UGC NET Paper 1 Jan 03, 2026 Shift 1 Memory Based Question Paper

Q1. The average of the number of girls studying in all six classes, A-F, is

Read the given passage and answer the following questions

The following table shows the percentage (%) distribution of students studying in six classes A-F of a school and shows the ratio of boys to girls among them. Number of students studying in all six classes together is 600.

Class-wise distribution of students

Class	%Students	Ratio Boys : Girls
A	20%	3:2
B	12%	3:1
C	16%	5:3
D	15%	8:7
E	21%	4:3
F	16%	1:1

(a) 41
(b) 42
(c) 43
(d) 44

Answer: A

Sol: Students in class A $= \dfrac{(20 \times 600)}{100} = 120$

Girls in Class A $= \dfrac{(120 \times 2)}{(3+2)} = 48$

Students in class B $= \dfrac{(12 \times 600)}{100} = 72$

Girls in Class B $= \dfrac{(72 \times 1)}{(3+1)} = 18$

Students in class C $= \dfrac{(16 \times 600)}{100} = 96$

Girls in class C $= \dfrac{(96 \times 3)}{(5+3)} = 36$

Students in class D $= \dfrac{(15 \times 600)}{100} = 90$

Girls in class D $= \dfrac{(90 \times 7)}{(8+7)} = 42$

Students in class E = $\dfrac{(21 \times 600)}{100} = 126$

Girls in class E = $\dfrac{(126 \times 3)}{(4+3)} = 54$

Students in class F = $\dfrac{(16 \times 600)}{100} = 96$

Girls in class F = $\dfrac{(96 \times 1)}{(1+1)} = 48$

Total Girls = $48 + 18 + 36 + 42 + 54 + 48 = 246$

Average of Girls in 6 classes = $\dfrac{246}{6} = 41$

Correct answer is (a) **41.**

Q2. The difference between the number of boys and the number of girls in all the six classes A-F together, is

Read the given passage and answer the following questions

The following table shows the percentage (%) distribution of students studying in six classes A-F of a school and shows the ratio of boys to girls among them. Number of students studying in all six classes together is 600.

Class-wise distribution of students

Class	%Students	Ratio Boys : Girls
A	20%	3:2
B	12%	3:1
C	16%	5:3
D	15%	8:7
E	21%	4:3
F	16%	1:1

(a) 102
(b) 114
(c) 106
(d) 108

Answer: D

Sol: Students in class A = $\dfrac{(20 \times 600)}{100} = 120$

Difference in Class A = $\dfrac{(120 \times (3-2))}{(3+2)} = 24$

Students in class B = $\dfrac{(12 \times 600)}{100} = 72$

Difference in Class B = $\dfrac{(72 \times (3-1))}{(3+1)} = 36$

Students in class C = $\dfrac{(16 \times 600)}{100} = 96$

Difference in class C = $\dfrac{(96 \times (5-3))}{(5+3)} = 24$

Students in class D = $\dfrac{(15 \times 600)}{100} = 90$

Difference in class D = $\dfrac{(90 \times (8-7))}{(8+7)} = 6$

Students in class E = $\dfrac{(21 \times 600)}{100} = 126$

Difference in class E = $\dfrac{(126 \times (4-3))}{(4+3)} = 18$

Students in class F = $\dfrac{(16 \times 600)}{100} = 96$

Difference in class F = $\dfrac{(96 \times (1-1))}{(1+1)} = 0$

The difference between the number of boys and the number of girls in all the six classes A-F together = $24 + 36 + 24 + 6 + 18 + 0 = 108$

Q3. In the given pair of classes, which two classes have an equal number of boys in them?
Read the given passage and answer the following questions
The following table shows the percentage (%) distribution of students studying in six classes A-F of a school and shows the ratio of boys to girls among them. Number of students studying in all six classes together is 600.
Class-wise distribution of students

Class	%Students	Ratio Boys : Girls
A	20%	3:2
B	12%	3:1
C	16%	5:3
D	15%	8:7
E	21%	4:3
F	16%	1:1

(a) A and C
(b) C and F
(c) D and F
(d) E and F
Answer: C

Sol: Students in class A $= \dfrac{20 \times 600}{100} = 120$

Boys in class A $= \dfrac{120 \times 3}{3+2} = \dfrac{360}{5} = 72$

Students in class B $= \dfrac{12 \times 600}{100} = 72$

Boys in class B $= \dfrac{72 \times 3}{3+1} = \dfrac{216}{4} = 54$

Students in class C $= \dfrac{16 \times 600}{100} = 96$

Boys in class C $= \dfrac{96 \times 5}{5+3} = \dfrac{480}{8} = 60$

Students in class D $= \dfrac{15 \times 600}{100} = 90$

Boys in class D $= \dfrac{90 \times 8}{8+7} = \dfrac{720}{15} = 48$

Students in class E $= \dfrac{21 \times 600}{100} = 126$

Boys in class E $= \dfrac{126 \times 4}{4+3} = \dfrac{504}{7} = 72$

Students in class F $= \dfrac{16 \times 600}{100} = 96$

Boys in class F $= \dfrac{96 \times 1}{1+1} = \dfrac{96}{2} = 48$

Two pairs of classes have same number of boys, i.e, A & E and D & F.
Correct answer is (c).

Q4. If P and Q are the differences between the number of boys and girls in class A and class C, respectively, then the percentage of P with reference to Q is
Read the given passage and answer the following questions

The following table shows the percentage (%) distribution of students studying in six classes A-F of a school and shows the ratio of boys to girls among them. Number of students studying in all six classes together is 600.

Class-wise distribution of students

Class	%Students	Ratio Boys : Girls
A	20%	3:2
B	12%	3:1
C	16%	5:3
D	15%	8:7
E	21%	4:3
F	16%	1:1

(a) 80%
(b) 120%
(c) 100%
(d) 90%
Answer: C

Sol: Students in class A $= \dfrac{20 \times 600}{100} = 120$

Students in class C $= \dfrac{16 \times 600}{100} = 96$

Boys in class A $= \dfrac{120 \times 3}{3+2} = \dfrac{360}{5} = 72$

Boys in class C $= \dfrac{96 \times 5}{5+3} = \dfrac{480}{8} = 60$

Girls in class A $= \dfrac{120 \times 2}{3+2} = \dfrac{240}{5} = 48$

Girls in class C $= \dfrac{96 \times 3}{5+3} = \dfrac{288}{8} = 36$

$P = 72 - 60 = 12$

$Q = 48 - 36 = 12$

Percentage of P with reference to $Q = \dfrac{12}{12} \times 100 = 100\%$

Correct answer is (c)

Q5. Number of boys in class B is _____% more than the number of girls in class F.
Read the given passage and answer the following questions
The following table shows the percentage (%) distribution of students studying in six classes A-F of a school and shows the ratio of boys to girls among them. Number of students studying in all six classes together is 600.
Class-wise distribution of students

Class	%Students	Ratio Boys : Girls
A	20%	3:2
B	12%	3:1
C	16%	5:3
D	15%	8:7
E	21%	4:3
F	16%	1:1

(a) 8.5%
(b) 12.5%
(c) 15%
(d) 17.5%
Answer: B

Sol: Given total no of student $= 600$

Students in class B $= \dfrac{12 \times 600}{100} = 72$

Boys in class B $= \dfrac{72 \times 3}{3+1} = \dfrac{216}{4} = 54$

Students in class F $= \dfrac{16 \times 600}{100} = 96$

Girls in class F $= \dfrac{96 \times 1}{1+1} = \dfrac{96}{2} = 48$

Difference $= 54 - 48 = 6$

Required percentage $= \dfrac{6}{48} \times 100 = 12.5\%$

Number of boys in class B is 12.5% more than the number of girls in class F.
Correct answer is (b).

Q6. What is the correct sequence of various components of biogas in terms of their abundance?
(A) Ammonia (NH_3)
(B) Hydrogen Sulfide (H_2S)
(C) Methane (CH_4)
(D) Carbon dioxide (CO_2)
Choose the correct answer from the options given below:
(a) B>D>A>C
(b) C>D>A>B
(c) D>C>B>A
(d) C>D>B>A
Answer: D
Sol:
Biogas is a renewable energy source primarily composed of methane (CH_4) and carbon dioxide (CO_2), with smaller amounts of other gases. The typical composition of biogas by volume is as follows:
1. Methane (CH_4): Methane is the most abundant component of biogas, typically comprising around 50-70% of the total volume. It is the primary energy source in biogas, giving it fuel value for use in heating, cooking, and electricity generation.

2. Carbon dioxide (CO_2): CO_2 is the second most abundant component, making up about 25-45% of biogas. While it does not contribute to the energy content, it is a natural by-product of the anaerobic digestion process and affects the overall composition of biogas.

3. Hydrogen sulfide (H_2S): Present in trace amounts (0.1-1%), hydrogen sulfide gives biogas its characteristic smell and is considered a contaminant due to its corrosive and toxic properties. H_2S must be removed or reduced during biogas processing to prevent damage to equipment.

4. Ammonia (NH_3): Ammonia is found in very small amounts, usually less than 1%. Its presence is often due to the nitrogen content in the feedstock used in biogas production.

Thus, the correct sequence of the components in terms of their abundance is Methane (CH_4) > Carbon dioxide (CO_2) > Hydrogen sulfide (H_2S) > Ammonia (NH_3).

Information Booster Biogas is produced by the anaerobic digestion of organic materials such as agricultural waste, manure, and municipal waste. The high methane content makes biogas a valuable renewable fuel, as methane combustion releases energy. Carbon dioxide, while not contributing to the energy yield, is a natural by-product of the digestion process. To make biogas more efficient and to minimize equipment corrosion, H_2S and NH_3 are often removed during purification stages.

Q7. The depletion of the ozone layer due to anthropogenic air pollution occurs when:
(a) NO_2 reacts with stratospheric ozone
(b) CO_2 dissolves in rainwater
(c) PM2.5 blocks sunlight
(d) Methane forms ground-level ozone
Answer: A
Sol:
The depletion of the ozone layer primarily occurs when nitrogen oxides (NO_2), along with other ozone-depleting substances like chlorofluorocarbons (CFCs), react with ozone (O_3) molecules in the stratosphere. This reaction breaks down ozone molecules, thinning the ozone layer and reducing its ability to absorb harmful ultraviolet (UV) radiation from the sun. Nitrogen oxides (NO_2) play a significant role in the ozone depletion process, as they catalyze reactions that lead to the breakdown of ozone molecules.

Information booster
The ozone layer is crucial for protecting life on Earth by absorbing most of the sun's harmful ultraviolet radiation, which can cause skin cancer, cataracts, and harm ecosystems.
Chlorofluorocarbons (CFCs), halons, and other man-made chemicals, when released into the atmosphere, break down ozone molecules, and nitrogen oxides (NO_2) further contribute to this depletion process.
Ozone depletion is most pronounced in the polar regions, forming the ozone hole, especially during the spring in the Southern Hemisphere.
International agreements like the Montreal Protocol have led to a significant reduction in the use of ozone-depleting substances, helping the ozone layer to recover slowly.
Additional Knowledge:
CO_2 dissolves in rainwater
CO_2 causes ocean acidification, not ozone depletion.
PM2.5 blocks sunlight
PM2.5 affects tropospheric air quality and climate (aerosol effects), but not stratospheric ozone.
Methane forms ground-level ozone
Methane (CH_4) contributes totropospheric ozone(smog), which is harmful to health but does not deplete thestratospheric ozone layer.

Q.8 Arrange the following fractions in decreasing order of their values.

1. $\dfrac{13}{18}$

2. $\dfrac{9}{11}$

3. $\dfrac{11}{13}$

4. $\dfrac{7}{8}$

Choose the correct answer from the options given below:

(a) C>D>B>A
(b) D>C>A>B
(c) D>A>B>C
(d) D>C>B>A
Answer: D
Sol:
Solution:
Values: 7/8 = 0.875;
11/13 ≈ 0.846;
9/11 ≈ 0.818;
13/18 ≈ 0.722.
Order: D > C > B > A.

Q9. Match LIST–I with LIST–II

List–I		List–II
A. A and B together complete a work in 6 days. A alone takes 9 days. Find B's time alone.		I. 40%
B. The average of 5 numbers is 66. Find their total sum.		II. 18 days
C. Price decreases from 200 to 120. Find % decrease.		III. 330
D. For a 300 km journey, increasing speed by 10 km/h reduces travel time by 1 hour. Find original speed.		IV. 50 km/h

(a) A–II, B–III, C–I, D–IV
(b) A–I, B–II, C–III, D–IV
(c) A–III, B–I, C–IV, D–II
(d) A–IV, B–III, C–II, D–I
Answer: A
Sol:
Correct Option: (a)
Solution:
A: 1/6 – 1/9 = 1/18 → B takes 18 days → II
B: Sum = 66 × 5 = 330 → III
C: Decrease = 80 → % decrease = 40% → I
D: Original speed solving equation gives v = 50 km/h → IV
Final mapping: A–II, B–III, C–I, D–IV

Q10. Amongst the following Green House Gases (GHGs). Whose Global Warming Potential (GWP) is considered as 1?
(a) Chlorofluorocarbon (CFC)
(b) Nitrous Oxide (N2O)
(c) Carbon dioxide (CO2)
(d) Methane (CH4)
Answer:
C
Sol:
Global Warming Potential (GWP) is a measure of how much energy one ton of a greenhouse gas traps over a given period of time, relative to one ton of carbon dioxide (CO2). By definition, CO2 has a GWP of 1, as it is the reference gas against which other GHGs are compared.
Chlorofluorocarbons (CFCs) have a GWP that ranges from 1,400 to 15,300. Nitrous oxide (N2O) has a GWP of 300. Methane (CH4) has a GWP of 25.

Q11. Which of the following is not a primary air pollutant?
(a) CO
(b) NO
(c) O_3
(d) SO_2
Answer: C
Sol:
O_3 (Ozone) is not a primary air pollutant; it is a secondary air pollutant. Primary pollutants are directly emitted from a source, such as CO (carbon monoxide), NO (nitric oxide), and SO_2 (sulfur dioxide), which are released into the atmosphere from activities like combustion and industrial processes. In contrast, ozone (O_3) forms in the atmosphere through chemical reactions between primary pollutants like nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight, making it a secondary pollutant.
Information booster:
1. Primary pollutants are directly emitted into the air from sources such as vehicles, factories, and natural processes like volcanic eruptions.
2. Secondary pollutants are formed in the atmosphere through chemical reactions involving primary pollutants.
3. Ozone (O_3), while protective in the stratosphere, is a harmful air pollutant at ground level, contributing to smog.
Additional Knowledge:
CO (carbon monoxide) is a primary pollutant emitted from vehicle exhaust and incomplete combustion processes.
NO (nitric oxide) and SO_2 (sulfur dioxide) are also primary pollutants produced by fossil fuel combustion, with significant impacts on air quality and human health.

Q12. Bipin offers a discount scheme that on buying 7 notebooks, get 3 for free. What will be the sale price (in Rs.) of a notebook with a marked price Rs. 185, if the equivalent percentage discount is applied?
(a) 129.50
(b) 130
(c) 130.50

(d) 129
Answer: A

Sol: **Given:**
Buy 7, get 3 free
=> pay for 7 but receive 10 notebooks
Marked price = 185.
Formula Used:
selling price per notebook = MP × (1 − discount).
Solution:
Effective discount = $\frac{\text{free}}{\text{total}} = \frac{3}{10} = 30\%$
Discount = 30%
Selling price per notebook = 185 × 0.70 = 129.50
So sale price = Rs. 129.50.

Q13. Which of the following are core missions of National Action Plan on Climate Change?
A. National Solar Mission
B. National Mission on dessert
C. National Water Mission
D. National mission for sustainable agriculture
E. National Mission on Indian Ocean
Choose the correct answer from the options giver below.
(a) A, B and C only
(b) B, C and D only
(c) A, C and D only
(d) C, D and E only
Answer: C
Sol:
The core missions of the National Action Plan on Climate Change (NAPCC) are:
1. National Solar Mission: Aims to promote the use of solar energy.
2. National Water Mission: Focuses on water conservation and management.
3. National Mission for Sustainable Agriculture: Aims to promote sustainable agricultural practices.

Q14. Which of the following has the highest Biological Oxygen Demand (BOD)?
(a) Drinking water
(b) Unpolluted surface water
(c) Polluted surface water
(d) Municipal sewage effluent
Answer: D
Sol:
Biological Oxygen Demand (BOD) refers to the amount of oxygen required by microorganisms to break down organic matter in water. It is a key indicator of water pollution. Higher BOD values indicate higher levels of organic pollutants, which can deplete oxygen levels in water bodies and harm aquatic life.
1. (d) Municipal sewage effluent:

Very High BOD (up to 100–400 mg/L): Municipal sewage contains high levels of organic waste, making it the source with the highest BOD among the options.

Information Booster:

1. BOD Levels and Pollution:

Less than 3 mg/L: Clean water.

3–5 mg/L: Moderately polluted water.

Above 5 mg/L: Heavily polluted water.

2. Sources of High BOD:

Domestic sewage.

Industrial waste.

Agricultural runoff.

3. Impact of High BOD:

Depletes oxygen in water.

Causes fish kills and loss of biodiversity.

Additional Knowledge:

1. (a) Drinking water:

Low BOD (less than 1 mg/L): Drinking water is treated and contains minimal organic material, resulting in very low BOD.

2. (b) Unpolluted surface water:

Moderate BOD (1–2 mg/L): Unpolluted natural water bodies contain some organic matter but are not significantly contaminated.

3. (c) Polluted surface water:

Higher BOD (5–20 mg/L): Polluted surface water contains more organic matter, leading to higher oxygen consumption by microorganisms.

Q15. Select the number from among the given options that can replace the question mark (?) in the following series.

37, 40, 49, 76, 157, ?

(a) 400

(b) 410

(c) 319

(d) 385

Answer:

A

Sol:

Given series:

37, 40, 49, 76, 157, ?

Step 1: Find the pattern between consecutive terms.

40 − 37 = 3

49 − 40 = 9

76 − 49 = 27

157 − 76 = 81

The differences are: 3, 9, 27, 81

Step 2: Observe the pattern in the differences.

Each difference is a multiple of 3:

$3 = 3^1, 9 = 3^2, 27 = 3^3, 81 = 3^4$

So the next difference should be:

$3^5 = 243$

Step 3: Add 243 to the last term.
157+243=400
Final Answer: (a) 400

Q16. Minimum wind speed required for generating electricity in a wind mill is?
(a) 1 to 5 km/hour
(b) 14 to 16 km/hour
(c) 30 to 40 km/hour
(d) Above 40 km/hour
Answer:
B
Sol:
The minimum wind speed required for generating electricity in a windmill typically ranges between or approximately 14 to 16 km/h.
The kinetic energy of wind is utilized to generate electricity. In this, the wind energy is used to move the turbine of a windmill at high speed which generates electricity.

Q17. If SYNTAX is coded as 8213713 and MOULD is coded as 14451523, then how will DESIGN be coded?
(a) 232832013
(b) 235892013
(c) 45892013
(d) 42832014
Answer:
A
Sol:
Given:
SYNTAX → 8213713
MOULD → 14461523
Find code for DESIGN.
Logic:
Vowels: A=1, E=2, I=3, O=4, U=5
Consonants: code = 27 − (alphabet position)

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

SYNTAX → 8213713
S → 19th → 27−19 = 8
Y → 25th → 27−25 = 2
N → 14th → 27−14 = 13
T → 20th → 27−20 = 7
A → vowel A = 1
X → 24th → 27−24 = 3
Join → 8213713
MOULD → 14461523

M → 13th → 27−13 = 14
O → vowel O = 4
U → vowel U = 5
L → 12th → 27−12 = 15
D → 4th → 27−4 = 23
Join → 14451523
DESIGN → 232832013
D → 4th → 27−4 = 23
E → vowel E = 2
S → 19th → 27−19 = 8
I → vowel I = 3
G → 7th → 27−7 = 20
N → 14th → 27−14 = 13
Now, code of DESIGN → 232832013
Thus, correct option is (a).

Q18. Choose the correct statements.
A. This year Government of India has spent six percent of GDP on Education
B. The Govt of Karnataka has established a different State Education Policy commission under Sukhdeo Thorat
C. The NEP 2020 was chaired by a missile scientist-K. Kasturirangan
D. The NEP 2020 was chaired by an eminent educationist-Krishna Kumar
E. The NEP 2020 promotes private-philanthropic participation in education
Choose the correct answer from the options given below:
(a) A, B, and D only
(b) B, C, and E only
(c) A and D only
(d) B and C only
Answer: B
Sol:
● B. The Govt of Karnataka has established a different State Education Policy commission under Sukhdeo Thorat: This statement is correct. The state government of Karnataka has indeed set up a separate commission under Sukhdeo Thorat to focus on state-level education policy.
● C. The NEP 2020 was chaired by a missile scientist-K. Kasturirangan: This statement is correct. The NEP 2020 was chaired by Dr. K. Kasturirangan, who is an eminent space scientist and also the former Chairman of ISRO.
● E. The NEP 2020 promotes private-philanthropic participation in education: This is correct. NEP 2020 emphasizes the participation of private and philanthropic entities in the educational sector, aiming to improve quality and access.
Information Booster:
(a) NEP 2020 is a comprehensive framework aimed at reforming the educational system in India, with a focus on holistic development and reducing the burden on students.
(b) The NEP 2020 recommends the 6% GDP target for education, but this has not yet been achieved by the government.
(c) Private-philanthropic participation is encouraged by NEP 2020, specifically in areas of research, innovation, and higher education, to bring in new ideas and resources to the education sector.
(d) The State Education Policy commission under Sukhdeo Thorat in Karnataka aims to focus on regional challenges and solutions, building on the broader national policy.

5. The chairmanship of Dr. K. Kasturirangan ensured that the NEP 2020 was informed by his experience in science and technology, giving it a forward-looking, innovative edge.

Additional Knowledge:

● A. This year Government of India has spent six percent of GDP on Education: This statement is incorrect. The NEP 2020 advocates for the goal of allocating 6% of GDP towards education, but the actual expenditure has not yet reached this level.

● D. The NEP 2020 was chaired by an eminent educationist-Krishna Kumar: This statement is incorrect. The NEP 2020 was chaired by Dr. K. Kasturirangan, not Krishna Kumar.

Q19. Which of the following need to be inculcated for developing 21st-century skills of students by a teacher? A. Creativity B. Rote-learning C. Critical thinking D. Life-long learning E. Learning only for examination

Choose the correct answer from the options given below:

(a) A and C only

(b) B and E only

(c) A, C, and D only

(d) A, C, and E only

Answer:

C

Sol:

The correct answer is; A, C, and D only. The skills of creativity, critical thinking, and life-long learning are essential for developing 21st-century skills in students. These skills enable students to think independently, solve problems creatively, and continue learning throughout their lives, which are crucial for success in the modern world. In contrast, rote-learning and learning only for examinations are outdated methods that do not align with 21st-century educational goals.

Q20. Which learner characteristic refers to a learner's ability to recognize their own learning needs, set goals, and independently monitor their progress?

(a) Self-regulation

(b) Fixed mindset

(c) Motivation

(d) Attribution theory

Answer:

A

Sol:

The correct term is "Self-regulation," which refers to a learner's ability to control their own learning process. This includes recognizing learning needs, setting specific learning goals, choosing appropriate strategies, and monitoring progress. Self-regulation is a key skill that promotes independent learning and improves academic success.

Information Booster:

Self-regulated learners are proactive in their learning process and have strategies for managing time, setting goals, and reflecting on progress.

It involves three key components: self-monitoring, self-reflection, and self-reinforcement.

Metacognition plays a key role in self-regulation as it involves awareness of one's learning processes.

Self-regulation fosters a sense of ownership and responsibility in learners.

It is associated with improved academic performance and the development of lifelong learning skills.

Teachers can support self-regulation by providing opportunities for goal-setting, feedback, and reflection.

Additional Knowledge:

Fixed mindset refers to the belief that abilities and intelligence are static, and it is the opposite of the growth mindset, which encourages effort and learning.

Motivation is the driving force behind a learner's engagement in tasks, but self-regulation specifically focuses on the learner's ability to manage their own learning process.

Attribution theory involves the way learners attribute causes to their successes or failures (e.g., effort, ability, or external factors), but it does not specifically address the learners' ability to self-regulate.

Q21. Match the following arguments with their primary type of reasoning (Deductive or Inductive):

Argument	Type
A. All men are mortal. Socrates is a man. Therefore, Socrates is mortal.	1. Deductive
B. Every swan observed so far has been white. Therefore, all swans are white.	2. Inductive
C. If it is raining, the ground will be wet. The ground is wet. Therefore, it is raining.	3. Abductive
D. The patient has a high fever and a rash. These are symptoms of measles. Therefore, the patient has measles.	

Options:

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

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

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

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

Answer:

A

Sol:

Correct Option – (a)

Introduction: The distinction between deductive, inductive, and abductive reasoning is fundamental to logic and critical thinking. Each type has a distinct structure and aims for a different standard of success.

Information Booster:

A-1: Deductive: This is a classic syllogism. The conclusion follows necessarily from the premises. If the premises are true, the conclusion cannot be false.

B-2: Inductive: This argument generalizes from specific observations (some swans) to a universal conclusion (all swans). The conclusion is probable, not certain (as black swans in Australia proved).

C-1: Deductive (Formally, but often Fallacious): This is a deductive argument in form (If P, then Q. Q. Therefore, P). However, it is the logical fallacy of affirming the consequent. While it is structured deductively, its conclusion is not necessary (the ground could be wet for another reason, like a spilled water bucket).

D-3: Abductive: This is an inference to the best explanation. It starts with an observation and concludes with the hypothesis that would best explain that observation. It is the reasoning typically used in medical diagnoses and detective work.

Additional Knowledge: Abduction is often described as "having a best guess." It is predictive and creative but has the lowest logical certainty among the three. A good abductive argument offers the most plausible and simplest explanation for the available evidence.

Q22. The criterion of 'credibility' in qualitative research is equivalent to which of the following criteria in quantitative research?

(a) External validity

(b) Internal validity

(c) Objectivity

(d) Reliability

Answer:

B

Sol:

In qualitative research, credibility refers to the confidence in the truthfulness and authenticity of the findings. It ensures that the study accurately represents the participants' experiences and the phenomena being studied.

In quantitative research, the equivalent concept is internal validity, which determines whether the research findings accurately represent the causal relationship between variables. Both credibility and internal validity focus on the accuracy and trustworthiness of the study results.

Credibility (qualitative) ensures that the data and interpretation reflect reality as perceived by the participants.

Internal validity (quantitative) ensures that the study measures what it intends to and that the observed effects are due to the independent variable.

Information Booster:

1. Qualitative Research Criteria and Quantitative Equivalents:

Credibility ↔ Internal validity

Transferability ↔ External validity

Dependability ↔ Reliability

Confirmability ↔ Objectivity

2. Establishing Credibility in Qualitative Research:

Triangulation: Using multiple data sources or methods.

Member Checking: Validating findings with participants.

Prolonged Engagement: Spending sufficient time in the research setting.

3. Improving Internal Validity in Quantitative Research:

Use of controlled experimental designs.

Randomization to minimize confounding variables.

Clear operational definitions of variables.

Additional Knowledge:

1. (a) External validity:

External validity relates to the generalizability of findings to other settings or populations.

It is more aligned with transferability in qualitative research.

2. (c) Objectivity:

Objectivity refers to minimizing researcher bias, which aligns more closely with confirmability in qualitative research.

3. (d) Reliability:

Reliability pertains to the consistency and replicability of findings in quantitative research, comparable to dependability in qualitative research.

Q23. Match the following models of communication with their key characteristics:

List-I (Model)	List-II (Key Characteristic)
1. Shannon-Weaver Model	A. A transactional model focusing on the shared field of experience.
2. Schramm's Model	B. A linear model with components: Source, Encoder, Channel, Decoder, Receiver.
3. Berlo's SMCR Model	C. Highlights the importance of feedback and circularity of communication.

List-I (Model)	List-II (Key Characteristic)
4. Osgood-Schramm Model	D. Emphasizes the factors affecting the individual components: Source, Message, Channel, Receiver.

Codes:
(a) 1-D, 2-C, 3-B, 4-A
(b) 1-B, 2-A, 3-D, 4-C
(c) 1-C, 2-B, 3-A, 4-D
(d) 1-B, 2-C, 3-D, 4-A
Answer:
D
Sol:
Correct Option – (d)

Introduction: Communication models are conceptual representations that simplify the process of communication to help us understand its key components and dynamics. They have evolved from simple linear depictions to complex transactional views.

Information Booster:

1. Shannon-Weaver Model (1949) (Matches with B): This is a foundational linear model developed in the context of telecommunications. Its components are: Information Source -> Transmitter (Encoder) -> Channel -> Receiver (Decoder) -> Destination. It introduced the concept of "noise" as any interference disrupting the message.

2. Schramm's Model (1954) (Matches with C): Wilbur Schramm introduced the crucial element of feedback, making the model circular rather than linear. He argued that communication requires overlapping "fields of experience" between the sender and receiver for the message to be understood effectively.

3. Berlo's SMCR Model (1960) (Matches with D): David Berlo's model is a linear one that focuses on the factors influencing each component: Source (communication skills, attitude, knowledge), Message (elements, structure, content), Channel (senses), and Receiver (similar factors as source). It is detailed but criticized for being static.

4. Osgood-Schramm Model (1954) (Matches with A): This is a truly transactional model where communication is seen as a dynamic process. Charles Egerton Osgood and Wilbur Schramm proposed that participants in communication (interpreters) simultaneously perform the functions of encoding, decoding, and interpreting. It emphasizes the shared social context and the continuous, reciprocal nature of communication.

Additional Knowledge: The Transactional Model (later development) views communication as an ongoing process where all parties are continuously sending and receiving messages, and each person's field of experience is constantly changing. This is the most accurate model for describing interpersonal communication.

Q24. The mean and standard deviation of 75 observations are 45 and 10, respectively. If 2 is added to each observation, the new mean and standard deviation will be
(a) 47, 12
(b) 47, 14
(c) 47, 10
(d) 46, 12
Answer:
C
Sol:

Adding a constant value to each observation in a data set will shift the mean by the same constant value but will not change the standard deviation.

Here's the breakdown:

Original mean: 45

Value added: 2

New mean: Original mean + value added = 45 + 2 = 47

The standard deviation represents the spread of the data around the mean. Adding a constant value to each data point simply shifts the entire dataset together, maintaining the same relative distances between the points. Therefore, the standard deviation remains the same.

Original standard deviation: 10

New standard deviation: Remains the same = 10

Therefore, the new mean will be 47 and the new standard deviation will be 10.

Q25. Which of the following scales of measurement is synonymous to ranking or grading?

(a) Nominal scale

(b) Ordinal scale

(c) Interval Scale

(d) Ratio Scale

Answer:

B

Sol:

The Ordinal scale is synonymous with ranking or grading because it involves ordering or ranking items based on their relative positions or levels. In an ordinal scale, the values indicate a sequence or hierarchy, but the differences between the values are not necessarily uniform.

Information Booster: · Ordinal scales show order but not the exact difference between values.

Common examples include ranking (1st, 2nd, 3rd) or grading (A, B, C).

Ordinal data reflects the position of items but lacks information on the magnitude of differences.

It is widely used in education, psychology, and social sciences to rank attributes or individuals.

Additional Knowledge:

Nominal scale is used for labeling variables without any quantitative value or order. It is purely categorical, such as gender, nationality, or colors, where no ranking is involved.

Interval scale provides information about the differences between values, but it does not have a true zero point. Examples include temperature in Celsius or IQ scores.

Ratio scale is the most precise scale of measurement as it includes a true zero point and allows for meaningful comparison of ratios. Examples include height, weight, and time.

Q26. Match the following types of communication barriers with their examples:

List I (Barrier Type)	List II (Example)
A. Physical Barrier	1. A speaker using complex jargon in a speech
B. Semantic Barrier	2. A listener's emotional distress
C. Psychological Barrier	3. Loud construction noise outside a classroom
D. Organizational Barrier	4. A rigid chain of command in a company

Options:

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

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

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

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

Answer:

A

Sol:

Correct Option – (a)

Introduction: Communication barriers can be categorized into different types, each with specific characteristics and real-life examples. Matching-type questions test whether learners can correctly connect the theoretical barrier category with the practical example.

Information Booster:

A-3 (Physical): Construction noise outside = physical obstruction to hearing.

B-1 (Semantic): Use of jargon = word meanings not understood by all.

C-2 (Psychological): Emotional distress = preoccupied mind, prevents listening.

D-4 (Organizational): Rigid hierarchy = formal structure restricts free flow of messages.

Additional Knowledge: Such barriers often overlap. For instance, jargon (semantic) can also create psychological frustration. NET-level exams test your ability to differentiate primary classification.

Q27. Match the following variable types with their most appropriate research paradigm:

List-I (Variable Type)	List-II (Most Appropriate Paradigm)
A. Dummy Variable	1. Qualitative Research
B. Latent Variable	2. Quantitative Research
C. Thematic Variable	3. Mixed Methods Research

Choose the correct option:

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

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

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

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

Answer:

B

Sol:

Introduction:

Identifying the relationship between variable types and research paradigms is essential for selecting the correct methodology for a study. Each variable type serves a specific function within its respective framework, ranging from the purely numerical to the highly conceptual.

Based on standard methodological practices, here is the correct matching:

Information Booster:

The matching is determined by how each variable is defined and utilized within the research process:

List-I (Variable Type)	List-II (Most Appropriate Paradigm)
A. Dummy Variable	2. Quantitative Research
B. Latent Variable	3. Mixed Methods Research
C. Thematic Variable	1. Qualitative Research

● Dummy Variable (Quantitative): These are numerical "stand-ins" used in regression analysis to represent categorical data. They typically take the value of 0 or 1 (e.g., 1 for "Treated Group" and 0 for "Control Group").

● Thematic Variable (Qualitative): These are not numerical but are instead patterns or "themes" identified within qualitative data (like interviews or focus groups). They represent the core concepts extracted through Thematic Analysis.

● Latent Variable (Mixed Methods): While often used in advanced quantitative modeling (like Structural Equation Modeling), latent variables represent "hidden" constructs (e.g., happiness, intelligence) that cannot be measured directly. Because they require both a conceptual definition (often derived

qualitatively) and numerical indicators (measured quantitatively), they are frequently the bridge in Mixed Methods studies.

Additional Knowledge:

To deepen your understanding of these variables, consider their specific technical applications:

● The Dummy Variable Trap: In quantitative research, if you have n categories, you must only use $n-1$ dummy variables to avoid perfect multicollinearity, where the variables provide redundant information that crashes the statistical model.

● Reflexivity in Thematic Variables: Unlike quantitative variables, thematic variables are subject to the researcher's perspective. In Qualitative Research, the researcher must practice "reflexivity," acknowledging how their own biases might influence the "themes" they identify.

● Construct Validity: Latent variables are often synonymous with "constructs." Ensuring that your observable measurements actually represent the hidden latent variable is a process known as establishing Construct Validity.

● Triangulation: Mixed methods research often uses Latent Variables to perform "triangulation"—comparing qualitative findings with quantitative data to see if they both point toward the same underlying "hidden" reality.

Q28. Which logical fallacy is committed in the following argument - "Atheists have not proven that God does not exist. Therefore we can conclude that God exists".
(a) Ad hominem
(b) Appeal to Ignorance
(c) Hasty Generalisation
(d) Slippery Slope
Answer:
B
Sol:
The logical fallacy committed here is "Appeal to Ignorance".
An Appeal to Ignorance occurs when it is argued that a proposition is true because it has not yet been proven false (or vice versa).
The argument claims that because atheists have not proven that God does not exist, God must exist.
This fallacy wrongly shifts the burden of proof.

Q29. 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:
Match the Following
(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.

Q30. The process of converting qualitative observations into numerical data for analysis is called:

(a) Coding

(b) Normalization

(c) Categorization

(d) Scaling

Answer:

A

Sol:

Coding is the process of converting qualitative data (such as interview transcripts, open-ended survey responses, or observations) into numerical or categorical values that can be analyzed quantitatively. This transformation is necessary for conducting statistical analyses on qualitative data, such as sentiment analysis or thematic categorization.

For example, responses like "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree" can be coded into numerical values like 4, 3, 2, and 1, respectively.

Information Booster:

Coding is essential in qualitative research, as it allows researchers to quantify subjective data.

Once coded, the data can be analyzed using statistical methods or visualized using charts.

Reliability in coding is critical; often multiple coders are involved to ensure consistency.

Additional Knowledge:

Categorization (c) is part of the coding process, where data are grouped into categories or themes.

Normalization (b) refers to adjusting values measured on different scales to a common scale, often for comparison.

Scaling (d) is used to assign numerical values in a continuous range, often for measuring intensity or degree of a characteristic.

Q31. Arrange the sub-types of Savyabhicara (The Irregular Middle) from the most inclusive to the most restricted:

1. Anupasamhari (Non-exclusive)

2. Sadharana (Common)

3. Asadharana (Uncommon)

(a) 2, 3, 1

(b) 1, 2, 3

(c) 3, 2, 1

(d) 2, 1, 3

Answer:

A

Sol:

Correct Option – (a)

Introduction: *Hetvabhasa* means "appearance of a reason." It occurs when the middle term (Hetu) is defective.

Information Booster:

Sadharana: The middle term is too wide (e.g., Sound is eternal because it is knowable—but "knowable" also includes non-eternal things).

Asadharana: The middle term is too narrow (e.g., Sound is eternal because it is audible—but "audible" only exists in sound, so it can't prove anything else).

Anupasamhari: The middle term is non-exclusive (everything is non-eternal because everything is knowable—nothing is left out to serve as an example).

Additional Knowledge: Recognition of *Hetvabhasa* is the Indian equivalent of identifying formal and informal fallacies in Western logic.

Q32. Match the type of Categorical Proposition (List I) with its corresponding distribution of terms (List II):

List I (Proposition)	List II (Distributed Terms)
A. All S is P (Universal Affirmative)	I. Both Subject and Predicate are distributed.
B. No S is P (Universal Negative)	II. Only the Subject term is distributed.
C. Some S is P (Particular Affirmative)	III. Neither Subject nor Predicate is distributed.
D. Some S is not P (Particular Negative)	IV. Only the Predicate term is distributed.

Options:

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

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

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

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

Answer:

A

Sol:

Correct Option – (a)

Introduction

"Distribution" refers to whether a proposition makes a statement about every member of a class. Understanding which terms are distributed is the "secret key" to solving almost all formal fallacies in syllogisms.

Information Booster

A (All S is P): Distributes the Subject only. It says something about every "S" but not every "P".

E (No S is P): Distributes Both. It excludes every "S" from "P" and every "P" from "S".

I (Some S is P): Distributes Neither. It only refers to at least one member of each class.

O (Some S is not P): Distributes the Predicate only. It excludes some "S" from the *entire* class of "P".

Additional Knowledge

To remember this for the exam, use the mnemonic "ASEB INOP":

A distributes Subject.

E distributes Both.

I distributes None.

O distributes Predicate.

Q33. Match the type of Inference/Anumana (List I) with its characteristic (List II):

List I (Inference Type)	List II (Characteristic)
A. Purvavat	I. Inference based on common points of similarity.
B. Sheshavat	II. Inference of an unperceived effect from a perceived cause.
C. Samanyatodrishta	III. Inference of an unperceived cause from a perceived effect.

Options:
(a) A-II, B-III, C-I
(b) A-III, B-II, C-I
(c) A-I, B-II, C-III
(d) A-II, B-I, C-III
Answer:
A
Sol:
Correct Option – (a)
Introduction
The Nyaya school classifies Anumana into three types based on the nature of the relationship between the perceived and the inferred.
Information Booster
Purvavat (Antecedent): Inferring the future from the past/present. Example: Seeing dark clouds and inferring that it will rain.
Sheshavat (Residual): Inferring the past cause from the present effect. Example: Seeing a flooded river and inferring that it rained upstream.
Samanyatodrishta (General): Not based on cause-effect but on general regularity. Example: Observing the sun in the East in the morning and West in the evening, and inferring that the sun moves (even though we don't see the movement itself).
Additional Knowledge
Another classification is based on the logic of Vyapti: Kevalanvayi (Positive only), Kevalavyatireki (Negative only), and Anvaya-vyatireki (Both positive and negative).

Q34. The Aim of NEP 2020 is to increase the Gross Enrolment Ratio in higher education, including Vocational education, from 26.3% in 2018 to:
(a) 50% by 2035
(b) 35% by 2030
(c) 40% by 2030
(d) 60% by 2030
Answer:
A
Sol:
The National Education Policy (NEP) 2020 sets a target to increase the Gross Enrolment Ratio (GER) in higher education, including vocational education, from 26.3% (2018) to 50% by 2035. This ambitious goal aims to make higher education accessible to a larger segment of the population and promote lifelong learning.

Q35. According to the NEP 2020, what is the targeted Gross Enrolment Ratio (GER) in higher education, including vocational education, to be achieved by 2035?
(a) 35%
(b) 50%

(c) 75%
(d) 100%
Answer:
B
Sol:
Correct Option – (b)
Introduction: This question focuses on a key quantitative target of NEP 2020, which reflects its ambition for massive expansion and inclusion in higher education.
Information Booster: NEP 2020 sets a clear and ambitious goal: The Gross Enrolment Ratio in higher education, including vocational education, shall be increased from 26.3% (2018) to 50% by 2035. This means the policy aims to bring at least half of the population in the 18-23 age group into the higher education ecosystem. This will be achieved through a massive expansion of institutional capacity, including large multidisciplinary universities and colleges, and the integration of vocational streams.
Additional Knowledge: Achieving a 50% GER is a landmark for any large developing nation, signifying a transition from an elite to a massified system of higher education. This expansion must be managed alongside the policy's equally strong emphasis on quality and equity.

Q36. In a certain code, the following sentences have been coded as mentioned below:
'Arjun is walking to school' is coded as
'NA', 'SI', 'AG', 'DR', 'VI'
'Krishna is speaking to Arjun' is coded as
'KA', 'TK', 'DR', 'SI', 'NA'
'School is within walking distance of Krishna' is coded as
'VI', 'SI', 'NIH', 'AG', 'LE', 'KA', 'OP'
What is the code for 'walking'?
(a) TK
(b) NA
(c) AG
(d) SI
Answer:
C
Sol:
To determine the code for 'walking,' let's examine the sentences and their corresponding codes:
● In the sentence 'Arjun is walking to school': 'walking' corresponds to 'AG'.
● In the sentence 'Krishna is speaking to Arjun', 'walking' is not present.
● In the sentence 'School is within walking distance of Krishna', the word 'walking' corresponds to 'AG' again.
Thus, 'AG' is the code for 'walking'.

Q37. Arrange the following computer network types in increasing order of their geographical coverage:
1. MAN (Metropolitan Area Network)
2. WAN (Wide Area Network)
3. PAN (Personal Area Network)
4. LAN (Local Area Network)
(a) 3, 4, 1, 2
(b) 4, 3, 1, 2
(c) 3, 4, 2, 1

(d) 1, 4, 3, 2
Answer:
A
Sol:
Correct Option – (a)
Introduction: Networks are classified based on the physical distance they cover and the infrastructure required to maintain them.
Information Booster:
PAN: Coverage of a few meters (e.g., Bluetooth connecting a phone to headphones).
LAN: Coverage of a building or campus (e.g., office Wi-Fi).
MAN: Coverage of a city (e.g., Cable TV network).
WAN: Coverage of a country, continent, or the whole world (e.g., The Internet).
Additional Knowledge: A CAN (Campus Area Network) sits between LAN and MAN, typically connecting several buildings of a single organization or university.

Q38. Which of the following statements are correct?
A. A firewall helps in monitoring and controlling incoming and outgoing network traffic.
B. A botnet is a group of infected computers controlled by a hacker.
C. Phishing is a method used to enhance password strength.
D. Encryption converts readable data into an unreadable format for security. E. VPN reduces online privacy by exposing user data.
Choose the correct answer from the options given below:
(a) A, B and E only
(b) A, B and D only
(c) A and C only
(d) C and D only
Answer:
B
Sol:
Correct Option – (b)
Introduction
In cybersecurity, several concepts such as firewalls, botnets, phishing, encryption, and VPNs play a major role in protecting digital data and systems. UGC NET often asks conceptual and factual questions to check whether the learner can distinguish between security tools and security threats. This question evaluates the understanding of correct and incorrect cybersecurity statements.
Information Booster
Statement A: A firewall helps in monitoring and controlling incoming and outgoing network traffic.
A firewall works as a security barrier between internal and external networks. It filters traffic based on predefined rules and prevents unauthorised access.
Statement B: A botnet is a group of infected computers controlled by a hacker.
Cybercriminals use malware to infect multiple devices and control them remotely. These infected systems collectively form a botnet used for large-scale attacks.
Statement C: Phishing is a method used to enhance password strength.
Phishing is a *social engineering cyberattack* where attackers impersonate legitimate sources to steal passwords, bank details, or personal information. It has no role in improving password security.
Statement D: Encryption converts readable data into an unreadable format for security.
Encryption transforms plain text into ciphertext using an algorithm and a key. Only authorised users with the decryption key can access the original information.

Statement E: VPN reduces online privacy by exposing user data.

A VPN actually enhances privacy, encrypts internet traffic, and hides the user's IP address. It does *not* expose user data.

Therefore, the correct statements are:

A (Firewall) B (Botnet) D (Encryption)

Additional Information

A firewall is a security device/software used for traffic filtering.

Botnets are commonly used in DDoS attacks and mass spamming.

Phishing techniques include email phishing, spear phishing, and smishing.

Encryption can be symmetric or asymmetric.

Q39. Assertion A : system of education which are place - specific, time - specific and person - specific are said to be formal and are created by laid down low and procedures

Reason R : open University and open schools are the examples of a formal system of education because they are created by laid down procedures

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

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Answer:

C

Sol:

Assertion A is true: Formal systems of education do indeed have specific requirements related to place, time, and individuals, and they are typically created following established laws and procedures.

Reason R is false: Open universities and open schools are not typically considered formal systems of education. They are often classified as non-formal or alternative forms of education. While they may have some procedures in place for their operation, they are not subject to the same level of regulation and formality as traditional formal educational institutions.

Q40. How many bits are there in a single byte?

(a) 4

(b) 8

(c) 16

(d) 1024

Answer:

B

Sol:

Correct Option – (b)

Introduction: The bit and the byte are the most fundamental units of data in computing. All larger storage units are derived from these base units, and their relationship is absolute.

Information Booster:

Option (a) 4: A group of 4 bits is called a nibble. It is a half-byte but is not a standard unit for data measurement or addressing.

Option (b) 8: This is the correct answer. A byte is a unit of digital information that most commonly consists of eight bits. It is the standard unit for representing a character (like a letter or number) and is the fundamental addressable unit in many computer architectures.

Option (c) 16: A group of 16 bits is typically referred to as a word on 16-bit computer systems. It is two bytes.

Option (d) 1024: 1024 is the multiplier (2^{10}) used to convert from one binary-derived unit to the next (e.g., 1 Kilobyte = 1024 Bytes). It is not the number of bits in a byte.

Additional Knowledge: The byte was historically chosen as a convenient unit to represent a single character of text. The number of bits in a byte is now standardized by international agreement, though early computers sometimes used bytes with different numbers of bits.

Q41. Which of the following is a characteristic of Read-Only Memory (ROM)?
(a) It is volatile and loses its data when the power is turned off.
(b) It is used to store the BIOS firmware that boots up the computer.
(c) It has faster access time than Cache memory.
(d) It is used for storing temporary data and running applications.
Answer:
B
Sol:
Correct Option – (b)
Introduction: Computer memory is classified based on its volatility, speed, and function. Understanding the distinction between primary memory types (RAM and ROM) is fundamental to grasping how a computer starts and operates.
Information Booster:
Option (a): This describes volatile memory, which is a characteristic of RAM (Random Access Memory), not ROM. ROM is non-volatile, meaning it retains its data even when the power is off.
Option (b) It is used to store the BIOS firmware that boots up the computer: This is the correct answer. ROM is a type of non-volatile memory used to store firmware—permanent software that is tied to specific hardware. The most crucial example is the BIOS (Basic Input/Output System) or the modern UEFI (Unified Extensible Firmware Interface), which contains the first code executed by the computer when it is powered on.
Option (c): Cache memory is the fastest memory in a computer hierarchy, placed between the CPU and the main RAM to speed up access to frequently used data. ROM is significantly slower than cache memory.
Option (d): This is the primary function of RAM (Random Access Memory), which is volatile and used for temporarily holding data and program instructions that the CPU is currently using.
Additional Knowledge: Modern systems often use types of ROM that can be updated, such as EEPROM (Electrically Erasable Programmable ROM) and Flash Memory (used in USB drives and SSDs). This allows for BIOS/UEFI updates to fix bugs or add new features.

Q42. Consider the following statements regarding the Puranas:
A. Puranas refer to historical dynasties such as the Haryankas, Mauryas, Shungas, Kanvas, and Andhras (Satavahanas). The dynastic lists end with the Guptas (4th-6th centuries).
B. The Puranas have accounts of mountains, rivers, and places, useful for the study of historical geography.
C. They also reflect the emergence of religious cults based on devotion, especially towards the gods Vishnu and Shiva.
D. The Puranas had a very important function in the Brahmanical tradition as vehicles of Brahmanical social and religious values.
(a) A and B are correct
(b) A, B, and D are correct
(c) A, C, and D are correct

(d) All of the above are correct

Answer:

D

Sol:

The Puranas are a vital source of information in the study of ancient Indian history, culture, and religion. Statement A is correct because the Puranas refer to several historical dynasties, such as the Haryankas, Mauryas, Shungas, Kanvas, and Andhras (Satavahanas), and their dynastic lists are crucial for understanding the political history of ancient India. The dynastic lists in these texts end with the Gupta dynasty, which ruled from the 4th to the 6th century CE.

Statement B is also correct as the Puranas include detailed geographical descriptions that are valuable for understanding historical geography. These accounts of mountains, rivers, and cities help reconstruct the ancient world and provide insights into the physical environment in which these dynasties thrived.

Statement C is accurate because the Puranas reflect the rise of devotional cults centered on Vishnu and Shiva, marking a shift towards Bhakti (devotional worship) in ancient India. The texts play a role in spreading these religious ideas, which later became central to Indian spirituality.

Statement D is correct because the Puranas were essential in promoting and preserving Brahmanical values and customs, especially through their depiction of gods, rituals, and moral codes. They played a major role in sustaining the Brahmanical tradition.

Information Booster:

The Purānas have a profound influence on ancient Indian religion and culture. They codified religious practices and mythologies related to Hindu deities, offering a bridge between the Vedic and later periods of Hinduism. They played an instrumental role in spreading the ideas of dharma (moral order), karma (action), and bhakti (devotion).

The Gupta dynasty, which marked the end of dynastic lists in many Puranas, was a period of great cultural and intellectual prosperity in ancient India. The Puranas became key documents for understanding this period, especially as they documented the political, social, and religious life of the time.

Q43. Which ancient text is associated with the Natyashastra tradition?

(a) Dandin

(b) Vishakhadatta

(c) Bhasa

(d) Bharata

Answer:

D

Sol:

Introduction:

The Natyashastra is an ancient Sanskrit text that serves as a comprehensive manual for performing arts, including drama, dance, and music.

Information Booster:

Attributed to Bharata, the Natyashastra is considered the foundational text for Indian classical performing arts. It details stagecraft, acting techniques, music theory, emotional expression (rasa), and dance movements, and it emphasizes the role of drama in promoting moral and spiritual upliftment.

Additional Information:

● Vishakhadatta → Author of *Mudrarakshasa* (political drama).

● Bhasa → Known for plays like *Swapnavasavadatta*.

● Dandin → Author of *Dashakumaracharita* (a prose romance).

Q44. Who introduced Liberal attitude regarding education and sports in Germany?
(a) John Basedow
(b) Niels Buck
(c) Adolph John
(d) Ronald Joseph
Answer:
A
Sol:

John Basedow (1723–1790) was a German educator and one of the pioneers of physical education. He is credited with introducing a liberal attitude regarding education and sports in Germany, particularly by promoting physical education as an essential part of the school curriculum. Basedow's emphasis on physical fitness and holistic education contributed to the development of modern physical education in Germany.
Why the other options are incorrect:
(b) Niels Buck: Niels Buck does not have significant recognition in the context of introducing liberal attitudes toward education and sports in Germany.
(c) Adolph John: Adolph John is not widely known for promoting liberal views on education and sports in Germany.
(d) Ronald Joseph: There is no significant historical figure by the name of Ronald Joseph linked to education and sports reforms in Germany.

Q45. The "Spam" or "Junk" folder is for:
(a) Emails that the system identifies as unwanted or potentially harmful
(b) Storing your favorite emails
(c) Keeping track of your contacts
(d) Organizing your meetings and appointments
Answer:
A
Sol:
The Spam or Junk folder is used to store unwanted emails or emails that the email system has identified as potentially harmful. These emails may contain phishing attempts, malware, or unwanted advertising.
Important Key Points:
1. Spam filters are used by email providers to automatically identify and segregate unwanted or malicious emails.
2. Regularly checking the Spam folder is important to ensure legitimate emails are not mistakenly marked as spam.
Knowledge Booster:
Spam emails often contain phishing attempts or malware that can compromise a user's security if opened. Most email clients like Gmail, Outlook, and Yahoo Mail provide built-in spam filters to protect users from unwanted content.
Legitimate emails can occasionally end up in the Spam folder, so it's important to review it periodically.