

UGC NET 9th Sept 2026 Shift 1_Paper 1 MBQ English

Q1 Match List I with List II:

List I: Theorist	List II: Key Contribution
A. Harold Lasswell	I. 5 W's of Communication
B. Wilbur Schramm	II. Emphasis on Commonality/Field of Experience
C. David Berlo	III. Psychological variables in SMCR components
D. Theodore Newcomb	IV. Co-orientation toward an object (ABX)

Choose the correct answer from the options given below:

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

Ans.(a)

Sol. Correct Option – (a)

INTRODUCTION Each major theorist in communication studies introduced a specific lens through which we view the exchange of information.

INFORMATION BOOSTER

- Harold Lasswell (A-I): Famous for the "5 W's" formula: *Who says what, in which channel, to whom, with what effect?* This is the foundation of media effect studies.
- Wilbur Schramm (B-II): He argued that communication is only possible if there is an overlap in the Field of Experience—the shared background, language, and culture between people.
- David Berlo (C-III): His SMCR model was unique because it detailed the psychological variables (like attitude and social system) that exist within the source and the receiver.
- Theodore Newcomb (D-IV): His ABX model (Co-orientation) explains how two people (A and B) maintain a balanced relationship toward a third object or issue (X).

Q2. Arrange the following models of communication in their chronological order of development.

- A. Shannon and Weaver Model
- B. Lasswell's Model
- C. Osgood and Schramm Model
- D. Frank E.X. Dance Helical Model

Choose the correct answer from the options given below:

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

Ans.(b)

Sol. Introduction: Lasswell's Model (1948), Shannon and Weaver Model (1949), Osgood and Schramm Model (1954), and Frank E.X. Dance Helical Model (1967) represent the foundational chronological evolution of communication models, each building on prior linear concepts toward more interactive frameworks. The correct sequence is B, A, C, D.

Information Booster:

- Lasswell's Model (1948): Introduced by Harold Lasswell, this linear model poses five key questions—"Who says what, in which channel, to whom, with what effect?"—focusing on mass communication analysis and effects, marking the earliest structured approach.

- Shannon and Weaver Model (1949): Developed for technical transmission, it added noise as a disruptor between sender, encoder, channel, decoder, and receiver, influencing telecommunications and introducing feedback elements.
- Osgood and Schramm Model (1954): Shifted to a circular, interactive process with interchangeable sender-receiver roles, emphasizing encoding, decoding, and interpretation for dynamic feedback.
- Frank E.X. Dance Helical Model (1967): Visualized communication as a spiral helix, showing cumulative growth over time based on past experiences, highlighting evolution beyond static models.

Additional Knowledge:

- Option (a) A, B, C, D: Incorrectly places Shannon and Weaver (1949) before Lasswell (1948), reversing the foundational timeline where Lasswell's political focus preceded technical engineering models.
- Option (c) C, A, B, D: Wrongly starts with Osgood and Schramm (1954), ignoring earlier 1940s models that laid linear groundwork before interactive advancements.
- Option (d) D, B, A, C: Erroneously begins with Dance (1967), the latest spiral model, disrupting the historical progression from simple linear to complex evolving structures.

Q3. Given below are two statements: One is labeled as Assertion (a) and the other is labeled as Reason (R):

- Assertion (A): In a positively skewed distribution, the arithmetic mean is greater than the median, which in turn is greater than the mode (Mean > Median > Mode).
- Reason (R): The arithmetic mean is disproportionately pulled toward the long tail of high values on the right side of the distribution.

In light of the above statements, choose the correct answer from the options given below:

- (a) Both (a) and (R) are correct and (R) is the correct explanation of (A)
- (b) Both (a) and (R) are correct but (R) is NOT the correct explanation of (A)
- (c) (a) is correct but (R) is incorrect
- (d) (a) is incorrect but (R) is correct

Ans.(a)

Sol. Correct Option – (a)

Introduction

Skewness measures the degree of asymmetry in a probability distribution. When a distribution departs from a bell-shaped normal curve, the relative positions of the mean, median, and mode shift in a predictable pattern.

Information Booster

- Mechanism of Positive Skewness: A positively skewed distribution features a long tail extending toward higher positive values on the right. Because the arithmetic mean sums all individual values, extreme positive scores in the right tail elevate the total sum, pulling the mean rightward.
- Empirical Sequence (Assertion A & Reason R):
- The Mode remains at the peak (highest frequency density).
- The Median shifts slightly rightward to maintain equal area (50% of cases on either side).
- The Mean shifts farthest to the right because it is directly magnified by extreme tail values.
- This yields the relationship Mean > Median > Mode. Reason (R) correctly explains why this shift occurs.

Additional Knowledge

- Karl Pearson's Empirical Formula: For moderately skewed distributions, the distance between the mean and the mode is approximately three times the distance between the mean and the median:

$$\text{Mode} = 3(\text{Median}) - 2(\text{Mean})$$

Q4. Match List I with List II:

List I: Fallacy	List II: Contextual Example
A. Ad Misericordiam	I. "Everyone is buying this phone, so it must be the best."
B. Ad Baculum	II. "If you don't pass this bill, there will be riots in the streets."
C. Ad Populum	III. "Please give me an 'A' because I was sick during the exam."
D. Tu Quoque	IV. "How can you tell me to stop smoking when you smoke yourself?"

Choose the correct answer from the options given below:

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

Ans.(a)

Sol. Correct Option – (a)

Introduction

This set of fallacies focuses on how speakers use emotions (pity, fear) or distractions (hypocrisy) to bypass logical reasoning.

Information Booster

- A-III (Ad Misericordiam - Appeal to Pity): *Misericordia* means pity. This fallacy occurs when someone tries to win support for an argument by exploiting the opponent's feelings of guilt or pity instead of providing evidence.
- B-II (Ad Baculum - Appeal to Force): *Baculum* means "staff" or "stick." This is an argument based on a threat. Instead of proving a point, the speaker implies that "might makes right."
- C-I (Ad Populum - Bandwagon): As discussed before, this relies on the "everyone is doing it" logic. It assumes the majority is always right.
- D-IV (Tu Quoque - "You Also"): This is a specific type of *Ad Hominem*. Instead of addressing the criticism, the speaker turns it back on the accuser.
- *Logic*: "Your argument is invalid because you are guilty of the same thing." Even if the speaker is a hypocrite, their argument might still be logically sound.

Q5. Given below are two statements:

Statements I: Millennium Development Goals (MDGs) were mainly targeted at developing or poor countries.

Statements II: Sustainable Development Goals (SDGs) are targeted at all countries whether developed, developing or poor.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (a) Both Statement I and Statement II are correct.
- (b) Both Statement I and Statement II are incorrect.
- (c) Statement I is correct but Statement II is incorrect.
- (d) Statement I is incorrect but Statement II is correct.

Ans.(a)

Sol. Both Statement I and Statement II are correct. The Millennium Development Goals (MDGs) were indeed primarily focused on addressing the needs of developing or poorer countries. Introduced in the year 2000, these goals aimed at combating poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women by 2015. The emphasis was predominantly on improving conditions in countries that were lagging behind in these critical areas.

On the other hand, the Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and

prosperity by 2030. The SDGs are targeted at all countries—developed, developing, and poor alike. Unlike the MDGs, the SDGs recognize that challenges such as climate change, inequality, and sustainable consumption and production are global issues that require action from every country, regardless of their economic status.

Information Booster:

- The MDGs focused on eight goals that were primarily oriented towards addressing extreme poverty and its various dimensions. They served as a blueprint for governments and development institutions worldwide to tackle the urgent needs of the poorest.
- The SDGs consist of 17 goals that are interconnected and cover a broad range of social, economic, and environmental challenges facing the world today. The inclusivity and comprehensive nature of the SDGs reflect a global consensus on the need for a holistic approach to sustainable development that leaves no one behind.

Q6. Which of the following are considered 'Water-washed' diseases (diseases resulting from lack of adequate water for personal hygiene)?

1. Trachoma
2. Scabies
3. Cholera
4. Typhoid

Options:

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

Ans.(a)

Sol. The correct answer is (a).

Introduction

Trachoma and Scabies are definitively classified as water-washed diseases because their spread is directly linked to an insufficient volume of clean water necessary for basic personal hygiene and washing.

In contrast, Cholera and Typhoid fall into a different epidemiological category as they are classically defined as water-borne diseases.

Information Booster

- The widely accepted Bradley Classification System organizes water-related diseases based entirely on their specific mode of transmission.
- Water-washed (or water-scarce) diseases proliferate when there is a severe quantitative lack of accessible water for bathing, handwashing, and sanitation.
- Trachoma is a severe bacterial infection of the eye that can lead to permanent blindness, spreading easily via unwashed hands and faces.
- Scabies is a highly contagious dermatological condition caused by parasitic itch mites burrowing under the skin, flourishing in poor hygiene conditions.
- Providing a higher volume of water to communities, regardless of absolute chemical purity, drastically reduces the incidence of all water-washed infections.
- Other common water-washed illnesses include bacterial skin infections, lice infestations, and epidemic typhus.

Additional Knowledge

- Option B: This option is totally incorrect because it strictly lists Cholera and Typhoid, which require the direct ingestion of contaminated water (water-borne), rather than just poor external hygiene.

- Option C and D: These options fail because they incorrectly mix categories by including true water-borne pathogens alongside water-washed diseases.
- Water-borne vs. Water-washed: Water-borne diseases (Cholera, Typhoid) are solved primarily by improving the micro-biological quality (purity) of the drinking water. Water-washed diseases (Trachoma, Scabies) are solved primarily by increasing the physical quantity and accessibility of water for daily sanitation and personal cleanliness.

Q7. Consider the following statements regarding the 5+3+3+4 curricular structure proposed in NEP 2020:
Statement I: The 'Foundational Stage' covers children from 3 to 8 years, i.e., Grades 1–2 plus 3 years of pre-primary.
Statement II: The 'Preparatory Stage' spans Grades 3 to 5, focusing on play-based learning.
Statement III: The 'Middle Stage' covers Grades 6 to 8, introducing subject teachers.
Statement IV: The 'Secondary Stage' covers Grades 9 to 12 as a single undivided block.
Which of the above statements are correct?

Options:

- (a) I, II and III only
- (b) I and III only
- (c) II and IV only
- (d) I, II, III and IV

Ans.(a)

Sol. Correct Option – (a)

Introduction

NEP 2020 proposes a radical restructuring of the school curriculum based on the cognitive and developmental stages of children. The new 5+3+3+4 structure replaces the old 10+2 system and is aligned with global best practices in early childhood education.

Information Booster

- 1. Foundational Stage (5 years): Ages 3–8, comprising 3 years of pre-primary (Anganwadi/Balvatika) + Classes 1 & 2. Focus: Play-based and activity-based learning.
- 1. Preparatory Stage (3 years): Classes 3–5, Ages 8–11. Gradual move to formal classroom learning; play and discovery still central.
- 1. Middle Stage (3 years): Classes 6–8, Ages 11–14. Introduction of subject-specialized teachers; experiential learning.
- 1. Secondary Stage (4 years): Classes 9–12, Ages 14–18. This is NOT a single block — it is divided into two phases: 9–10 and 11–12.
- 1. Statement IV is INCORRECT because the Secondary Stage has two distinct sub-phases, allowing students in 11–12 more flexibility in choosing subjects.

Additional Knowledge

- 1. The 5+3+3+4 structure integrates Early Childhood Care and Education (ECCE) formally into the school curriculum for the first time.
- 1. The policy recommends that by 2030, all students completing the Foundational Stage should have basic literacy and numeracy skills.
- 1. NIPUN Bharat Mission was launched in 2021 as a direct outcome of this structural reform to achieve foundational literacy goals by Grade 3.

Q8. Match the following committees/commissions mentioned or referenced in NEP 2020 with their primary area of focus:

List I (Committee/Commission)	List II (Primary Area of Focus)
I. K. Kasturirangan Committee	A. Draft of NEP 2020
II. TSR Subramanian Committee	B. Draft of NEP 2016
III. Yashpal Committee	C. Reducing curriculum load in higher education
IV. Kothari Commission	D. National curriculum framework and education restructuring (1964–66)

Options:

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

Ans.(a)

Sol. Correct Option – (a)

Introduction

India's education policy has evolved through several committees, commissions, and expert groups. NEP 2020 acknowledges and builds upon the recommendations of its predecessors. Understanding these committees is essential for UGC NET aspirants.

Information Booster

- 1. K. Kasturirangan Committee (2017–2019): Chaired by Dr. K. Kasturirangan (former ISRO chief), drafted the National Education Policy 2020.
- 1. TSR Subramanian Committee (2016): Produced the draft NEP 2016, which was not accepted as policy.
- 1. Yashpal Committee (2009): Produced the report 'Towards Entitlement' focusing on reducing curriculum load and overhauling higher education.
- 1. Kothari Commission (1964–1966): Laid the foundation for the 1968 National Policy on Education and introduced the concept of a common school system and 10+2+3 structure.

Additional Knowledge

- 1. The NEP 2020 drafting process involved over 2.5 lakh village-level consultations, 675 district-level consultations, and over 2 lakh suggestions.
- 1. The policy was approved by the Union Cabinet on 29 July 2020, replacing the 34-year-old NEP 1986 (modified in 1992).
- 1. Dr. Kasturirangan's committee held extensive dialogues with all 36 states and UTs, making this policy truly nationally representative.

Q9. Arrange these MDG focus areas in order of their goal numbers:

- I. Child Mortality
- II. Maternal Health
- III. Primary Education
- IV. Poverty Reduction

- (a) I → II → III → IV
- (b) III → IV → II → I
- (c) II → I → IV → III
- (d) IV → III → I → II

Ans.(d)

Sol. The Millennium Development Goals (MDGs), adopted by the United Nations in 2000, comprise 8 goals. Below is the correct order of the listed focus areas based on their official goal numbers:

Goal 1 – Eradicate Extreme Poverty and Hunger → Related to IV. Poverty Reduction

Goal 2 – Achieve Universal Primary Education → Related to III. Primary Education

Goal 4 – Reduce Child Mortality → Related to I. Child Mortality

Goal 5 – Improve Maternal Health → Related to II. Maternal Health

Ordered by Goal Numbers:

IV (Goal 1) → III (Goal 2) → I (Goal 4) → II (Goal 5)

Hence, the correct option is (d).

Information Booster:

Goal 1: Focused on halving extreme poverty and hunger between 1990 and 2015.

Goal 2: Targeted universal primary education for all children.

Goal 4: Aimed to reduce under-five mortality by two-thirds.

Goal 5: Sought to reduce the maternal mortality ratio by three-quarters.

MDGs were time-bound and quantifiable, helping monitor global progress.

The MDGs laid the foundation for the broader and more inclusive Sustainable Development Goals (SDGs).

Global health, education, and poverty alleviation were central pillars of the MDG framework.

Q10. Robert Gagne's Nine Events of Instruction is a critical sequence for designing effective learning experiences. Arrange the following four events in the correct chronological order as they would appear in a lesson plan:

1. Presenting the Content Stimulus
2. Eliciting Performance Practice
3. Gaining Attention
4. Providing Feedback

(a) 3, 2, 1, 4

(b) 1, 3, 2, 4

(c) 3, 1, 2, 4

(d) 1, 2, 4, 3

Ans.(c)

Sol. Correct Option – (c)

INTRODUCTION: Gagne's events outline the necessary external conditions of learning that support the internal cognitive processes of the learner. By sequencing these events, the instructional designer ensures that the learner is prepared, receives the information, practices it, and receives correction.

INFORMATION BOOSTER: The events follow a logical psychological flow:

1. 3. Gaining Attention Event 1: The very first step, ensuring the learner is receptive and focused on the lesson.
2. 1. Presenting the Content Stimulus Event 4: Delivering the actual instructional material and content after objectives and recalling prior knowledge, which are events 2 and 3.
3. 2. Eliciting Performance Practice Event 7: Getting the learner to demonstrate the new skill or knowledge acquired.
4. 4. Providing Feedback Event 8: Informing the learner of the accuracy of their performance, which reinforces correct responses and corrects errors.

ADDITIONAL KNOWLEDGE: The two events that precede this list are Informing the learner of the objective Event 2 and Stimulating Recall of Prior Learning Event 3. The final event Event 9 is Enhancing Retention and Transfer.

Q11. Match the following types of research with their core philosophical paradigms and key characteristics.

List-I (Research Type)	List-II (Philosophical Paradigm & Characteristic)
A. Ethnographic Research	1. Positivism - Seeks objective truths through measurable variables
B. Experimental Research	2. Constructivism - Relativist multiple realities through participant meanings
C. Grounded Theory Research	3. Interpretivism - Understanding culture from an insider's perspective
D. Narrative Research	4. Critical Theory - Empowering marginalized voices through storytelling

Codes:

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

Ans.(c)

Sol. Correct Option – (c)

Introduction: Research methodology is grounded in philosophical paradigms that shape how we view reality and knowledge. Understanding the alignment between research types and their underlying philosophies is crucial for methodological rigor.

Information Booster:

- A. Ethnographic Research (Matches with 3): Rooted in Interpretivism, this approach involves immersive understanding of cultures from an insider's perspective through prolonged field engagement and participant observation.
- B. Experimental Research (Matches with 1): Based on Positivism, this paradigm seeks objective truths through controlled manipulation of variables and quantitative measurement, emphasizing causality and generalizability.
- C. Grounded Theory Research (Matches with 2): Aligned with Constructivism, this methodology develops theories grounded in data through constant comparison, acknowledging multiple realities constructed through participant meanings.
- D. Narrative Research (Matches with 4): Often associated with Critical Theory, this approach empowers marginalized voices by analyzing lived experiences through storytelling, challenging dominant narratives.

Additional Knowledge:

- Pragmatism represents another important paradigm that emphasizes practical solutions to research problems, often employing mixed methods. The choice of paradigm depends on the research question rather than methodological preference alone.

Q12. Given below are two statements:

Statement I: An Optical Mark Reader (OMR) is an input device used to detect the presence or absence of a mark in a specific position on a paper.

Statement II: Laser printers are examples of 'Impact Printers' because the laser beam physically strikes the paper to create an image.

In the light of the above statements, choose the most appropriate answer:

- (a) Statement I is correct but Statement II is incorrect
- (b) Both Statement I and Statement II are correct
- (c) Both Statement I and Statement II are incorrect
- (d) Statement I is incorrect but Statement II is correct

Ans.(a)

Sol. Correct Option – (a)

Introduction

In ICT, hardware is categorized by how it processes data (Input vs. Output) and its mechanical method of operation (Impact vs. Non-impact).

Information Booster

- Statement I (Correct): An OMR (Optical Mark Reader) is a specialized input device. It shines a beam of light onto a document (like an exam sheet) and detects where the light is absorbed. If a mark is present, the light is not reflected back, which the computer interprets as data. It is the standard for processing multiple-choice exams.
- Statement II (Incorrect): Laser printers are actually Non-impact Printers. Impact printers (like Dot Matrix printers) involve a physical hammer or pin hitting an inked ribbon against the paper. A laser printer uses a laser beam, static electricity, and heat to bond "toner" (ink powder) to the paper without any physical strike.

Q13. Arrange the following internet milestones in the correct chronological order of their occurrence:

- A. Launch of the social media platform Facebook.
- B. Development of ARPANET by the US Department of Defense.
- C. Introduction of the World Wide Web (WWW) by Tim Berners-Lee.
- D. The first ever email sent by Ray Tomlinson.

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

Ans.(a)

Sol. Correct Option – (a)

Introduction

The history of the internet is a transition from a closed military project to a global communication and social network. Understanding these milestones is a frequent requirement in the ICT unit for identifying the evolution of digital technology.

Information Booster

- B. Development of ARPANET (1969): The Advanced Research Projects Agency Network was the precursor to the modern internet, funded by the US Department of Defense to enable computers to share information across a distributed network.
- D. First Email Sent (1971): Ray Tomlinson sent the first network email using the @ symbol to separate the user's name from the machine's name.
- C. Introduction of the WWW (1989/1990): Tim Berners-Lee, while working at CERN, developed the protocols (HTTP, HTML) that allowed the internet to be used as a web of interlinked documents.
- A. Launch of Facebook (2004): Marking the era of Web 2.0 (the social web), Facebook revolutionized how people interact online.

Additional Information

- The "Network of Networks": ARPANET adopted the TCP/IP protocols on January 1, 1983, which is often considered the official "birthday" of the Internet.
- First Browser: The first web browser, also created by Tim Berners-Lee, was called WorldWideWeb (later renamed Nexus).

Q14. Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Keyboard	I.	Memory
B.	Monitor	II.	Processor
C.	CPU	III.	Output device
D.	ROM	IV.	Input device

Choose the correct answer from the options given below:

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

Ans.(a)

Sol. Correct Option – (a)

Introduction:

Computer hardware components are classified based on their functional roles such as input, output, processing, and storage. Correct matching reflects basic computer organization.

Information Booster:

- Keyboard - A keyboard is an input device used to enter data and commands into the computer.
- Monitor - A monitor is an output device that displays processed information visually.
- CPU - The CPU functions as the processor, executing instructions and controlling operations.
- ROM - ROM is a type of memory that permanently stores essential system instructions.

Additional Knowledge:

- Input devices convert user actions into machine-readable form, while output devices present results.
- Memory components are crucial for storing data either temporarily or permanently.

Directions (15-19): The table below shows the number of people (in thousands) in five different departments, the percentage of males, and the ratio of certified to non-certified people. Use this table to answer the questions.

Department	Total people (in thousands)	Percentage of Males	Certified : Non-certified
P	42	58%	5 : 4
Q	28	46%	7 : 3
R	36	62%	3 : 2
S	50	40%	11 : 9
T	60	75%	4 : 5

Q15. If 20% of the males from department R move to department S, find the total number of males in department S now.

- (a) 24,200
- (b) 24,464
- (c) 24,600
- (d) 24,800

Ans.(b)

Sol. Solution:

Males in R = 62% of 36,000 = 22,320

20% move to S = 4,464

Males in S initially = 40% of 50,000 = 20,000

New males in S = 20,000 + 4,464 = 24,464

Answer: (b)

Q16. Total certified people from department Q are what percent of total non-certified people from department P?

- (a) 100%
- (b) 102.5%
- (c) 105%
- (d) 110%

Ans.(c)

Sol. Solution:

Certified in Q = $(7/10) \times 28,000 = 19,600$

Non-certified in P = $(4/9) \times 42,000 = 18,666.67$

Required percent = $(19,600 / 18,666.67) \times 100 = 105\%$

Answer: (c)

Q17. If 30% of males in department T are non-certified, find the ratio of non-certified males to non-certified females in T.

- (a) 27 : 40
- (b) 81 : 119
- (c) 5 : 9
- (d) 119 : 81

Ans.(b)

Sol. Solution:

In T: males = 75% of 60,000 = 45,000; females = 15,000

Overall non-certified in T = $(5/9) \times 60,000 = 33,333.33$

Non-certified males = 30% of 45,000 = 13,500

Non-certified females = $33,333.33 - 13,500 = 19,833.33$

Ratio = $13,500 : 19,833.33 = 81 : 119$

Answer: (b)

Q18. Find the ratio of total females from departments P and S together to the total non-certified males from departments Q and R together (assume the certified/non-certified split is uniform across genders).

- (a) 1985 : 533
- (b) 861 : 289
- (c) 215 : 72
- (d) 2000 : 540

Ans.(a)

Sol. Solution:

Females in P = $42,000 \times (1 - 0.58) = 17,640$

Females in S = $50,000 \times (1 - 0.40) = 30,000$

Total females (P+S) = 47,640

Non-certified fraction: Q = $3/10$, R = $2/5$

Males in Q = 46% of 28,000 = 12,880 → non-certified males = $0.3 \times 12,880 = 3,864$

Males in R = 62% of 36,000 = 22,320 → non-certified males = $0.4 \times 22,320 = 8,928$

Total non-certified males (Q+R) = 12,792

Required ratio = $47,640 : 12,792 = 1985 : 533$

Answer: (a)

Q19. In department P, if the number of certified males equals certified females, find the number of non-certified females in P.

- (a) 5,900
- (b) 5,973
- (c) 6,000
- (d) 6,100

Ans.(b)

Sol. Solution:

Step 1: Total males and females in Department P

Total people in P = 42,000

Male % = 58%

Female % = 42%

Males = 58% of 42,000 = 24,360

Females = 42% of 42,000 = 17,640

Step 2: Find number of certified and non-certified people

Certified : Non-certified = 5 : 4

Total ratio = 9 parts

So each part = $42,000 \div 9 = 4,666.67$

Certified people = $5 \times 4,666.67 = 23,333.33$

Non-certified people = $4 \times 4,666.67 = 18,666.67$

Step 3: Apply given condition

Given:

Certified males = Certified females

So certified people are split equally:

Certified males = Certified females

= $23,333.33 \div 2$

= 11,666.67 each

Step 4: Find non-certified females

Total females = 17,640

Certified females = 11,666.67

Non-certified females =

$17,640 - 11,666.67$

= $5,973.33 \approx 5,973$

Final Answer: 5,973 non-certified females

Q20. In an election between two candidates, one got 55% of the total valid votes. If 20% of the votes were invalid and the total number of votes was 9,000, what was the number of valid votes the other candidate got?

- (a) 2240
- (b) 2440
- (c) 3240
- (d) 3440

Ans.(c)

Sol. Given:

Total number of votes = 9000

Percentage of invalid votes = 20%

Valid votes secured by first candidate = 55%

Solution:

Calculate the percentage of valid votes:

$$100 - 20 = 80$$

Calculate the total number of valid votes from the total votes:

$$8010010080 \times 9000 = 7200$$

The first candidate got 55 percent of the valid votes. Therefore, the second candidate got:

$$100 - 55 = 45$$

Calculate the number of valid votes the second candidate got:

$$4510010045 \times 7200 = 3240$$

Final Answer

So the correct answer is (c)

Q21. Given below are two statements:

Statement I: VGA stands for Video Graphics Array, a standard used for video output in computers.

Statement II: JPEG, which stands for Joint Photographic Experts Group, is a lossy compression technique for color images.

In the light of the above statements, choose the most appropriate answer:

- (a) Both Statement I and Statement II are correct
- (b) Both Statement I and Statement II are incorrect
- (c) Statement I is correct but Statement II is incorrect
- (d) Statement I is incorrect but Statement II is correct

Ans.(a)

Sol. Correct Option – (a)

Introduction

In ICT, standardized abbreviations help categorize how hardware connects to monitors and how data is shrunk for efficient storage.

Information Booster

- Statement I (Correct): VGA (Video Graphics Array) was introduced by IBM in 1987. It is an analog interface that uses a 15-pin connector (usually blue). While modern systems use digital connections like HDMI or DisplayPort, VGA is still a common standard in older projectors and monitors.
- Statement II (Correct): JPEG (Joint Photographic Experts Group) is the most common format for digital photos. It uses "lossy" compression, meaning it permanently discards some data (mostly subtle color variations the human eye doesn't easily notice) to keep file sizes small. This makes it ideal for web use and social media.

Q22. The speed of a boat when travelling downstream is 33 km/h, whereas when travelling upstream it is 27 km/h. What is the speed of the boat in still water?

- (a) 30 km/h
- (b) 60 km/h
- (c) 12 km/h
- (d) 6 km/h

Ans.(a)

Sol. Given:

Downstream speed = 33 km/h

Upstream speed = 27 km/h

Formula used:

Speed of boat in still water = $\frac{\text{Downstream speed} + \text{Upstream speed}}{2}$

Solution:

Speed in still water = $\frac{33 + 27}{2} = 30 \text{ km/h}$

The correct answer is option (a) 30 km/h.

Q23. Arrange the following stages of personality development sequentially as proposed by Freud

- A. Phallic
- B. Oral
- C. Anal
- D. Genital
- E. Latency

Choose the correct answer from the options given below:

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

Ans.(b)

Sol. Correct Option – (b)

Introduction

Sigmund Freud proposed that human personality develops through five different psychosexual stages during childhood. At each stage, the child's pleasure-seeking energy, mainly associated with the id, is focused on a particular part of the body known as an erogenous zone.

Freud's Psychosexual Stages:

Oral → Anal → Phallic → Latency → Genital (0–1 year) → (1–3 years) → (3–6 years) → (6 years–Puberty) → (Puberty onwards)

Information Booster

1. Oral Stage (B) [Birth to 1 year]: During this stage, the mouth is the main source of pleasure and interaction. Activities such as sucking, feeding, and rooting are especially important.
2. Anal Stage (C) [1 to 3 years]: The child's attention shifts to controlling bowel and bladder movements. Toilet training becomes an important part of development during this stage.
3. Phallic Stage (a) [3 to 6 years]: The focus shifts to the genital area. Freud associated this stage with psychological concepts such as the Oedipus Complex and the Electra Complex.
4. Latency Stage (E) [6 years to Puberty]: During this stage, sexual urges become less prominent, and the child's energy is directed toward learning, friendships, social interaction, and intellectual development.
5. Genital Stage (D) [Puberty onwards]: With puberty, sexual interests become active again. According to Freud, this stage involves the development of mature relationships, sexual interests, and an integrated adult personality.

Additional Knowledge

- **Fixation:** According to Freud's psychodynamic theory, if conflicts at a particular stage are not successfully resolved, a person may develop fixation. This means that some aspects of the individual's personality may remain connected to that earlier stage of development.

Q24. In a code, LEARNERS is written as OHDUQHUV. What is the code for TEACHERS?

- (a) WHDFKHUV
- (b) WHDFKHSV
- (c) WHDFKHVS
- (d) WHDFKHVU

Ans.(a)

Sol. Information Given:

LEARNERS → each letter +3

T E A C H E R S → ?

Logic:

Apply +3 to each letter, left to right.

Explanation:

T + 3 → W

E + 3 → H

A + 3 → D

C + 3 → F

H + 3 → K

E + 3 → H

R + 3 → U

S + 3 → V

Therefore: TEACHERS → WHDFKHUV

Short Trick:

Shift every letter 3 positions forward.

Final Answer:

WHDFKHUV

Final Correct Option:

(A)

Q25. A warehouse has a floor in the shape of a rectangle 20 m × 15 m, with a triangular extension on one end. The triangle has a base of 15 m and a height of 8 m. What is the total area of the floor?

- (a) 360 m²
- (b) 350 m²
- (c) 340 m²
- (d) 380 m²

Ans.(a)

Sol. Given:

Rectangle: 20m×15m. 20m×15m.

Triangle: Base = 15 m, Height = 8 m.

Formula Used:

Area = Area of Rectangle + Area of Triangle

Area = (l×b)+(1/2×base×height) = (20×15)+(1/2×15×8)

Solution:

Area of Rectangle = 20×15=300m² 20×15=300 m²

Area of Triangle = 1/2×15×8=15×4=60m² 1/2×15×8=15×4=60 m²

Total Area = 300 + 60 = 360m² 360 m²

Final Answer

So the correct answer is (a)

Q26. The average test score of a class of m students is 60 and that of n students is 81. When the scores of both classes are combined, then the average is 70. In this context, which of the following statements are correct?

- A. $(m + n)/(m - n) = 21$
- B. $m/(m - n) = 11$
- C. $n/(n + m) = 10$
- D. $m/(m + n) = 11$
- E. $n/(m - n) = 10$

Choose the correct answer from the options given below:

- (a) A, B, C only
- (b) A, B, E only
- (c) C, D, E only
- (d) B, C, D only

Ans.(b)

Sol. Given:

Average score of m students = 60

Average score of n students = 81

Combined average = 70

Formula:

Combined average = Total score / Total number of students

Solution:

Total score of m students = $60m$

Total score of n students = $81n$

Therefore,

$$(60m + 81n)/(m + n) = 70$$

$$60m + 81n = 70m + 70n$$

$$11n = 10m$$

Therefore,

$$m/n = 11/10$$

Let:

$$m = 11k$$

$$n = 10k$$

Now,

$$m - n = 11k - 10k$$

$$= k$$

Checking Statement A:

$$(m + n)/(m - n)$$

$$= (11k + 10k)/k$$

$$= 21$$

Therefore, A is correct.

Checking Statement B:

$$m/(m - n)$$

$$= 11k/k$$

$$= 11$$

Therefore, B is correct.

Checking Statement C:

$$n/(n + m)$$

$$= 10k/(10k + 11k)$$

$$= 10/21$$

Therefore, C is incorrect.

Checking Statement D:

$$m/(m + n)$$

$$= 11k/(11k + 10k)$$

$$= 11/21$$

Therefore, D is incorrect.

Checking Statement E:

$$n/(m - n)$$

$$= 10k/k$$

$$= 10$$

Therefore, E is correct.

Thus, the correct statements are A, B and E only.

Hence, the correct answer is Option (b) A, B, E only.

