

SNAP Mock Test 2026 Test 1

General English

Question 1

Instructions: Choose the alternative that uses the modifier correctly in the given context.

Question: While driving down the highway, a stray dog ran across the car's path.

Options:

- A) While driving down the highway, a stray dog ran across the car's path.
- B) While he was driving down the highway, a stray dog ran across the car's path.
- C) Driving down the highway, the car's path was crossed by a stray dog.
- D) A stray dog ran across the car's path while driving down the highway.

Correct Answer: Option B

Explanation: The original sentence contains a dangling modifier because "a stray dog" is placed immediately after the introductory clause, implying that the dog was driving the car. Option B resolves the ambiguity by explicitly inserting the subject "he was" into the dependent clause.

Question 2

Instructions: Spot the segment in the sentence that contains a grammatical error.

Question: The carpenter told the homeowner that the furniture he delivered were made of premium mahogany wood.

Options:

- A) told the homeowner
- B) he delivered
- C) were made of
- D) No error

Correct Answer: Option C

Explanation: "Furniture" is an uncountable (mass) noun and takes a singular verb. Therefore, "were made of" should be corrected to "was made of".

Question 3

Instructions: Convert the given sentence from active voice to passive voice.

Question: Active: The audit committee had been reviewing the financial statements before the meeting was called off.

Options:

- A) The financial statements had been reviewed by the audit committee before the meeting was called off.
- B) The financial statements were being reviewed by the audit committee before the meeting was called off.
- C) The financial statements had been being reviewed by the audit committee before the meeting was called off.
- D) The financial statements have been reviewed by the audit committee before the meeting was called off.

Correct Answer: Option C

Explanation: The active verb is in the Past Perfect Continuous tense ("had been reviewing"). Converting this to passive voice requires the auxiliary structure "had been + being + past participle (reviewed)".

Question 4

Instructions: Complete the sentence with the correct pronoun.

Question: The board of directors invited the senior strategist, _____ they believed had designed the company's turnaround policy.

Options:

- A) who
- B) whom
- C) whoever
- D) whomever

Correct Answer: Option A

Explanation: "Who" acts as the subjective pronoun for the verb clause "had designed". The inserted phrase "they believed" is parenthetical and does not change the subjective requirement of the clause.

Question 5

Instructions: Complete the sentence with the correct pronoun.

Question: Please assign the remaining project budget to _____ the committee nominates as the project lead.

Options:

- A) who

- B) whoever
- C) whom
- D) whomever

Correct Answer: Option D

Explanation: The pronoun serves as the direct object of the verb "nominates" inside the noun clause ("the committee nominates whomever"). Therefore, the objective form "whomever" is required.

Question 6

Instructions: Identify the figure of speech in the sentence below.

Question: "The White House released an official press statement early this morning regarding the economic summit."

Options:

- A) Synecdoche
- B) Metonymy
- C) Hyperbole
- D) Oxymoron

Correct Answer: Option B

Explanation: Metonymy replaces a concept, authority, or institution with an attribute or associated entity. Here, "The White House" represents the President or the executive branch of the government.

Question 7

Instructions: Choose the option that best expresses the meaning of the given idiom.

Question: Throw down the gauntlet

Options:

- A) To surrender unconditionally to an opponent
- B) To issue a formal challenge to someone
- C) To accept defeat gracefully
- D) To avoid taking responsibility for a mistake

Correct Answer: Option B

Explanation: Originating from medieval knighthood customs, "to throw down the gauntlet" means to issue a challenge or invitation to compete/fight.

Question 8

Instructions: Pick out the option that completes the sentence correctly and meaningfully.

Question: Scarcely had the flight landed at the airport _____

Options:

- A) than the passengers stood up to retrieve their luggage.
- B) when a severe thunderstorm broke out over the runway.
- C) then the alarm sounded inside the terminal.
- D) while the pilot announced the temperature outside.

Correct Answer: Option B

Explanation: The adverb "Scarcely" strictly pairs with the correlative conjunction "when" (or "before"), accompanied by inverted past auxiliary syntax ("had... landed").

Question 9

Instructions: Convert the given sentence into Indirect speech.

Question: "'You must submit the project proposal by noon tomorrow', the manager told her."

Options:

- A) The manager told her that she must submit the project proposal by noon tomorrow.
- B) The manager told her that she had to submit the project proposal by noon the next day.
- C) The manager told her that you have to submit the project proposal by noon the following day.
- D) The manager warned her that she would submit the project proposal by noon tomorrow.

Correct Answer: Option B

Explanation: When converting to reported speech with a past reporting verb ("told"), "must" shifts to "had to", second-person pronouns shift to third-person ("she"), and time expressions shift ("tomorrow" → "the next day").

Question 10

Instructions: Rearrange the jumbled sentences P, Q, R, S between fixed sentences S1 and S2 to form a logical paragraph.

Question:

S1: Renewable energy transition is no longer merely an environmental aspiration but an economic imperative.

P: Solar and wind power generation costs have plummeted dramatically over the past decade.

Q: Consequently, governments and private investors are shifting capital away from fossil fuel infrastructure.

R: This cost parity with conventional energy has accelerated adoption across developing nations.

S: However, grid storage limitations and raw material bottlenecks still pose significant operational risks.

S2: Addressing these technological gridlock issues will therefore determine the overall speed of global decarbonization.

Options:

A) PRQS

B) PQRS

C) PRSQ

D) QPRS

Correct Answer: Option A

Explanation: S1 establishes the economic imperative of renewables. P explains why by introducing plummeting generation costs. R connects directly to P by referencing "This cost parity". Q states the investment impact ("Consequently..."), and S introduces the counter-balancing risks ("However..."), which leads smoothly into S2's closing on resolving gridlock issues.

Analytical & Logical Reasoning

Question 11

Instructions: Find the odd one out in the given number series.

Question: 3, 6, 11, 18, 29, 38

Options: A) 6 B) 18 C) 29 D) 38

Correct Answer: Option C

Explanation: The terms follow the pattern of $n^2 + 2$. $1^2 + 2 = 3$, $2^2 + 2 = 6$, $3^2 + 2 = 11$, $4^2 + 2 = 18$, $5^2 + 2 = 27$ (instead of 29), $6^2 + 2 = 38$. Therefore, 29 is the incorrect term.

Question 12

Instructions: Select the missing letter pair in the series.

Question: BY, DW, GT, KP, ?

Options: A) PK B) OL C) QJ D) RI

Correct Answer: Option A

Explanation: First letters follow an increasing addition pattern: B (+2) → D (+3) → G (+4) → K (+5) → P. Second letters follow a decreasing subtraction pattern: Y (-2) → W (-3) → T (-4) → P (-5) → K. Combining both gives PK.

Question 13

Instructions: Determine the total number of individuals in a row after position interchange.

Question: In a row of students, Priya is 14th from the left end and Rahul is 18th from the right end. If they interchange their positions, Priya becomes 23rd from the left end. How many students are there in the row?

Options: A) 39 B) 40 C) 41 D) 42

Correct Answer: Option B

Explanation: After interchanging, Priya occupies Rahul's original position, which is 18th from the right end and 23rd from the left end. Total students = (Position from left) + (Position from right) - 1 = 23 + 18 - 1 = 40 students.

Question 14

Instructions: Determine the distance and final direction from the starting point.

Question: A person starts from point P, walks 12 km North, turns right and walks 6 km. He then turns right and walks 12 km, and finally turns left and walks 4 km to reach point Q. What is the distance and direction of point Q relative to point P?

Options: A) 10 km East B) 10 km West C) 2 km East D) 6 km North

Correct Answer: Option A

Explanation: Start at P (0,0). Walk 12 km North to (0, 12). Turn right (East) 6 km to (6, 12). Turn right (South) 12 km to (6, 0). Turn left (East) 4 km to (10, 0). Point Q is 10 km East of point P.

Question 15

Instructions: Solve the profession matrix puzzle based on given conditional statements.

Question: Each of P, Q, R, S, and T belongs to a different profession among Engineer, Architect, Accountant, Pilot, and Journalist. P is the Pilot. Q is neither the Architect nor the Accountant. R is the Engineer. S is neither the Journalist nor the Accountant. Who among them is the Accountant?

Options: A) Q B) S C) T D) Cannot be determined

Correct Answer: Option C

Explanation: P = Pilot, R = Engineer. Remaining professions for Q, S, T are Architect, Accountant, and Journalist. Q is not Architect or Accountant, so Q must be the Journalist. S is not Journalist or Accountant, so S must be the Architect. Therefore, T must be the Accountant.

Question 16

Instructions: Arrange the words in alphabetical order as they appear in a dictionary.

Question: Arrange the given words in dictionary order: 1. Radiant, 2. Radical, 3. Radiation, 4. Radiance

Options: A) 4, 1, 3, 2 B) 4, 3, 1, 2 C) 1, 4, 3, 2 D) 4, 1, 2, 3

Correct Answer: Option A

Explanation: Comparing alphabetically: 1st: Radiance (Radia-n-c), 2nd: Radiant (Radia-n-t), 3rd: Radiation (Radia-t-i-o-n), 4th: Radical (Radic-a-l). The correct sequence is 4, 1, 3, 2.

Question 17

Instructions: Answer the following question based on the linear seating arrangement: Six friends A, B, C, D, E, and F sit in a straight line facing North. F sits at the extreme right end (Position 6). C sits 2nd to the left of F (Position 4). A is an immediate neighbor of C and sits 3rd to the right of B. D sits to the left of B. E occupies the remaining position.

Question: Who sits at the extreme left end of the line?

Options: A) B B) D C) E D) C

Correct Answer: Option B

Explanation: The arrangement from left to right (Positions 1 to 6) is D, B, E, C, A, F. Position 1 at the extreme left end is occupied by D.

Question 18

Instructions: Answer the following question based on the linear seating arrangement: Six friends A, B, C, D, E, and F sit in a straight line facing North. F sits at the extreme right end (Position 6). C sits 2nd to the left of F (Position 4). A is an immediate neighbor of C and sits 3rd to the right of B. D sits to the left of B. E occupies the remaining position.

Question: What is the position of E with respect to A?

Options: A) Immediate left B) Second to the left C) Third to the left D) Second to the right

Correct Answer: Option B

Explanation: The arrangement from left to right is D, B, E, C, A, F. E is at position 3 and A is at position 5. Moving two spots to the left from position 5 reaches position 3, so E is second to the left of A.

Question 19

Instructions: Answer the following question based on the linear seating arrangement: Six friends A, B, C, D, E, and F sit in a straight line facing North. F sits at the extreme right end (Position 6). C sits 2nd to the left of F (Position 4). A is an immediate neighbor of C and sits 3rd to the right of B. D sits to the left of B. E occupies the remaining position.

Question: Who sits exactly between B and C?

Options: A) D B) A C) E D) F

Correct Answer: Option C

Explanation: The arrangement from left to right is D, B, E, C, A, F. B is at position 2 and C is at position 4. Position 3 between them is occupied by E.

Question 20

Instructions: Identify the correct code for the target word.

Question: In a certain code language, if 'read books daily' is coded as 'kx mx sx' and 'daily knowledge gain' is coded as 'sx rx vx', what is the code for 'daily'?

Options: A) kx B) mx C) sx D) rx

Correct Answer: Option C

Explanation: The word common to both statements is 'daily' and the code word common to both sets is 'sx'.

Question 21

Instructions: Solve the blood relation puzzle to identify the relationship.

Question: A is the brother of B. B is the daughter of C. C is married to D. D is the son of E.
How is A related to E?

Options: A) Son B) Grandson C) Nephew D) Brother-in-law

Correct Answer: Option B

Explanation: A is the male child of parents C and D. D is the male child (son) of E.
Therefore, A is the grandson of E.

Question 22

Instructions: Calculate the exact time when clock hands form a specific angle.

Question: A clock shows 4:00. After how many minutes will the hour and minute hands form a 90-degree angle for the first time after 4:00?

Options: A) $5 \frac{5}{11}$ minutes B) $10 \frac{10}{11}$ minutes C) $15 \frac{3}{11}$ minutes D) $21 \frac{9}{11}$ minutes

Correct Answer: Option A

Explanation: At 4:00, the angle between the hands is 120 degrees. For the hands to form a 90-degree angle prior to overlapping, the minute hand must cover $120 - 90 = 30$ degrees relative to the hour hand. The relative speed is 5.5 degrees per minute. $\text{Time} = 30 / 5.5 = 60/11 = 5 \frac{5}{11}$ minutes.

Question 23

Instructions: Determine the day of the week for a future date.

Question: If March 1, 2020 fell on a Sunday, on which day of the week did March 1, 2024 fall?

Options: A) Wednesday B) Thursday C) Friday D) Saturday

Correct Answer: Option C

Explanation: Number of years between March 1, 2020 and March 1, 2024 = 4 years. Between March 1, 2020 and March 1, 2024, February 29 occurs once (in 2024). Total odd days = 4 normal years + 1 leap day = 5 odd days. Sunday + 5 days = Friday.

Question 24

Instructions: Calculate the time displayed on a gaining/losing faulty clock.

Question: A clock gains 5 minutes every 3 hours. It is set correctly at 8:00 AM on Monday. What time will the clock display at the actual time of 8:00 PM on Tuesday?

Options: A) 7:00 PM B) 8:36 PM C) 9:00 PM D) 9:15 PM

Correct Answer: Option C

Explanation: Total actual hours elapsed from Mon 8:00 AM to Tue 8:00 PM = 36 hours. Total time gained = $(5 \text{ minutes} / 3 \text{ hours}) * 36 \text{ hours} = 60 \text{ minutes} = 1 \text{ hour}$. Displayed time = 8:00 PM + 1 hour = 9:00 PM.

Question 25

Instructions: Evaluate the given statements and determine which conclusions logically follow.

Question: Statements: All tables are chairs. No chair is a couch. Some couches are beds.
Conclusions: I. No table is a couch. II. Some beds are chairs.

Options: A) Only conclusion I follows B) Only conclusion II follows C) Both conclusions follow D) Neither conclusion follows

Correct Answer: Option A

Explanation: Since all tables are inside chairs and no chair overlaps with couch, no table can ever overlap with couch. Thus, Conclusion I is valid. Conclusion II cannot be established from the given statements.

Question 26

Instructions: Identify the logical relationship between the two statements.

Question: Statement I: The price of crude oil fell drastically in the international market last quarter. Statement II: Local fuel stations reduced petrol and diesel retail prices by 10 percent this month.

Options: A) Statement I is the cause and Statement II is its effect. B) Statement II is the cause and Statement I is its effect. C) Both statements are independent causes. D) Both statements are effects of an independent cause.

Correct Answer: Option A

Explanation: The reduction in international crude oil prices (Cause) directly led local stations to lower retail fuel prices (Effect).

Question 27

Instructions: Select the option that most strongly weakens the given argument.

Question: To curb traffic congestion in central commercial zones, the municipality plans to increase public parking fees by 200%. Which of the following, if true, would most weaken the municipality's plan?

Options: A) Neighboring commercial zones also plan to increase parking charges next year. B) Most commuters driving into central zones utilize private parking provided for free by their employers. C) Public parking revenues are used to maintain municipal roads. D) Public transportation fares have remained unchanged for two years.

Correct Answer: Option B

Explanation: If most commuters park in free employer-provided lots, increasing municipal parking fees will not discourage them from driving into the zone, undermining the plan's ability to curb traffic congestion.

Question 28

Instructions: Identify the implicit assumption in the given statement.

Question: Statement: "The management must implement a flexible work-from-home policy to reduce key employee turnover." Assumptions: I. Dissatisfaction with rigid working hours is a contributing factor to employee turnover. II. Work-from-home options are easy for all departments to manage.

Options: A) Only assumption I is implicit B) Only assumption II is implicit C) Both assumptions I and II are implicit D) Neither assumption I nor II is implicit

Correct Answer: Option A

Explanation: Recommending a flexible policy to address turnover assumes that rigid working conditions contribute to employees leaving. Assumption II is an overgeneralization not implied by the statement.

Question 29

Instructions: Choose the option that best resolves the paradox or explains the given situation.

Question: Despite introducing a major price cut on its flagship laptop series, a tech brand experienced a drop in overall quarterly sales volume for that model. Which of the following best explains this outcome?

Options: A) Laptop accessories saw an increase in sales during the same quarter. B) Consumers interpreted the sudden price cut as an indicator of poor build quality or an upcoming replacement model, leading them to delay purchases. C) The company spent less money on online video advertisements. D) Competitors kept their laptop prices unchanged during the period.

Correct Answer: Option B

Explanation: Consumer perception that a price reduction signals inferior quality or imminent obsolescence explains why demand and overall sales volume fell despite a lower price.

Question 30

Instructions: Select the option that demonstrates the given statement is false.

Question: Consider the statement: "Economic prosperity cannot be achieved without technological innovation." Which of the following counterexamples proves this statement false?

Options: A) Country A introduced technological innovations but suffered an economic recession. B) Country B achieved high economic prosperity primarily through natural resource exports without technological innovation. C) Country C has neither technological innovation nor economic prosperity. D) Country D invested in technology to boost its agricultural exports.

Correct Answer: Option B

Explanation: The statement claims that technological innovation is a necessary condition for economic prosperity. Finding a nation that attained economic prosperity without technological innovation directly disproves the conditional claim.

Quantitative, Data Interpretation & Data Sufficiency

Question 31

Instructions: Solve the percentage comparison problem.

Question: A's salary is 20% less than B's salary, and B's salary is 25% higher than C's salary.

By what percentage is A's salary greater or less than C's salary?

Options: A) 5% less B) 0% (Equal) C) 5% more D) 10% less

Correct Answer: Option B

Explanation: Let C's salary be 100. Since B's salary is 25% higher than C's, B's salary = $100 + 25 = 125$. A's salary is 20% less than B's, so A's salary = $125 - (0.20 * 125) = 125 - 25 = 100$. Thus, A's salary is equal to C's salary, so the percentage difference is 0%.

Instructions: Calculate the time period required under simple interest.

Question: A sum of money invested at simple interest quadruples itself (becomes 4 times) in 15 years. What is the annual rate of interest?

Options: A) 15% B) 20% C) 25% D) 30%

Correct Answer: Option B

Explanation: Let Principal = P. Amount = 4P, so Simple Interest (SI) = $4P - P = 3P$. Using $SI = (P * R * T) / 100$, we have $3P = (P * R * 15) / 100$. Simplifying gives $3 = 15R / 100$, so $R = 300 / 15 = 20\%$.

Instructions: Solve the word problem involving averages and ratios.

Question: The average of three numbers is 50. The second number is twice the first number, and the third number is 10 more than the second number. What is the largest of the three numbers?

Options: A) 28 B) 56 C) 66 D) 70

Correct Answer: Option C

Explanation: Total sum of the three numbers = $50 * 3 = 150$. Let the first number be x. The second number is 2x, and the third number is 2x + 10. Sum = $x + 2x + (2x + 10) = 5x + 10 = 150$, which gives $5x = 140$, so $x = 28$. First number = 28, second number = 56, and third number = $56 + 10 = 66$. The largest number is 66.

Instructions: Determine the scheduled travel time and distance.

Question: A car traveling at 60 km/h reaches its destination 15 minutes late. When traveling at 80 km/h, it reaches 15 minutes early. What is the distance to the destination?

Options: A) 90 km B) 120 km C) 150 km D) 180 km

Correct Answer: Option B

Explanation: Let the distance be D km and scheduled time be T hours. 15 minutes = 0.25 hours. Using Distance = Speed * Time: $D = 60 * (T + 0.25)$ and $D = 80 * (T - 0.25)$. Equating gives $60T + 15 = 80T - 20$, so $20T = 35 \Rightarrow T = 1.75$ hours. Substituting T gives $D = 60 * (1.75 + 0.25) = 60 * 2 = 120$ km.

Instructions: Calculate the remaining area after geometric cuts.

Question: From a rectangular sheet of metal measuring 100 cm by 80 cm, four circular corner cutouts each of radius 7 cm are removed. What is the remaining surface area of the metal sheet?

Options: A) 7384 sq cm B) 7846 sq cm C) 7900 sq cm D) 8000 sq cm

Correct Answer: Option A

Explanation: Total area of rectangle = $100 * 80 = 8000$ sq cm. Four corner cutouts of radius 7 cm equal the area of four full circles = $4 * (\pi/4) * 7 * 7 = 616$ sq cm. Remaining surface area = $8000 - 616 = 7384$ sq cm.

Instructions: Calculate individual completion time for work problems.

Question: A and B working together can complete a job in 15 days. If A alone can finish the same job in 20 days, in how many days can B alone complete the job?

Options: A) 40 days B) 50 days C) 60 days D) 75 days

Correct Answer: Option C

Explanation: Combined daily rate = $1/15$. A's daily rate = $1/20$. B's daily rate = $1/15 - 1/20 = (4 - 3) / 60 = 1/60$. Therefore, B alone takes 60 days to complete the job.

Instructions: Find the roots of the given quadratic equation.

Question: What are the roots of the quadratic equation $x^2 - 11x + 30 = 0$?

Options: A) $x = 5, x = 6$ B) $x = -5, x = -6$ C) $x = 3, x = 10$ D) $x = 2, x = 15$

Correct Answer: Option A

Explanation: Factoring $x^2 - 11x + 30 = 0$ gives $(x - 5)(x - 6) = 0$. Solving for x yields $x = 5$ and $x = 6$.

Instructions: Find the smallest number satisfying given remainder conditions.

Question: What is the smallest positive integer which when divided by 15, 20, and 24 leaves a remainder of 7 in each case?

Options: A) 113 B) 127 C) 134 D) 147

Correct Answer: Option B

Explanation: First find the LCM of 15, 20, and 24. Prime factorizations: $15 = 3 * 5$, $20 = 2^2 * 5$, $24 = 2^3 * 3$. $\text{LCM}(15, 20, 24) = 2^3 * 3 * 5 = 120$. Required number = $\text{LCM} + \text{Remainder} = 120 + 7 = 127$.

Instructions: Calculate net percentage change in area.

Question: The length of a rectangle is increased by 30% and its breadth is decreased by 20%. What is the net percentage change in the area of the rectangle?

Options: A) 4% increase B) 4% decrease C) 10% increase D) 10% decrease

Correct Answer: Option A

Explanation: Using the net percentage change formula $a + b + (ab/100)$ where $a = +30$ and $b = -20$: Net change = $30 - 20 + (30 * -20) / 100 = 10 - 6 = +4\%$. Thus, the area increases by 4%.

Instructions: Solve division of amount based on ratios.

Question: An amount of Rs. 15,400 is divided among X, Y, and Z in the ratio 3 : 4 : 7. What is the difference between Z's share and X's share?

Options: A) Rs. 3,300 B) Rs. 4,400 C) Rs. 5,500 D) Rs. 6,600

Correct Answer: Option B

Explanation: Total ratio parts = $3 + 4 + 7 = 14$ parts. Value of 1 part = $15,400 / 14 = \text{Rs. } 1,100$. Difference between Z and X = 7 parts - 3 parts = 4 parts. Difference in rupees = $4 * 1,100 = \text{Rs. } 4,400$.

Instructions: Calculate probability for rolling a pair of dice.

Question: Two fair six-sided dice are rolled simultaneously. What is the probability that the sum of the numbers appearing on top is a multiple of 5?

Options: A) $1/6$ B) $7/36$ C) $5/36$ D) $2/9$

Correct Answer: Option B

Explanation: Total possible outcomes = $6 * 6 = 36$. Sums that are multiples of 5 are 5 and 10. Favorable outcomes for sum = 5: (1,4), (2,3), (3,2), (4,1) [4 outcomes]. Favorable outcomes for sum = 10: (4,6), (5,5), (6,4) [3 outcomes]. Total favorable outcomes = $4 + 3 = 7$. Probability = $7 / 36$.

Instructions: Calculate average speed for round trip journeys.

Question: A motorist travels from town A to town B at a speed of 30 km/h and returns from town B to town A along the same route at 60 km/h. What is the average speed for the entire journey?

Options: A) 40 km/h B) 45 km/h C) 48 km/h D) 50 km/h

Correct Answer: Option A

Explanation: For equal distances at speeds S_1 and S_2 , Average Speed = $(2 * S_1 * S_2) / (S_1 + S_2) = (2 * 30 * 60) / (30 + 60) = 3600 / 90 = 40 \text{ km/h}$.

Instructions: Evaluate logarithmic expressions using properties.

Question: Given $\log_{10}(2) = 0.3010$ and $\log_{10}(3) = 0.4771$, what is the value of $\log_{10}(18)$?

Options: A) 1.2552 B) 1.0791 C) 1.2041 D) 0.9542

Correct Answer: Option A

Explanation: Express 18 as prime factors: $18 = 2 * 3^2$. Therefore, $\log_{10}(18) = \log_{10}(2) + 2 * \log_{10}(3) = 0.3010 + 2 * (0.4771) = 0.3010 + 0.9542 = 1.2552$.

Instructions: Solve sequence problem involving AP and GP conditions.

Question: Three numbers are in Arithmetic Progression (AP) with a sum of 21. If 1, 3, and 10 are added to them respectively, the resulting numbers form a Geometric Progression (GP). What is the common difference of the AP?

Options: A) 2 B) 3 C) 4 D) 5

Correct Answer: Option B

Explanation: Let the three numbers in AP be $a - d$, a , $a + d$. Their sum = $3a = 21 \Rightarrow a = 7$. The numbers are $7 - d$, 7 , $7 + d$. Adding 1, 3, 10 yields $8 - d$, 10 , $17 + d$. For these to form a

GP, $10^2 = (8 - d)(17 + d) \Rightarrow 100 = 136 - 9d - d^2 \Rightarrow d^2 + 9d - 36 = 0 \Rightarrow (d + 12)(d - 3) = 0$. Taking the positive value gives $d = 3$. The AP terms are 4, 7, 10, and adding 1, 3, 10 gives 5, 10, 20 (a GP with ratio 2).

Instructions: Solve liquid mixture replacement problem.

Question: A container contains 80 liters of pure milk. 10 liters of milk is removed and replaced with water. This process is repeated once more. How many liters of pure milk remain in the container?

Options: A) 61.25 liters B) 64.00 liters C) 65.25 liters D) 67.50 liters

Correct Answer: Option A

Explanation: Amount of milk remaining = Initial Quantity * $(1 - x/V)^n$ where $V = 80$, $x = 10$, $n = 2$. Remaining milk = $80 * (1 - 10/80)^2 = 80 * (7/8)^2 = 80 * 49 / 64 = 61.25$ liters.

Instructions: Calculate missing number using HCF and LCM formula.

Question: The HCF of two numbers is 16 and their LCM is 240. If one of the numbers is 80, what is the other number?

Options: A) 36 B) 48 C) 60 D) 64

Correct Answer: Option B

Explanation: Using the formula $HCF * LCM = \text{Product of two numbers}$: $16 * 240 = 80 * X \Rightarrow X = (16 * 240) / 80 = 48$.

Instructions: Calculate time required to empty or fill a tank with leaks.

Question: A tap can fill a tank in 8 hours. Due to a leak at the bottom, it takes 10 hours to fill the tank completely. How long will the leak alone take to empty the full tank?

Options: A) 30 hours B) 36 hours C) 40 hours D) 48 hours

Correct Answer: Option C

Explanation: Tap fill rate = $1/8$ per hour. Net fill rate with leak = $1/10$ per hour. Leak drain rate = $1/8 - 1/10 = (5 - 4) / 40 = 1/40$ per hour. Therefore, the leak alone will empty the full tank in 40 hours.

Instructions: Calculate overall profit or loss percentage on transactions.

Question: A merchant sells two items at Rs. 1,200 each. On the first item, he makes a profit of 20%, and on the second item, he suffers a loss of 20%. What is his overall percentage profit or loss on the transaction?

Options: A) No profit, no loss B) 2% loss C) 4% loss D) 4% profit

Correct Answer: Option C

Explanation: When two items are sold at the same selling price, one at $x\%$ profit and the other at $x\%$ loss, there is always an overall loss given by $(x/10)^2 \% = (20/10)^2 \% = 4\%$ loss.

Instructions: Find total distance based on travel time difference.

Question: A train covers a certain distance between two stations at 50 km/h. If its speed is increased to 60 km/h, it takes 24 minutes less for the same journey. What is the distance between the two stations?

Options: A) 100 km B) 120 km C) 140 km D) 150 km

Correct Answer: Option B

Explanation: Time difference = 24 minutes = $24/60 = 0.4$ hours. Using Distance $D = (S1 * S2 * \Delta t) / (S2 - S1) = (50 * 60 * 0.4) / (60 - 50) = 1200 / 10 = 120$ km.

Question 50

Instructions: Find numbers within a given range satisfying divisibility rules.

Question: How many three-digit natural numbers are divisible by both 4 and 6?

Options: A) 72 B) 75 C) 76 D) 80

Correct Answer: Option B

Explanation: A number divisible by both 4 and 6 must be a multiple of $\text{LCM}(4, 6) = 12$.

Three-digit numbers range from 100 to 999. First three-digit multiple of 12 is 108 ($12 * 9$).

Last three-digit multiple of 12 is 996 ($12 * 83$). Total count = $83 - 9 + 1 = 75$ numbers.

Ethics, Morality and Values

Question 51

Instructions: Evaluate the situation and select the most ethically sound course of action.

Question: A project manager discovers that a major vendor bidding for a company contract is owned by a close relative. The vendor's bid is currently the lowest and meets all technical specifications. What should the project manager do?

Options:

A) Award the contract to the relative's vendor immediately since it offers the lowest price.

B) Disclose the personal conflict of interest to the procurement committee and recuse himself from the evaluation process.

C) Cancel the bidding process and request new tenders from neutral suppliers without explaining why.

D) Reject the relative's bid quietly to avoid any perception of favoritism.

Correct Answer: Option B

Explanation: Transparency and conflict of interest disclosure are fundamental ethical principles in corporate governance. Declaring the personal relationship and recusing oneself ensures fairness, eliminates bias, and maintains organizational integrity.

Instructions: Select the response that best aligns with professional ethics and organizational integrity.

Question: An accountant at a firm notices that minor financial discrepancies are being deliberately misreported to meet quarterly earnings targets. Her immediate supervisor instructs her to ignore the issue, stating it is standard industry practice. How should she proceed?

Options:

- A) Follow the supervisor's instruction to protect her job and avoid workplace conflict.
- B) Anonymously leak the financial discrepancies to external financial news outlets immediately.
- C) Escalate the matter internally through the company's designated whistleblowing mechanism or ethics committee.
- D) Alter the financial statements further to cover up the supervisor's actions completely.

Correct Answer: Option C

Explanation: Ethical reporting requires utilizing established internal reporting channels before external escalation. Obeying an unethical command violates professional integrity, while external leaks without internal reporting breach confidentiality protocols.

Instructions: Analyze the ethical dilemma and select the option that demonstrates long-term moral responsibility.

Question: A manufacturing company can legally dump non-hazardous waste into a local river under current minimum regulatory standards. However, recent scientific studies suggest this waste gradually degrades local aquatic ecosystems. Installing a filtration system would eliminate environmental harm but reduce quarterly profit margins by 5%. What action should the management take?

Options:

- A) Continue dumping waste legally to maximize shareholder value until regulations strictly prohibit it.
- B) Install the filtration system to protect the ecosystem, accepting a minor reduction in short-term profits.
- C) Relocate the factory to a country with even weaker environmental standards.
- D) Stop production entirely and liquidate the company to prevent any environmental impact.

Correct Answer: Option B

Explanation: Corporate responsibility extends beyond minimal legal compliance. Ethical leadership balances profitability with environmental stewardship and stakeholder well-being, choosing sustainable practices over short-term financial gains.

Instructions: Choose the option that upholds ethical standards in technology and consumer trust.

Question: An e-commerce platform collects user browsing data to personalize shopping recommendations. A third-party marketing agency offers to buy this user data for a high price. The platform's user agreement does not explicitly forbid selling data, but users were never informed that their data could be monetized this way. What is the most ethical decision for the company?

Options:

- A) Sell the data immediately because the current user agreement does not explicitly prohibit it.
- B) Sell the data but donate a portion of the proceeds to a privacy rights charity.
- C) Refuse to sell the data until explicit, informed user consent is obtained through updated privacy policies.
- D) Sell the data only for users who have not logged into the platform in the last six months.

Correct Answer: Option C

Explanation: Respecting user privacy and maintaining transparency requires informed consent. Exploiting ambiguous legal terms to monetize user data without explicit permission breaches consumer trust and fundamental ethical standards of fairness.

Instructions: Identify the choice that reflects ethical fairness and non-discrimination in decision-making.

Question: A team leader is selecting an employee to lead a high-visibility international project. Candidate A has superior technical performance metrics but frequently works remotely. Candidate B has adequate metrics but is a personal friend of the team leader. What is the most ethical approach for the team leader to take?

Options:

- A) Select Candidate B to ensure smooth personal communication and rapport during the project.
- B) Select Candidate A based on objective performance metrics and merit.
- C) Split the project equally between both candidates regardless of efficiency.
- D) Choose a third candidate to avoid offending either Candidate A or Candidate B.

Correct Answer: Option B

Explanation: Ethical decision-making in management demands meritocracy, objectivity, and impartiality. Favoring personal acquaintances over more qualified candidates constitutes cronyism and violates workplace fairness.

Instructions: Analyze the ethical dilemma involving conflicting duties and select the most morally sound action.

Question: An engineer at a medical device firm discovers a software glitch in an automated insulin pump that causes an unintended dosage spike in 0.01% of edge cases. Recalling all pumps immediately would bankrupt the startup before a patch is ready, potentially depriving thousands of existing patients of crucial daily monitoring. The regulatory authority's reporting deadline is in 30 days. What is the engineer's most ethical course of action?

Options: A) Keep silent until the company completes developing the software patch in 30 days to avoid bankruptcy and panic.

B) Immediately notify executive leadership and insist on issuing an urgent safety advisory with temporary operating workarounds to healthcare providers while preparing the patch.

C) Leak the flaw to tech media outlets anonymously to force an immediate public recall of all units.

D) Resign quietly from the company to avoid legal liability without disclosing the technical flaw.

Correct Answer: Option B

Explanation: Patient safety and transparency are paramount in bioethics and professional engineering codes. Hiding the defect risks human life. Leaking anonymously without attempting internal escalation or safety mitigation creates unmanaged panic. Option B balances immediate harm reduction by providing doctors with immediate operational workarounds while upholding professional duty and transparency.

Instructions: Evaluate the ethical implications of automated business decision-making systems.

Question: A commercial bank deploys an AI model to evaluate loan applications. An internal audit reveals that while the model increases overall loan recovery rates, it systematically assigns higher interest rates to applicants from lower-income postcodes, indirectly proxying for systemic demographic bias even when individual credit scores are identical. The management notes that changing the algorithm will reduce annual interest income by 8%. How should the bank address this issue?

Options: A) Retain the algorithm unchanged since optimizing profitability and default recovery rates is the primary duty to shareholders.

B) Modify the algorithm to eliminate proxy variables causing systemic bias, accepting lower interest income to ensure fair and non-discriminatory credit assessment.

C) Manually approve loan applications for top-tier clients while keeping the biased AI active for all other applicants.

D) Hide the audit report and claim the AI output cannot be modified due to proprietary trade secret restrictions.

Correct Answer: Option B

Explanation: Algorithmic bias perpetuates structural unfairness and violates fundamental ethical principles of justice and equal opportunity. Ethical governance requires financial institutions to eliminate discriminatory proxy metrics and uphold ethical fairness over pure profit maximization.

Instructions: Select the response that reflects global corporate moral standards and ethical leadership.

Question: An international footwear brand sources raw materials from a contractor in a developing country where child labor is legally permissible for family-owned cottage businesses. The contractor operates legally under local laws, allowing children under 14 to work 10-hour shifts. Terminating the contract immediately would leave 200 local families without any household income. What is the most ethically responsible strategy for the footwear brand?

Options:

A) Continue the contract as-is because the supplier strictly complies with local territorial laws.

B) Terminate the contract instantly and sever ties without providing alternative financial support to the affected workers.

C) Require the supplier to eliminate child labor, transition children to formal schooling, and subsidize adult family wages to offset lost household income.

D) Ignore the supplier's practices publicly while quietly shifting 20% of orders to another country.

Correct Answer: Option C

Explanation: Corporate ethical responsibility transcends minimal local legal compliance regarding fundamental human rights. Simply terminating contracts exacerbates poverty for vulnerable families, while continuing child labor breaches global human rights norms. Option C provides a holistic ethical solution by eliminating child labor while protecting family welfare through educational support and wage subsidies.

Instructions: Evaluate the ethical course of action regarding non-public material information.

Question: A senior financial analyst at an investment advisory firm accidentally receives an unencrypted email containing confidential, non-public earnings reports showing that a public tech firm will report massive losses next week. The analyst's major client holds 500,000 shares in that tech firm and has explicitly asked for advice on whether to hold or sell. What is the analyst's ethical duty?

Options:

- A) Advise the client to sell the shares immediately without explicitly mentioning the leaked email to protect the client's wealth.
- B) Short-sell the stock using a personal account first, then inform the client to do the same.
- C) Inform compliance officers of the leak, refrain from using or sharing the non-public information, and advise the client based strictly on publicly available analysis.
- D) Forward the leaked document to rival investment firms to level the information playing field across the market.

Correct Answer: Option C

Explanation: Market integrity and regulatory ethics strictly prohibit trading or advising clients based on material non-public information. Acting on the leak violates securities regulations and professional codes of conduct. The analyst must notify compliance, isolate the confidential data, and maintain fair, public-data-driven advisory standards.

Question 60

Instructions: Identify the choice that resolves conflict between contractual obligations and public interest.

Question: A senior chemical engineer working for an industrial plant signs a strict non-disclosure agreement (NDA) covering all plant operations. During a routine safety check, she discovers that an underground storage tank containing toxic solvent is slowly leaking into the municipal groundwater supply. Plant managers refuse to repair the leak, citing tight operational budgets, and remind her that breaking her NDA carries severe civil penalties and immediate termination. What should she do?

Options:

- A) Comply with her signed NDA and remain silent to avoid breach-of-contract lawsuits and job loss.
- B) Post about the leak on personal social media accounts using a pseudonym to bypass legal liability.
- C) Report the groundwater contamination immediately to public health and environmental regulatory bodies, as duty to public safety supersedes contractual NDAs.

D) Request a transfer to a different plant facility so she is no longer responsible for monitoring that specific tank.

Correct Answer: Option C

Explanation: In professional engineering and corporate ethics, the duty to protect human health and public safety universally overrides contractual non-disclosure agreements (NDAs) or private loyalty to an employer. Unethical or illegal hazards affecting public welfare cannot be morally or legally shielded by NDAs.

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