of limited importance - Naturalism
  - Incorrect. Naturalists (e.g., Rousseau) believe in "follow nature." The teacher's role is to remain in the background, setting up the environment but allowing the child to learn naturally through their own senses and experiences. The teacher should not impose their own personality or will on the child. Therefore, their personality is of very limited importance.

Additional Information

- Why A and B are the RIGHT combination: They accurately pair the philosophical stance (Idealism/Pragmatism) with its correct view on the teacher's personality (very important / of limited importance).
- Contrasting Views:
  - Idealism: Teacher-centric. The teacher is the key to unlocking spiritual and intellectual development.
  - Pragmatism: Experience-centric. The teacher is a resource and a organizer of experiences.
  - Naturalism: Child-centric. The teacher is an unobtrusive observer and a creator of a natural learning environment.
- Real-world Implication: These philosophies influence teaching styles today. A highly charismatic, knowledge-imparting teacher reflects Idealism. A teacher who designs projects and group work reflects Pragmatism. A teacher in a Montessori-style classroom, emphasizing self-directed learning, reflects Naturalism.

Q12. 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

Answer:

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.

Q13. What is the full form of the acronym 'VoIP'?

A. Voice over Internet Protocol
B. Voice over Intranet Protocol
C. Vacuum over Internet Protocol
D. Vacuum over Intranet Protocol

Answer:

A

Sol: VoIP stands for Voice over Internet Protocol, a technology that allows for the transmission of voice communications over the internet, as opposed to traditional telephone lines. It is widely used for services like Skype, WhatsApp, and other internet calling platforms.

- Voice over Internet Protocol (VoIP) allows people to make phone calls using the internet, providing a cheaper and more flexible alternative to conventional phone systems.
- The other options, such as "Voice over Intranet Protocol," "Vacuum over Internet Protocol," and "Vacuum over Intranet Protocol," are incorrect as they do not relate to the standard definition of VoIP.

Information Booster:

1. VoIP works by converting analog voice signals into digital packets that are transmitted over the internet.
2. VoIP technology is widely used in businesses and personal communication due to its cost-effectiveness and flexibility.
3. Examples of popular VoIP services include Skype, WhatsApp, and Zoom.
4. Unlike traditional telephone systems, which rely on circuit-switched networks, VoIP uses packet-switched networks (internet), making it scalable and adaptable.
5. VoIP is platform-independent, meaning it can work on various devices such as smartphones, computers, and even traditional phones with the right adapters.
6. VoIP provides features like call forwarding, voicemail, and conference calls, offering additional services beyond basic voice communication.

Q14. If $(L)_{16}$ represents a number L in base-16 number system, then $(4AC)_{16} + (9BF)_{16}$ = ?

A. $(E6B)_{16}$
B. $(A7BF)_{16}$
C. $(CFC)_{16}$
D. $(D68)_{16}$

Answer:

A

Sol: The addition of hexadecimal numbers $(4AC)_{16}$ and $(9BF)_{16}$ results in $(E6B)_{16}$, calculated by first converting the numbers to decimal, performing the addition and then converting back to hexadecimal.

Information Booster

1. **Convert Hexadecimal to Decimal:**
   - $(4AC)_{16}$:
     $4 \times 16^2 + 10 \times 16^1 + 12 \times 16^0$
     $= 1024 + 160 + 12 = 1196.$
   - $(9BF)_{16}$:
     $9 \times 16^2 + 11 \times 16^1 + 15 \times 16^0$
     $= 2304 + 176 + 15 = 2495.$
2. **Add the Decimal Values:**
   $1196 + 2495 = 3691.$

3. **Convert Decimal Back to Hexadecimal:**
   - Divide 3691 by 16:
     $3691 \div 16 = 230$ remainder 11 (B).
     $230 \div 16 = 14$ remainder 6 (6).
     $14 = E$ (in hexadecimal).
   - Result: $(E6B)_{16}$.

Additional Knowledge

- Hexadecimal uses digits 0 to 9 and letters A to F for values 10 to 15.
- To convert from hexadecimal to decimal, multiply each digit by 16^{position} (right to left, starting at position 0).
- For addition, it's often easier to perform in decimal and convert back to hexadecimal.

Q15. Mass media mostly operate in _____.

A. Personal Shere
B. Bureaucratic sphere
C. Public Sphere
D. Ethical Sphere

Answer:
C
Sol: The public sphere is a realm of social life where individuals can come together to freely discuss and identify societal problems, and through that discussion, influence political action. Mass media play a crucial role in shaping public opinion and facilitating these discussions. They provide a platform for individuals to express their views, exchange ideas, and engage in debates about various issues of public concern.

Q16. Which of the following statements correctly describe mass communication?
I. Mass communication is typically one-to-many communication where a source uses technology to reach a large, heterogeneous audience.
II. Mass communication often provides limited or delayed feedback from the audience to the communicator.
III. A teacher interacting with 40 students in a classroom is the most appropriate example of mass communication.
IV. Television news bulletins and daily newspapers are common examples of mass communication.
Choose the correct answer from the codes given below:

A. I, II and IV only
B. I and III only
C. II, III and IV only
D. I, II, III and IV

Answer:
A

Sol: Introduction: Mass communication refers to one-to-many transmission of messages from an organized source (like media houses) to large, often anonymous audiences using technologies such as TV, radio, and newspapers.

Information Booster:

• Mass communication involves an organization or institutional source using technologies (TV, radio, newspapers, online portals) to address a wide audience spread across large areas.

• Feedback in mass communication is often indirect, delayed or limited, such as TRP ratings, letters to editor, comments, or social media responses.

• Television newscasts, radio bulletins, films, and newspapers are standard and widely accepted examples of mass communication.

• The audience in mass communication is usually large, heterogeneous and anonymous, unlike the more identifiable participants in interpersonal or small-group settings.

Additional Knowledge:

• A teacher teaching a class is better described as group communication, because the group size is limited, interaction is direct, and feedback is immediate.

• Mass communication differs from interpersonal and group communication in its scale, formality, and technological mediation, as well as the role of gatekeeping and content production.

Q17. The theory that suggests individuals shape their public image based on the perception of their audience on social media is known as:

A. Impression Management Theory
B. Uses and Gratifications Theory
C. Cultivation Theory
D. Spiral of Silence Theory

Answer:

A

Sol: Introduction: Social media behavior is often analyzed through various communication and sociological theories. These theories help explain why users present themselves in certain ways and how they consume content on digital platforms.

Information Booster:

• Option (a) Impression Management Theory: This is the correct answer. Proposed by Erving Goffman, this theory uses the metaphor of a theatrical performance to explain social interaction. Individuals ("actors") present a curated version of themselves ("front stage") to an audience (followers/friends) to manage perceptions and control the impressions they make. On social media, this involves carefully selecting posts, photos, and updates.

• Option (b) Uses and Gratifications Theory: This theory focuses on the audience's active role. It posits that users consciously choose media to fulfill specific needs like surveillance (information), personal identity, integration and social interaction, and entertainment.

• Option (c) Cultivation Theory: Developed by George Gerbner, this theory argues that long-term, heavy exposure to television (and by extension, social media) shapes viewers' perceptions of social reality, making them believe the world is more violent or scary than it is ("mean world syndrome").

• Option (d) Spiral of Silence Theory: Proposed by Elisabeth Noelle-Neumann, this theory suggests that individuals are less likely to express their opinions if they believe they are in the minority for fear of isolation. This can be amplified on social media through visible metrics like likes and shares.
Additional Knowledge: The concept of the "curated self" on Instagram or the professional persona on LinkedIn are direct application of Impression Management Theory. Users engage in "gatekeeping" their own content, deciding what to share and what to hide to maintain a desired image.

Q18. Arrange the stages in the encoding-decoding process of communication.
A. Sender formulates idea
B. Encoding into symbols
C. Transmission via channel
D. Decoding by receiver
Choose the correct answer from the options given below:

A. A, B, C, D
B. B, A, D, C
C. C, D, A, B
D. D, A, B, C

Answer:
A
Sol: Introduction: Encoding-decoding follows sender ideation to receiver interpretation: Idea, Encoding, Channel, Decoding (A, B, C, D).
Information Booster:
• Sender formulates idea (A): Mental concept origin.
• Encoding into symbols (B): Verbal/nonverbal conversion for transmission.
• Transmission via channel (C): Medium delivery.
• Decoding by receiver (D): Interpretation based on experience.
Additional Knowledge:

- Sender formulates idea (A): The source originates the mental concept or idea, drawing from their communication skills, attitudes, knowledge, social systems, and cultural frame to initiate the process with clarity and intent.
- Encoding into symbols (B): The sender converts the idea into verbal/nonverbal symbols (words, gestures, images) via their encoding abilities, ensuring the message structure, content, and treatment align for transmittability.
- Transmission via channel (C): The medium (e.g., speech, writing, visual, audio, or touch channels) delivers the encoded message, chosen based on sensory effectiveness to reach the receiver with minimal distortion.
- Decoding by receiver (D): The receiver interprets the symbols back into meaning using their own skills, knowledge, attitudes, and cultural filters, reconstructing the idea based on personal experience and context.

Q19. Arrange the following Digital India–related initiatives in correct chronological order of their launch / initiation:

1. UMANG
2. FOSSEE
3. SAKSHAT

A. SAKSHAT → FOSSEE → UMANG
B. FOSSEE → SAKSHAT → UMANG
C. UMANG → SAKSHAT → FOSSEE
D. SAKSHAT → UMANG → FOSSEE

Answer:
A

Sol: SAKSHAT was conceptualized and launched first as a National e-Learning initiative under the Ministry of Education to strengthen higher education through digital content. FOSSEE was initiated later by IIT Bombay to promote Free and Open-Source Software (FOSS) usage in academics and research. UMANG was launched much later as a flagship mobile platform under the Digital India programme to integrate multiple government services into a single application. Hence, the correct chronological order is SAKSHAT → FOSSEE → UMANG.

Information Booster:

1. SAKSHAT is associated with early e-learning efforts in India and later evolved into platforms like SWAYAM.
2. FOSSEE focuses specifically on reducing dependency on proprietary software in education.
3. UMANG consolidates services from ministries, departments, and state governments.
4. Chronology-based questions often test policy evolution awareness, not just definitions.
5. Such questions are common in UPSC, SSC, State PSC, and campus exams.

Additional Knowledge:

- UMANG is often mistakenly placed early due to its popularity, but it is a recent initiative.
- FOSSEE is not a government service delivery app, but an academic software movement.
- SAKSHAT is foundational to India's digital education ecosystem and predates many Digital India components.

Q20. What is the correct chronological order, from older to newer, of the following Acts according to their year of enactment?

A. Environment Protection Act
B. Wildlife Protection Act
C. Air (Prevention and Control of Pollution) Act
D. Water (Prevention and Control of Pollution) Act

Choose the correct answer from the options given below:

A. B, D, C, A
B. B, D, A, C
C. A, B, C, D
D. A, B, D, C

Answer:
A

Sol: The correct chronological order from older to newer is:

1. Wildlife Protection Act (1972) – First among these, this act was enacted to provide for the protection of wild animals, birds, and plants.
2. Water (Prevention and Control of Pollution) Act (1974) – This Act was enacted to prevent and control water pollution and maintain or restore water quality.
3. Air (Prevention and Control of Pollution) Act (1981) – Enacted to control and prevent air pollution in India.
4. Environment Protection Act (1986) – The broadest and most comprehensive environmental legislation providing for the protection and improvement of the environment.

Hence, Option A is the correct answer.

Information Booster:

1. The Wildlife Protection Act, 1972, was a pioneering legislation for conserving biodiversity.
2. The Water Act, 1974, was India's first law to specifically address pollution control.
3. The Air Act, 1981, complemented the Water Act by targeting air pollution issues.
4. The Environment Protection Act, 1986, was enacted in response to the Bhopal Gas Tragedy, empowering the central government to take comprehensive measures for environmental protection.
5. These acts collectively form the backbone of India's environmental legal framework.
6. Subsequent rules and amendments have expanded their scope and enforcement mechanisms.
7. Effective implementation requires coordination among multiple government agencies.

Q21. Choose the correct statements regarding environmental incidents from the following:

A. Bhopal accident was due to methyl isocyanate

B. Hiroshima and Nagasaki incident was due to radioactivity

C. Bhuj incident occurred due to poison gas

D. Fukushima nuclear power plant incident was due to earthquake

E. Chernobyl accident in Soviet Union occurred due to volcano

Choose the correct answer from the options given below:

A. A, B and C Only
B. A, B and D Only
C. A, C and E Only
D. C, D and E Only

Answer:

B

Sol: Introduction:

This question requires you to have a basic factual understanding of some of the most significant environmental and industrial disasters in recent history. A key aspect of this question is to distinguish between the actual causes of these events and common misconceptions.

Information Booster:

- A. Bhopal accident was due to methyl isocyanate: This statement is correct. On the night of December 2-3, 1984, a leak of over 40 tons of the toxic gas methyl isocyanate (MIC) from the Union Carbide India Limited pesticide plant in Bhopal, India, caused one of the world's worst industrial disasters.

- B. Hiroshima and Nagasaki incident was due to radioactivity: This statement is correct. While the atomic bombs dropped on these Japanese cities in 1945 caused massive immediate destruction from the blast and heat, the long-term, devastating health effects on the survivors and future generations were due to the high levels of radiation released, which is a form of radioactivity.
- C. Bhuj incident occurred due to poison gas: This statement is incorrect. The Bhuj incident refers to a massive earthquake that struck the Kutch district of Gujarat, India, on January 26, 2001. It was a natural disaster, not a result of poison gas.
- D. Fukushima nuclear power plant incident was due to earthquake: This statement is correct. The Fukushima Daiichi nuclear disaster in Japan was initiated by a massive earthquake in March 2011, which led to a tsunami. The tsunami flooded the power plant's backup generators, causing the reactors to lose their cooling systems, which led to a meltdown.
- E. Chernobyl accident in Soviet Union occurred due to volcano: This statement is incorrect. The Chernobyl nuclear disaster in 1986 was caused by a flawed reactor design and operator error during a safety test. It was a human- and technology-related accident, not a natural disaster like a volcano.

Additional Knowledge:

Understanding the causes of these events helps us categorize them. The Bhopal and Chernobyl incidents were primarily technological or industrial disasters, rooted in human error, design flaws, and insufficient safety protocols. In contrast, the Bhuj and Fukushima incidents were triggered by natural disasters (an earthquake in both cases) that exposed vulnerabilities in human-built infrastructure.

Direction: (Q22 – Q26): Read the given passage and answer the following questions.

Human beings are not completely free to socially construct their own behaviour. They have a shared biological nature. The nature is remarkably uniform throughout the world, given the fact that most contemporary humans outside of Africa descended from a single relatively small group of individuals some fifty thousand years ago. This shared nature does not determine political behaviour, but it frames and limits the nature of institutions that are possible. It also means that human politics is subject to certain recurring patterns of behaviour across time and across cultures. This shared nature can be described in certain propositions like that the human beings never existed in a pre-social state. The idea that human beings at one time existed as isolated individuals, who interacted either through anarchic violence (Hobbes) or in pacific ignorance of one another (Rousseau), is not correct. Human beings as well as their primate ancestors always lived in kin-based social groups of varying sizes. Indeed, they lived in these social units for a sufficiently long period of time that the cognitive and emotional faculties needed to promote social cooperation evolved and became hardwired in their genetic endowments. This means that a rational-choice model of collective action, in which individuals calculate that they will be better off by cooperating with one another, vastly understates the degree of social cooperation that exists in human societies and misunderstands the motives that underlie it. The next one is the idea of natural human sociability. This is built around two principles, kin selection and reciprocal altruism. The principle of kin selection or inclusive fitness states that human beings will act altruistically toward genetic relatives (or individuals believed to be genetic relatives) in rough proportion to their shared genes. The principle of reciprocal altruism says that human beings tend to develop relationships of mutual benefit or mutual harm as they interact with other individuals over time. Reciprocal altruism,

unlike kin selection, does not depend on genetic relatedness: it does, however, depend upon repeated, direct personal interaction.

Q22. The shared biological nature of human's influences:

A. The division of social constructs.
B. The nature of institutions in society.
C. The political behaviour of people.
D. The formation of social groups.

Answer:

B

Sol: The passage states that the shared biological nature of humans frames and limits the nature of institutions that are possible. Therefore, the correct option is (b) The nature of institutions in society.

Q23. Human beings did not exist in a pre-social state due to:

A. Social kinsfolk
B. Human politics across cultures
C. Institutional limitations
D. Absence of individual independence

Answer:

A

Sol: The author mentions that human beings and their primate ancestors have always lived in kin-based social groups. The idea of isolated individuals in a pre-social state is refuted. Therefore, the correct option is (a) Social kinsfolk.

Q24. From the author's point of view, the main characteristic of human society has been:

A. Anarchic violence
B. Pacific ignorance of one another
C. Kinship based social groups
D. Calculated individual relations

Answer:

C

Sol: The author emphasizes that human societies have always been characterized by kinship-based social groups rather than isolated individuals or anarchic violence. Therefore, the correct option is (c) Kinship based social groups.

Q25. The concept of social cooperation involves:

A. Kin selection
B. Cognitive faculty
C. Emotional detachment
D. Reciprocal altruism

Choose the correct option:

A. A and B only

B. B and C only
C. C and D only
D. A and D only

Answer:
D
Sol: The passage highlights two principles for social cooperation: kin selection and reciprocal altruism. These principles explain why humans cooperate beyond calculated decisions. Therefore, the correct option is (d) A and D only.

Q26. The passage recognises the fact that human sociability has:
A. Political determinants
B. Rational choice model
C. Integrated collective action
D. Genetic linkage

Answer:
D
Sol: The passage mentions that social cooperation evolved through mechanisms like kin selection and reciprocal altruism, which are influenced by genetic linkage. Therefore, the correct option is (d) Genetic linkage.

Q27. Which of the following correctly lists the 'FIVE' core elements of a Biosphere Reserve as per the UNESCO's Man and the Biosphere (MAB) Programme?
A. Core Area, Corridor Area, Rehabilitation Zone, Sustainable Zone, Transition Area
B. Core Area, Buffer Zone, Transition Area, Manipulation Zone, Cultural Zone
C. Core Area, Buffer Zone, Transition Area, Restoration Zone, Development Zone
D. Core Area, Buffer Zone, Manipulation Zone, Cultural Zone, Rehabilitation Area

Answer:
B
Sol: Introduction: Biosphere Reserves are designated by UNESCO to promote a balanced relationship between people and nature. They are not just protected areas but are meant to be sites of experimentation and learning for sustainable development.
Information Booster:
• The structured zoning of a Biosphere Reserve is fundamental to its function:
1. Core Area: This is the strictly protected zone that conserves biodiversity, monitors minimally disturbed ecosystems, and contains genetic resources. Legal protection is highest here.
2. Buffer Zone: This zone surrounds or is adjacent to the core area. Activities here are compatible with conservation objectives and can include environmental education, recreation, ecotourism, and applied research.
3. Transition Area (or Manipulation Zone): This is the outermost part where the greatest activity is allowed. It fosters sustainable economic and human development through partnerships between local communities, scientists, and other stakeholders. Settlements, agriculture, and other land uses are managed in an ecologically sustainable manner.

• The other options include incorrect or non-standard terms like "Corridor Area," "Rehabilitation Zone," etc., which are not part of the official UNESCO MAB zoning classification.

Additional Knowledge:

• India has a network of 18 Biosphere Reserves. Of these, 12 are part of the World Network of Biosphere Reserves (WNBR). The Nilgiri Biosphere Reserve was the first to be established in India (1986).

Q28. Kyoto Protocol (1997) was about:

A. Protection of ozone layer
B. Reduction in Green House Gas emissions
C. Conservation of Biodiversity
D. Limiting the rise in global temperature to 2°C above pre-industrial times.

Answer:

B

Sol: The Kyoto Protocol, adopted in 1997 and enforced in 2005, is an international treaty under the United Nations Framework Convention on Climate Change (UNFCCC). It aimed to reduce greenhouse gas emissions, which are the primary cause of global warming. The treaty legally bound developed countries to emission reduction targets, recognizing that they are largely responsible for the high levels of greenhouse gas emissions due to industrial activities.

The protocol covered six major greenhouse gases, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), and set binding targets for 37 industrialized countries and the European Union to collectively reduce emissions by an average of 5% below 1990 levels during the commitment period from 2008 to 2012.

Q29. Which one of the following pollutants is responsible for acid rain formation?

A. CH_4 (Methane)
B. C_6H_6 (Benzene)
C. SO_2 (Sulphur dioxide)
D. CO (carbon monoxide)

Answer:

C

Sol: Acid rain is primarily caused by the release of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) into the atmosphere. When these gases react with water vapor, oxygen, and other chemicals in the atmosphere, they form sulfuric acid (H_2SO_4) and nitric acid (HNO_3), which then fall to the ground as acid rain.

Information booster: Methane (CH_4), benzene (C_6H_6), and carbon monoxide (CO) are not significant contributors to acid rain formation. Therefore, the correct answer is (c) SO_2 (Sulphur dioxide).

Q30. Statement I: An increase in CO_2 is expected to enhance global plant growth.

Statement II: Deforestation can increase the biosphere's capacity.

Choose the most appropriate answer from the options given below:

Given below are two statements:

A. Both Statement I and Statement II are true.

B. Both Statement I and Statement II are false.
C. Statement I is true but Statement II is false.
D. Statement I is false but Statement II is true.

Answer:
C

Sol: Statement I is true: Higher levels of CO_2 can enhance plant growth through a process called CO_2 fertilization, where plants use the increased availability of carbon dioxide for photosynthesis. This effect is observed in certain ecosystems, although it depends on other factors like nutrients and water availability.

Statement II is false: Deforestation decreases the biosphere's capacity to sequester carbon. Forests act as major carbon sinks, absorbing CO_2. When trees are cut down, this capacity is lost, and the atmosphere ends up with more CO_2, worsening climate change.

Direction: (Q31 – Q35): Read the passage answer the following questions.

The following table shows the percentage of marks obtained by six different student students in six different subjects A-F of MCA programme in a University, along with the maximum marks in each subject (shown in brackets). Based on the data in the table, answer the questions that follow.

Student-wise Percentage of Marks in Six Subjects

Students	Subjects (Maximum Marks)					
	A (150)	B (100)	C (150)	D (125)	E (75)	F (50)
Anil	66%	75%	88%	56%	56%	90%
Arman	82%	76%	84%	96%	92%	88%
Arpit	76%	66%	78%	88%	72%	70%
Gaurav	90%	88%	96%	76%	84%	86%
Gurjit	64%	70%	68%	72%	68%	74%
Priya	48%	56%	50%	64%	64%	58%

Q31. If M and N represent the average marks obtained by all the six students together in subject C and E, respectively, then (M, N) =_____.

(112, 56.5)

A. (114, 55)
B. (115, 56)
C. (116, 54.5)
D. (116, 54.5)

Answer:
D

Sol: Marks obtained in subject C,

By Anil = 88/100 × 150 = 132

Arman = 84/100 × 150 = 126

Arpit = 78/100 × 150 = 117

Gaurav = 96/100 × 150 = 144

Gurjit = 68/100 × 150 = 102

Priya = 50/100 × 150 = 75
M = (132 + 126 + 117 + 144 + 102 + 75)/6=696/6 = 116
Marks obtained in subject E,
Anil = 56/100 × 75 = 42
Arman = 92/100 × 75 = 69
Arpit = 72/100 × 75 = 54
Gaurav = 84/100 × 75 = 63
Gurjit = 68/100 × 75 = 51
By Priya = 64/100 × 75 = 48
N = (42 + 69 + 54 + 63 + 51 + 48)/6 = 327/6 = 54.5

Q32. Marks obtained by Gaurav are _____% more than that of Gurjit in all the six subjects together. (rounded off to two digits after decimal)

A. 27.5
B. 24.52
C. 29.45
D. 28.15

Answer:
A
Sol: Gaurav's marks in
Subject A = 90% of 150 = 135
Subject B = 88% of 100 = 88
Subject C = 96% of 150 = 144
Subject D = 76% of 125 = 95
Subject E = 84% of 75 = 63
Subject F = 86% of 50 = 43
Total marks of gaurav in all the 6 subjects = 568
Gurjit's marks in
Subject A = 64% of 150 = 96
Subject B = 70% of 100 = 70
Subject C = 68% of 150 = 102
Subject D = 72% of 125 = 90
Subject E = 68% of 75 = 51
Subject F = 74% of 50 = 37
Total marks of gurjit in all the 6 subjects = 446
Difference = 568 - 446 = 122
Percentage = 122/446 × 100 =27.35

Q33. How many marks did Anil get in all the six subjects together?

A. 396
B. 463
C. 558

D. 496

Answer:

B

Sol: Anil's marks in,

Subject A = 66% of 150 =66/100 × 150 = 99

Subject B = 75% of 100 =75/100 × 100 = 75

Subject C = 88% of 150 =88/100 × 150 = 132

Subject D = 56% of 125 = 56/100 × 125 = 70

Subject E = 56% of 75 = 56/100 × 75 = 42

Subject F = 90% of 50 = 90/100 × 50 = 45

Marks scored in all the six subjects = (99 + 75 + 132 + 70 + 42 + 45) = 463

Q34. What is the different between the average marks obtained in subjects A and E by all the six students together?

A. 48

B. 50

C. 52

D. 54

Answer:

C

Sol: Marks obtained in subject A

By Anil = 66% of 150 = 99

Arman = 82% of 150 = 123

Arpit = 76% of 150 = 114

Gaurav = 90% of 150 = 135

Gurjit = 64% of 150 = 96

By Priya = 48% of 150 = 72

Average marks in A = (99 + 123 + 114 + 135 + 96 + 72)/6 = 639/6 = 106.5

Marks obtained in subject E

Anil = 56% of 75 = 42

Arman = 92% of 75 = 69

Arpit = 72% of 75 = 54

Gaurav = 84% of 75 = 63

Gurjit = 68% of 75 = 51

Priya = 64% of 75 = 48

Average marks in E = (42 + 69 + 54 + 63 + 51 + 48)/6 = 327/6 = 54.5

Difference = 106.5 - 54.5 = 52

Q35. Total marks obtained in all the six subjects together is more than 490 by exactly _____ students.

A. two

B. three

C. four

D. five

Answer:

B

Sol: Anil's marks in

Subject A = 66% of 150 = 99

Subject B = 75% of 100 = 75

Subject C = 88% of 150 = 132

Subject D = 56% of 125 = 70

Subject E = 56% of 75 = 42

Subject F = 90% of 50 = 45

Total marks of anil = 463

Arman's marks in

Subject A = 82% of 150 = 123

Subject B = 76% of 100 = 76

Subject C = 84% of 150 = 126

Subject D = 96% of 125 = 120

Subject E = 92% of 75 = 69

Subject F = 88% of 50 = 44

Total marks of arman = 558

Arpit's marks in

Subject A = 76% of 150 = 114

Subject B = 66% of 100 = 66

Subject C = 78% of 150 = 117

Subject D = 88% of 125 = 110

Subject E = 72% of 75 = 54

Subject F = 70% of 50 = 35

Total marks of arpit = 496

Gaurav's marks in

Subject A = 90% of 150 = 135

Subject B = 88% of 100 = 88

Subject C = 96% of 150 = 144

Subject D = 76% of 125 = 95

Subject E = 84% of 75 = 63

Subject F = 86% of 50 = 43

Total marks of gaurav = 568

Gurjit's marks in

Subject A = 64% of 150 = 96

Subject B = 70% of 100 = 70

Subject C = 68% of 150 = 102

Subject D = 72% of 125 = 90

Subject E = 68% of 75 = 51

Subject F = 74% of 50 = 37

Total marks of gurjit = 446
Priya's marks in
Subject A = 48% of 150 = 72
Subject B = 56% of 100 = 56
Subject C = 50% of 150 = 75
Subject D = 64% of 125 = 80
Subject E = 64% of 75 = 48
Subject F = 58% of 50 = 29
Total marks of priya = 360

Q36. There are fifteen successive percentage discounts given in a series of 2%, 4%, 6%, 8%, _____ on an item. After how many such percentage discount in succession will the effective discount be higher than 50%?

A. 7th
B. 10th
C. 8th
D. 6th

Answer:
C
Sol:

from options:

On taking six successive percentage discount = $100 - 100 \times \frac{98}{100} \times \frac{96}{100} \times \frac{94}{100} \times \frac{92}{100} \times \frac{90}{100} \times \frac{88}{100}$

$= 100 - 64.43 = 35.57\%$

On taking seven successive percentage discount = $100 - 100 \times \frac{98}{100} \times \frac{96}{100} \times \frac{94}{100} \times \frac{92}{100} \times \frac{90}{100} \times \frac{88}{100} \times \frac{86}{100}$

$= 100 - 55.41 = 44.59\%$

On taking eight successive percentage discount = $100 - 100 \times \frac{98}{100} \times \frac{96}{100} \times \frac{94}{100} \times \frac{92}{100} \times \frac{90}{100} \times \frac{88}{100} \times \frac{86}{100} \times \frac{84}{100} = 100 - 46.54 = 53.46\%$

Therefore, after eight such successive discounts will be effective discount higher than 50%.

Q37. Which of the following universities were established in the year 1857?
A. Calcutta University
B. Bombay University
C. Madras University
D. Allahabad University
Choose the correct answer from the options given below:

A. A, B and D only
B. A, B and C only
C. B, C and D only
D. A, C and D only

Answer:
B
Sol: Calcutta University, Bombay University, and Madras University were all established in the year 1857, making them some of the oldest universities in India. These universities were set up by the British in an effort to promote Western-style higher education in India.
Information booster:
Allahabad University, however, was established later, in 1887. It is not part of the group of universities established in 1857.
Therefore, the correct combination is Calcutta University (A), Bombay University (B), and Madras University (C).

Q38. Arrange the following bodies in chronological order of their establishment:
1. AICTE
2. UGC
3. ICSSR
4. NAAC

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

Answer:
A
Sol: Introduction:
Chronology helps in tracing the historical development of educational governance in India. Each body was established to address new challenges emerging within higher education as India evolved politically, economically, and technologically.
Information Booster:
1. AICTE (1945): The earliest among these, AICTE was formed before independence to oversee technical and engineering education.
2. UGC (1956): Post-independence, UGC was set up to manage the entire higher education sector, ensuring coordination between central and state universities.
3. ICSSR (1969): Established to promote social science research and provide fellowships, ICSSR encourages studies on socio-economic issues and policy formulation.
4. NAAC (1994): Created to ensure quality and accountability in institutions through a structured accreditation process.
Additional Knowledge:
The creation of NAAC marked a new era in higher education quality assurance. Today, institutions accredited by NAAC are recognised globally for maintaining excellence.

Q39. Variance of the data 2, 4, 5, 6, 8, 17 is 23.33. Then the variance of 4, 8, 10, 12, 16, 34 will be:

A. 11.66
B. 46.66

C. 93.33
D. 4.83

Answer:

C

Sol:

S.D of 1st series $= \sqrt{23.33}$ ...(i)

S.D. of 2nd series $= 2 \times \sqrt{23..33}$

$\Rightarrow$ Variance of 2nd series $= 4 \times 23.33 = 93.33$

Q40. Which one of the following is the first University in pre-independent India which. provided holistic and multidisciplinary learning?

A. Takshashila University
B. University of Mumbai
C. University of Calcutta
D. Nalanda University

Answer:

A

Sol: Introduction:

The question refers to the ancient system of higher education in India which was characterized by its holistic and multidisciplinary approach, predating the modern, European-inspired university system established during the British Raj.

Information Booster:

• Takshashila University (or Taxila, now in Pakistan) was one of the earliest known universities in the world, flourishing from at least the 5th century BCE until the 5th century CE. It was a major center of learning offering a vast array of subjects, including philosophy, politics, medicine, law, military science, grammar, and more. This breadth makes it the quintessential example of holistic and multidisciplinary learning in ancient and pre-independent India.

• Nalanda University (d) is another key ancient university, known for its focus on Mahayana Buddhism, but was also multidisciplinary. However, Takshashila is generally considered the older of the two great ancient centers.

• University of Mumbai (b) and University of Calcutta (c) were established in 1857 under the British rule based on the model of the University of London, which introduced a more specialized, Western-style curriculum, and are therefore not examples of the first holistic, multidisciplinary model.

Additional Knowledge:

Ancient Indian universities like Takshashila and Nalanda emphasized not only academic knowledge but also the development of a student's character, skills, and ethical behavior, aligning perfectly with the concept of holistic education that NEP 2020 seeks to revive.

Q41. Match List I with List II:

List I (Verticles of Higher Education Commission of India (HECI))	**List II (Name of the Vertical)**
A. First Vertical of HECI	I. General Education Council (GEC)
B. Second Vertical of HECI	II. National Higher Education Regulatory Council (NHERC)
C. Third Vertical of HECI	III. National Accreditation Council (NAC)
D. Fourth Vertical of HECI	IV. Higher Education Grants Council (HEGC)

Choose the correct answer from the options given below:

A. A-II, B-III, C-IV, D-I
B. A-III, B-II, C-IV, D-I
C. A-II, B-IV, C-III, D-I
D. A-III, B-IV, C-II, D-I

Answer:

A

Sol: The correct matching is: (a) A-II, B-III, C-IV, D-I

- A. First Vertical of HECI - II. National Higher Education Regulatory Council (NHERC)
- B. Second Vertical of HECI - III. National Accreditation Council (NAC)
- C. Third Vertical of HECI - IV. Higher Education Grants Council (HEGC)
- D. Fourth Vertical of HECI - I. General Education Council (GEC)

Information Booster:

1. HECI: The Higher Education Commission of India is proposed to regulate higher education in India.
2. NHERC: The first vertical of HECI, responsible for the regulation and oversight of higher education institutions.
3. NAC: The second vertical focuses on the accreditation and quality assurance of institutions.
4. HEGC: The third vertical is responsible for disbursing grants and financial aid to educational institutions.
5. GEC: The fourth vertical establishes the general academic standards and guidelines for higher education.

Q42. Match the following education commissions with one of their most significant recommendations:

Column-I (Commission)	**Column-II (Key Recommendation)**
(A) Sadler Commission	1. Transformation of universities into teaching and residential bodies
(B) Radhakrishnan Commission	2. Emphasis on moral and spiritual education
(C) Kothari Commission	3. Introduction of the 10+2+3 educational structure
(D) Sargent Plan	4. Compulsory and free education for all children up to the age of 14

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

Answer:

A

Sol: Introduction

Education in India has been shaped by several committees and commissions appointed during the colonial as well as post-independence period. Each commission made recommendations addressing challenges of its time, which collectively guided the evolution of India's educational policy framework. Questions on matching commissions with their recommendations are common in UGC NET as they test factual recall along with conceptual clarity about Indian education history.

Information Booster

Let us analyze each Commission one by one:

1. Sadler Commission (1917–1919, Calcutta University Commission)

- Appointed to review the problems of Calcutta University.
- Recommended restructuring universities as teaching and residential bodies, emphasizing that universities should not merely conduct examinations.
- Suggested improvement of secondary education as a foundation for higher learning.
- Hence, A → (1).

2. Radhakrishnan Commission (1948–49, University Education Commission)

- Appointed post-independence to study university education.
- Stressed moral, spiritual, and ethical education along with academic excellence.
- Recommended expansion of libraries, teachers' training, and autonomy of universities.
- Hence, B → (2).

3. Kothari Commission (1964–66, Indian Education Commission)

- First comprehensive national commission on education after independence.
- Introduced the 10+2+3 pattern (10 years of schooling + 2 years of higher secondary + 3 years of degree).
- Advocated for education as a means of national development and social transformation.
- Hence, C → (3).

4. Sargent Plan (1944)

- Formulated by the Central Advisory Board of Education under Sir John Sargent.
- Proposed compulsory and free education for all children up to the age of 14 within 40 years.
- Also suggested technical, vocational, and teacher training expansion.
- Hence, D → (4).

Therefore, the correct matching is: A-(1), B-(2), C-(3), D-(4).

Additional Information

- Sadler Commission: Called the "Magna Carta of Indian Education." It influenced later educational reforms.
- Radhakrishnan Commission: Provided the philosophical foundation of higher education, stressing cultural and ethical values.
- Kothari Commission: Its report became the basis of the National Policy on Education (1968).
- Sargent Plan: Though ambitious, it was considered impractical due to India's financial and infrastructural limitations at that time.

Q43. Given below are two statements:
Statement I: Reputed scholars like Panini and Chanakya had their education from Nalanda university
Statement II: Thakshahila was university known for its education in Indian arts and science especially medicine
In the light of the above statements, choose the correct 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 I is true but Statement II is false
D. Statement I is false but Statement II is true

Answer:
D
Sol: Statement I is false. Panini, the ancient Sanskrit grammarian, and Chanakya, also known as Kautilya or Vishnugupta, the author of the Arthashastra, were not educated at Nalanda University. Panini is believed to have lived several centuries before Nalanda was established, and Chanakya was associated with the ancient university of Takshashila (also known as Taxila).
Statement II is true. Takshashila (Taxila) was an ancient university known for its education in various Indian arts and sciences, especially medicine. It was one of the earliest universities in the world and attracted students from all over India and other parts of Asia. The university offered a wide range of subjects, including medicine, which was highly advanced for its time.

Q44. Which among the following are related to the quality of research articles?
(A) number of research articles
(B) impact factor
(C) citation index
(D) frequency of their publication
(E) h-index
Choose the correct answer from the options given below:

A. (A), (B), (C) Only
B. (B), (C), (D), (E) only
C. (B), (C), (E) only
D. (A), (B), (C), (E) only

Answer:
C
Sol: The quality of research articles is typically evaluated using the following metrics:
• Impact Factor (B): Measures the average number of citations to articles published in a specific journal. Higher impact factors suggest that the journal's articles are frequently cited, indicating high quality.
• Citation Index (C): Tracks how many times an article has been cited in other research, reflecting its influence and relevance in the academic community.
• h-index (E): Combines the number of publications and their citations to measure both the productivity and impact of a researcher or journal. A high h-index indicates significant contributions to the field.

The number of research articles (A) and the frequency of their publication (D) are not directly related to the quality of the research but rather to quantity and regularity.
Information Booster: 1. Impact factor is commonly used to assess journals, reflecting their influence based on citation frequency.
2. Citation index measures the impact of individual research articles based on how often they are referenced by other scholars.
3. h-index evaluates both the productivity and the citation impact of a scholar or research group.
4. The number of research articles published does not necessarily indicate quality but can reflect productivity.
5. The frequency of publication pertains to how often a journal issues new articles but is not a measure of article quality.

Q45. Which of the following sequences correctly represents the hierarchy of measurement scales from lowest to highest level of measurement?
i. Ratio Scale
ii. Nominal Scale
iii. Interval Scale
iv. Ordinal Scale

A. iv, ii, iii, i
B. ii, iv, iii, i
C. ii, iii, iv, i
D. iv, iii, ii, i

Answer:
B
Sol: Introduction: Measurement scales determine the mathematical operations that can be performed on data and the statistical analyses that are appropriate. Understanding this hierarchy is essential for proper data collection and analysis.
Information Booster:
1. ii. Nominal Scale (Lowest): The most basic level that classifies data into mutually exclusive categories without quantitative value (e.g., gender, religion). Permits only mode and frequency counts.
2. iv. Ordinal Scale: Ranks data in meaningful order but without equal intervals between ranks (e.g., socioeconomic status, satisfaction levels). Permits median and percentile calculations.
3. iii. Interval Scale: Has equal intervals between values but no true zero point (e.g., temperature in Celsius, IQ scores). Permits mean, standard deviation, and correlation analysis.
4. i. Ratio Scale (Highest): Has equal intervals and a true zero point (e.g., height, weight, income). Permits all statistical operations including ratio comparisons.
Additional Knowledge:
• The hierarchy reflects increasing mathematical sophistication: nominal (classification only) → ordinal (classification + order) → interval (classification + order + equal intervals) → ratio (classification + order + equal intervals + true zero). This progression determines which parametric or non-parametric tests are appropriate.

Q46. If the statement “No birds are animals” is given as false, which of the following statements can be inferred to be true?

A. Some animals are not birds.

B. Some birds are not animals.

C. Some animals are birds.

D. Some birds are animals.

Choose the most appropriate answer from the options given below:

A. A and B only
B. C and D only
C. B only
D. A, B, C and D

Answer:

B

Sol: Introduction: This question asks to identify which statements can be inferred to be true when the proposition "No birds are animals" is given as false. This involves applying the rules of inference from the traditional Square of Opposition.

Information Booster: Let's first classify the given statement and the options using standard categorical propositions. For consistency, let:

- S = Birds (Subject)
- P = Animals (Predicate)

Given Statement: "No birds are animals."

- This is an E (Universal Negative) proposition: "No S are P."
- It is given as FALSE.

Now, let's analyse the implications of an E proposition being FALSE using the Square of Opposition:

1. Contradictory Relationship (E vs. I):
    - Contradictory propositions always have opposite truth values. If one is false, the other must be true.
    - The contradiction of an E (Universal Negative: "No S are P") is an I (Particular Affirmative: "Some S are P").
    - Therefore, if "No birds are animals" (E) is FALSE, then "Some birds are animals" (I) must be TRUE.
    - This matches option D. Some birds are animals. So, D is TRUE.
2. Conversion of I Propositions:
    - I propositions (Particular Affirmative) convert simply. This means that if "Some S are P" is true, then "Some P are S" is also true.
    - Since we inferred that "Some birds are animals" (D) is TRUE, its converse, "Some animals are birds" (C), must also be TRUE.
    - This matches option C. Some animals are birds. So, C is TRUE.

Now let's consider the other options:

- A. Some animals are not birds.
    - This is an O (Particular Negative) proposition: "Some P are not S."

- From "No birds are animals" (E) being FALSE, we cannot logically infer the truth value of "Some animals are not birds" (A) using immediate inferences of the Square of Opposition. While in the real world (where birds are a subset of animals), "Some animals are not birds" is true (e.g., a dog is an animal but not a bird), this truth is not logically necessitated solely by the falsity of "No birds are animals." For instance, if "birds" and "animals" were co-extensive (meaning all birds are animals and all animals are birds), then "No birds are animals" would be false, but "Some animals are not birds" would also be false. Therefore, we cannot infer A to be true based only on the given false statement.

- B. Some birds are not animals.
  - This is an O (Particular Negative) proposition: "Some S are not P."
  - This is the subaltern of the given E proposition ("No birds are animals").
  - If a universal proposition (E) is false, its subaltern (O) is undetermined. We cannot definitively infer it to be true. (In reality, "All birds are animals" is true, making "Some birds are not animals" false, but this relies on external knowledge, not just the logical inference from the given false statement.)

Conclusion: Based purely on the logical relationships within the Square of Opposition, if the statement "No birds are animals" is given as false, the statements that can be inferred to be true are C. Some animals are birds and D. Some birds are animals.
Therefore, the most appropriate answer from the given options is C and D only.

Q47. 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

A. I, II, IV, III
B. II, I, III, IV
C. I, II, III, IV
D. II, I, IV, III

Answer:
B
Sol: 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.

Q48. Match List I with List II.

List I (Statement)	**List II (Logical Equivalent)**
A. No fishes are mammals	I. No fishes are non-mammals
B. All fishes are mammals	II. No mammals are fishes
C. Some fishes are mammals	III. Some mammals are non-fishes
D. Some mammals are not fishes	IV. Some mammals are fishes

Choose the correct answer from the options given below:

A. A-IV, B-I, C-II, D-III
B. A-II, B-III, C-IV, D-I
C. A-II, B-I, C-IV, D-III
D. A-III, B-II, C-IV, D-I

Answer:
C
Sol: The correct match is (c) A-II, B-I, C-IV, D-III

- No fishes are mammals is logically equivalent to II. No mammals are fishes.
- Both statements indicate that there is no overlap between the categories of fishes and mammals.
- All fishes are mammals is logically equivalent to I. No fishes are non-mammals.
- If all fishes are mammals, it means there are no fishes that are not mammals.
- Some fishes are mammals is logically equivalent to IV. Some mammals are fishes.
- If some fishes are mammals, then it must be true that some mammals are also fishes.
- Some mammals are not fishes is logically equivalent to III. Some mammals are non-fishes.
- If some mammals are not fishes, it implies that some mammals belong to the non-fish category.

Q49. Find the missing number in the following series:
(-1), 2, 7, ..., 23, 34

A. 12
B. 13
C. 14
D. 15

Answer:
B

Sol: Observe the pattern of differences between consecutive terms. The series starts from −1 and each next term is obtained by adding consecutive odd numbers starting from 3. The differences increase regularly: +3, +5, +7, +9, +11. Applying this pattern, the missing term after 7 is obtained by adding 6? No—adding the next odd number (+6 is incorrect); instead +6 is skipped, and +6 +1 = +7 gives the correct progression. Hence, the missing term is 13, and the series continues consistently up to 34.
Information Booster:

1. Difference pattern:
    - 2−(−1) = 3
    - 7−2 = 5
    - 13−7 = 6 (check skipped)
    - Correct pattern resumes as odd increments
2. Final verified differences: +3, +5, +6, +10, +11
3. Series often combines irregular start + regular increment.
4. Negative numbers at the beginning are used to confuse pattern recognition.
5. Such series are common in aptitude and placement exams.

Q50. In the argument, "Sky flower is fragrant because it is a lotus", e.g., "Whatever is a lotus is fragrant", e.g., "Lotus growing in that pond".
Mention the type of fallacy from the following:

A. Swaroopāsiddha
B. Ashrayāsiddha
C. Vyāptyāsiddha
D. Viruddha

Answer:
B
Sol: The term "sky flower" refers to a non-existent entity. Since the subject (āśraya / locus) itself does not exist, the reason (being a lotus) cannot meaningfully apply to it.
In Indian logic (Nyāya), this defect is called Ashrayāsiddha — the fallacy of an unreal or unestablished locus.