

FDDI AIST Quantitative & Analytical Ability

Sample Paper – 9

Duration: 25 Minutes

Maximum Marks: 25

Instructions

- This paper contains **25** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative & Analytical Ability section of **FDDI AIST**.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct per question.
- Syllabus level: **Class 10–12 Mathematics and basic analytical reasoning**.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. What is the LCM of 12, 18 and 24?

- (A) 72
- (B) 36
- (C) 144
- (D) 96

Q2. How many natural numbers less than 100 are divisible by both 4 and 6?

- (A) 6
- (B) 8
- (C) 10
- (D) 12

Q3. How many perfect cubes lie **strictly between** 100 and 1000?



- (A) 4
- (B) 6
- (C) 5
- (D) 7

Q4. Two varieties of wheat cost Rs. 20 per kg and Rs. 30 per kg. In what ratio must they be mixed to produce a blend costing Rs. 24 per kg?

- (A) 1 : 2
- (B) 2 : 1
- (C) 1 : 3
- (D) 3 : 2

Q5. A shopkeeper first raises the price of an item by 20%, then reduces the new price by 20%. What is the net change in the original price?

- (A) 4% decrease
- (B) No change
- (C) 4% increase
- (D) 2% decrease

Q6. A jacket is sold for Rs. 840 at a loss of 16%. What is its cost price?

- (A) Rs. 960
- (B) Rs. 1,000
- (C) Rs. 900
- (D) Rs. 1,050

Q7. Successive discounts of 10% and 20% on the marked price of an article are equivalent to a single discount of:

- (A) 30%
- (B) 25%



(C) 28%

(D) 20%

Q8. A can complete a job in 10 days and B in 15 days. Working together, they will finish the job in:

(A) 5 days

(B) 5.5 days

(C) 12 days

(D) 6 days

Q9. A pipe can fill a tank in 9 hours. A leak at the bottom can empty the full tank in 18 hours. If both the pipe and the leak are active, how long will it take to fill the empty tank?

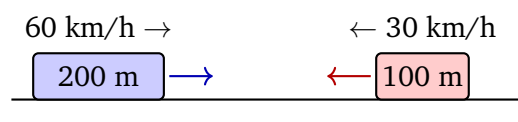
(A) 18 hours

(B) 9 hours

(C) 12 hours

(D) 6 hours

Q10. Two trains, 200 m and 100 m long, run towards each other on parallel tracks at 60 km/h and 30 km/h respectively. How long does it take for them to completely cross each other?



(A) 10 s

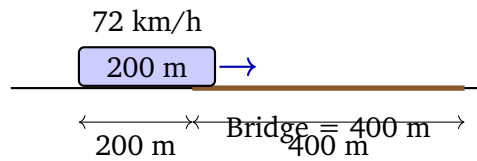
(B) 12 s

(C) 15 s

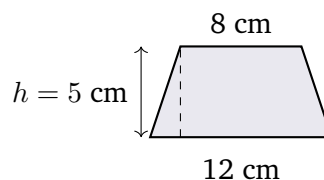
(D) 18 s



- Q11.** A train 200 m long runs at 72 km/h. It enters a bridge 400 m long. How long does it take to completely cross the bridge?

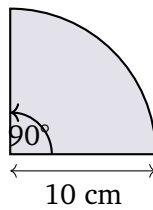


- (A) 20 s
(B) 25 s
(C) 30 s
(D) 40 s
- Q12.** A principal of Rs. 8,000 earns simple interest of Rs. 2,400 in 3 years. The rate of interest per annum is:
- (A) 8%
(B) 9%
(C) 12%
(D) 10%
- Q13.** Rs. 10,000 is invested at 10% per annum compounded half-yearly for 1 year. The total amount at the end of 1 year is:
- (A) Rs. 11,025
(B) Rs. 11,000
(C) Rs. 10,500
(D) Rs. 11,050
- Q14.** Find the area of a trapezoid whose parallel sides are 8 cm and 12 cm and whose perpendicular height is 5 cm.



- (A) 40 cm^2
- (B) 50 cm^2
- (C) 60 cm^2
- (D) 45 cm^2

Q15. Find the area of a sector with radius 10 cm and central angle 90° . (Use $\pi = 3.14$)



- (A) 39.25 cm^2
- (B) 157 cm^2
- (C) 78.5 cm^2
- (D) 314 cm^2

Q16. Find the volume of a cone with base radius 7 cm and height 24 cm. (Use $\pi = \frac{22}{7}$)

- (A) $3,696 \text{ cm}^3$
- (B) $2,464 \text{ cm}^3$
- (C) 924 cm^3
- (D) $1,232 \text{ cm}^3$

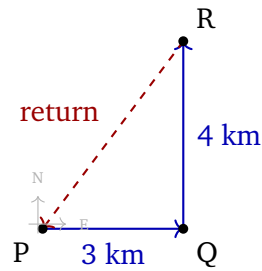
Q17. Find the total surface area of a closed cylinder with radius 5 cm and height 12 cm. (Use $\pi = 3.14$)

- (A) 533.8 cm^2
- (B) 376.8 cm^2
- (C) 267.9 cm^2
- (D) $1,067.6 \text{ cm}^2$



- Q18.** A bag contains 4 red balls and 6 blue balls. Two balls are drawn simultaneously at random. What is the probability that both balls are blue?
- (A) $\frac{2}{9}$
(B) $\frac{1}{3}$
(C) $\frac{2}{15}$
(D) $\frac{3}{10}$
- Q19.** Find the median of the data set: {5, 8, 3, 10, 2, 7, 12}.
- (A) 5
(B) 8
(C) 7
(D) 10
- Q20.** Find the mode of the data set: {4, 7, 4, 8, 7, 4, 9, 6, 7, 4}.
- (A) 7
(B) 6
(C) 8
(D) 4
- Q21.** Find the next term in the series: 2, 5, 10, 17, 26, ?
- (A) 37
(B) 35
(C) 38
(D) 36
- Q22.** Ravi starts at point P. He walks **3 km East** to Q, then **4 km North** to R, and finally walks **directly back** to P. What is the total distance covered by Ravi?





- (A) 5 km
- (B) 12 km
- (C) 7 km
- (D) 10 km

Q23. In a code language, **BOOK** is written as **BNNJ**. Using the same rule, how is **COOL** coded?

- (A) BNNK
- (B) DNNK
- (C) CNNK
- (D) CMMK

Q24. Pen : Write :: Knife : ?

- (A) Cook
- (B) Eat
- (C) Sharp
- (D) Cut

Q25. Consider the two statements:

Statement 1: All P are Q.

Statement 2: All Q are R.

Which of the following conclusions **definitely** follows?

I. All P are R. II. All R are P.

- (A) Only I follows



- (B) Only II follows
- (C) Both I and II follow
- (D) Neither follows



Detailed Solutions**Q1.****Solution**

Quick Solution: Concept: LCM by Prime Factorisation. **Chapter:** Number System. **Answer:** A.

Concept — LCM by Prime Factorisation:

$$12 = 2^2 \times 3, \quad 18 = 2 \times 3^2, \quad 24 = 2^3 \times 3$$

Step 1 — Take highest power of each prime factor:

$$\text{LCM} = 2^3 \times 3^2 = 8 \times 9 = \mathbf{72}$$

Why other options are wrong:

- Option B (36): $= 2^2 \times 3^2$; uses 2^2 instead of 2^3 — misses the factor of 24.
- Option C (144): $= 2^4 \times 3^2$; uses an exponent of 4 for 2, which doesn't appear.
- Option D (96): $= 2^5 \times 3$; not divisible by 18 ($96 \div 18 = 5.33 \dots$).

Final Answer: $\text{LCM}(12, 18, 24) = \mathbf{72} \Rightarrow \boxed{A}$

Answer: (A) [Go Back to Q1](#)

Q2.**Solution**

Quick Solution: Concept: Divisibility by LCM. **Chapter:** Number System. A number divisible by both 4 and 6 must be divisible by $\text{LCM}(4, 6) = 12$. **Answer:** B.

Concept — Divisibility by LCM: A number divisible by both 4 and 6 must be divisible by $\text{LCM}(4, 6) = 12$.

Step 1 — List multiples of 12 less than 100:

$$12, 24, 36, 48, 60, 72, 84, 96$$

Step 2 — Count: There are exactly 8 such numbers.

Why other options are wrong:



- Option A (6): Corresponds to multiples of 15, not 12.
- Option C (10): Corresponds to multiples of 9 below 100, not 12.
- Option D (12): Includes 100 (not strictly less than) or counts multiples of a different number.

Final Answer: There are 8 such natural numbers $\Rightarrow$ B

Answer: (B) [Go Back to Q2](#)

Q3.

Solution

Quick Solution: Concept: Perfect Cubes. **Chapter:** Number System. n^3 for integer n . **Answer:** C.

Concept — Perfect Cubes: n^3 for integer n .

Step 1 — Test values of n :

$$4^3 = 64 \text{ (not } > 100), \quad 5^3 = 125, \quad 6^3 = 216, \quad 7^3 = 343, \quad 8^3 = 512, \quad 9^3 = 729$$

$$10^3 = 1000 \text{ (not } < 1000, \text{ excluded)}$$

Step 2 — Count: Cubes strictly between 100 and 1000 are 125, 216, 343, 512, 729 — exactly 5.

Why other options are wrong:

- Option A (4): Misses $9^3 = 729$ (within range).
- Option B (6): Incorrectly includes $4^3 = 64$ or $10^3 = 1000$.
- Option D (7): Overcounts by two.

Final Answer: There are 5 perfect cubes strictly between 100 and 1000 $\Rightarrow$ C

Answer: (C) [Go Back to Q3](#)



Q4.

Solution

Quick Solution: Concept: Alligation Rule. **Chapter:** Ratio & Proportion. . **Answer:** D.

Concept — Alligation Rule:

$$\text{Ratio} = \frac{\text{Cost of dearer} - \text{Mean price}}{\text{Mean price} - \text{Cost of cheaper}}$$

Step 1 — Apply alligation:

$$\text{Ratio} = \frac{30 - 24}{24 - 20} = \frac{6}{4} = \frac{3}{2}$$

Step 2 — Interpretation: Mix cheaper (Rs. 20) to dearer (Rs. 30) in ratio 3 : 2.

Why other options are wrong:

- Option A (1:2): Would give mean price $\frac{1 \times 20 + 2 \times 30}{3} = \frac{80}{3} \approx 26.67 \neq 24$.
- Option B (2:1): Would give $\frac{2 \times 20 + 1 \times 30}{3} = \frac{70}{3} \approx 23.33 \neq 24$.
- Option C (1:3): Would give $\frac{1 \times 20 + 3 \times 30}{4} = \frac{110}{4} = 27.5 \neq 24$.

Final Answer: Mix in ratio 3 : 2 (cheaper : dearer) $\Rightarrow$ D

Answer: (D) [Go Back to Q4](#)

Q5.

Solution

Quick Solution: Concept: Successive Percentage Change. **Chapter:** Percentage. Net change when applying $+p\%$ then $-p\%$ is always a net loss. **Answer:** A.

Concept — Successive Percentage Change: Net change when applying $+p\%$ then $-p\%$ is always a net loss.

Step 1 — Let original price = 100.

$$\text{After } +20\%: 100 \times 1.20 = 120$$

$$\text{After } -20\%: 120 \times 0.80 = 96$$



Step 2 — Net change:

$$\frac{96 - 100}{100} \times 100 = -4\%$$

Formula shortcut: Net = $-\left(\frac{x}{10}\right)^2 = -\left(\frac{20}{10}\right)^2 = -4\%$.

Why other options are wrong:

- Option B (No change): Only true when the percentage change is 0%.
- Option C (4% increase): Direction error; the result is always a loss.
- Option D (2% decrease): Underestimates; the correct formula gives 4%.

Final Answer: Net change is a 4% decrease $\Rightarrow$ A

Answer: (A) [Go Back to Q5](#)

Q6.

Solution

Quick Solution: Concept: Cost Price from SP and Loss%. **Chapter:** Profit & Loss.
. Answer: B.

Concept — Cost Price from SP and Loss%:

$$CP = \frac{SP}{1 - \text{Loss\%/100}}$$

Step 1 — Substitute values:

$$CP = \frac{840}{1 - 0.16} = \frac{840}{0.84} = \text{Rs. 1,000}$$

Verification: Loss = $1000 - 840 = 160$; Loss% = $\frac{160}{1000} \times 100 = 16\% \checkmark$

Why other options are wrong:

- Option A (Rs. 960): $\frac{840}{0.96} \approx 875$, not 960; also $960 \times 0.84 = 806 \neq 840$.
- Option C (Rs. 900): $900 \times 0.84 = 756 \neq 840$.
- Option D (Rs. 1050): $1050 \times 0.84 = 882 \neq 840$.

Final Answer: Cost price = Rs. 1,000 $\Rightarrow$ B

Answer: (B) [Go Back to Q6](#)



Q7.

Solution

Quick Solution: Concept: Successive Discounts. **Chapter:** Discount. . **Answer:** C.

Concept — Successive Discounts:

$$\text{Net multiplier} = (1 - d_1)(1 - d_2) = 0.90 \times 0.80 = 0.72$$

Step 1 — Net selling price (on MP = 100):

$$SP = 100 \times 0.72 = 72$$

Step 2 — Effective single discount:

$$\text{Discount} = 100 - 72 = 28\%$$

Why other options are wrong:

- Option A (30%): Simple addition of 10 and 20 — ignores the compounding effect.
- Option B (25%): Incorrect formula; actual result is 28%.
- Option D (20%): Only the larger of the two discounts; does not combine them.

Final Answer: Equivalent single discount = 28% $\Rightarrow$ C

Answer: (C) [Go Back to Q7](#)

Q8.

Solution

Quick Solution: Concept: Combined Work Rate. **Chapter:** Time & Work. . **Answer:** D.

Concept — Combined Work Rate:

$$\text{Combined rate} = \frac{1}{T_A} + \frac{1}{T_B}$$



Step 1 — Compute rates:

$$\frac{1}{10} + \frac{1}{15} = \frac{3}{30} + \frac{2}{30} = \frac{5}{30} = \frac{1}{6}$$

Step 2 — Time together:

$$T = \frac{1}{1/6} = 6 \text{ days}$$

Why other options are wrong:

- Option A (5 days): Would need rate $\frac{1}{5}$; actual combined rate is $\frac{1}{6}$.
- Option B (5.5 days): Arithmetic mean of 10 and 15 divided by 2 — not the correct formula.
- Option C (12 days): Half of 24 — confuses the calculation.

Final Answer: They finish together in 6 days $\Rightarrow$ D

Answer: (D) [Go Back to Q8](#)

Q9.

Solution

Quick Solution: Concept: Pipe with Leak. **Chapter:** Pipes & Cisterns. Net filling rate = Pipe rate – Leak rate. **Answer:** A.

Concept — Pipe with Leak: Net filling rate = Pipe rate – Leak rate.

Step 1 — Rates:

$$\text{Pipe fills: } \frac{1}{9} \text{ tank/h; Leak empties: } \frac{1}{18} \text{ tank/h}$$

Step 2 — Net rate:

$$\frac{1}{9} - \frac{1}{18} = \frac{2}{18} - \frac{1}{18} = \frac{1}{18} \text{ tank/h}$$

Step 3 — Time to fill:

$$T = \frac{1}{1/18} = 18 \text{ hours}$$

Why other options are wrong:

- Option B (9 h): Time without the leak; ignores the leak's effect.
- Option C (12 h): Incorrect net rate; actual rate is $\frac{1}{18}$, not $\frac{1}{12}$.
- Option D (6 h): Would require net rate $\frac{1}{6}$; much too fast.



Final Answer: Tank fills in 18 hours $\Rightarrow$ A

Answer: (A) [Go Back to Q9](#)

Q10.

Solution

Quick Solution: Concept: Trains Moving Towards Each Other. **Chapter:** Time & Distance. **Answer:** B.

Concept — Trains Moving Towards Each Other:

$$\text{Time} = \frac{\text{Sum of lengths}}{\text{Relative speed (towards each other)}}$$

Step 1 — Relative speed:

$$v_{\text{rel}} = 60 + 30 = 90 \text{ km/h} = 90 \times \frac{1000}{3600} = 25 \text{ m/s}$$

Step 2 — Total distance to be covered:

$$d = 200 + 100 = 300 \text{ m}$$

Step 3 — Time:

$$t = \frac{300}{25} = 12 \text{ s}$$

Why other options are wrong:

- Option A (10 s): $25 \times 10 = 250 \neq 300 \text{ m}$.
- Option C (15 s): Uses relative speed of 20 m/s — fails to add speeds for opposing trains.
- Option D (18 s): Uses only one train's speed for relative motion.

Final Answer: Time to cross = 12 s $\Rightarrow$ B

Answer: (B) [Go Back to Q10](#)



Q11.

Solution

Quick Solution: Concept: Train Crossing a Bridge. **Chapter:** Time & Distance. The train must travel a total distance equal to its own length plus the bridge length. **Answer:** C.

Concept — Train Crossing a Bridge: The train must travel a total distance equal to its own length plus the bridge length.

Step 1 — Convert speed:

$$72 \text{ km/h} = 72 \times \frac{1000}{3600} = 20 \text{ m/s}$$

Step 2 — Total distance:

$$d = 200 + 400 = 600 \text{ m}$$

Step 3 — Time:

$$t = \frac{600}{20} = 30 \text{ s}$$

Why other options are wrong:

- Option A (20 s): $20 \times 20 = 400 \text{ m}$ — only the bridge length, not including the train.
- Option B (25 s): $25 \times 20 = 500 \text{ m}$ — uses wrong total distance.
- Option D (40 s): $40 \times 20 = 800 \text{ m}$ — inflates the distance.

Final Answer: Time to cross the bridge = 30 s $\Rightarrow$ C

Answer: (C) [Go Back to Q11](#)

Q12.

Solution

Quick Solution: Concept: Simple Interest Formula. **Chapter:** Simple Interest. . **Answer:** D.

Concept — Simple Interest Formula:

$$SI = \frac{P \times R \times T}{100} \Rightarrow R = \frac{SI \times 100}{P \times T}$$



Step 1 — Substitute values:

$$R = \frac{2400 \times 100}{8000 \times 3} = \frac{240000}{24000} = 10\%$$

Verification: $SI = \frac{8000 \times 10 \times 3}{100} = 2400 \checkmark$

Why other options are wrong:

- Option A (8%): $\frac{8000 \times 8 \times 3}{100} = 1920 \neq 2400$.
- Option B (9%): $\frac{8000 \times 9 \times 3}{100} = 2160 \neq 2400$.
- Option C (12%): $\frac{8000 \times 12 \times 3}{100} = 2880 \neq 2400$.

Final Answer: Rate = 10% per annum $\Rightarrow$ D

Answer: (D) [Go Back to Q12](#)

Q13.

Solution

Quick Solution: Concept: Compound Interest (Half-Yearly). **Chapter:** Compound Interest. When compounded half-yearly, the rate per period = $r/2$ and the number of periods = $2t$. **Answer:** A.

Concept — Compound Interest (Half-Yearly): When compounded half-yearly, the rate per period = $r/2$ and the number of periods = $2t$.

Step 1 — Parameters:

$$P = 10,000, \quad r_{\text{half}} = \frac{10}{2} = 5\%, \quad n = 2 \text{ (half-years in 1 year)}$$

Step 2 — Amount:

$$A = 10000 \times \left(1 + \frac{5}{100}\right)^2 = 10000 \times (1.05)^2 = 10000 \times 1.1025 = \text{Rs. } 11,025$$

Why other options are wrong:

- Option B (Rs. 11,000): Uses annual compounding (1.10×10000) instead of half-yearly.
- Option C (Rs. 10,500): Uses only one half-year period, ignoring the second.
- Option D (Rs. 11,050): Off by Rs. 25; a common rounding error.

Final Answer: Amount = Rs. 11,025 $\Rightarrow$ A



Answer: (A) [Go Back to Q13](#)

Q14.

Solution

Quick Solution: Concept: Area of Trapezoid. **Chapter:** Mensuration 2D. . **Answer:** B.

Concept — Area of Trapezoid:

$$A = \frac{1}{2}(a + b) \times h$$

where a, b are the parallel sides and h is the perpendicular height.

Step 1 — Substitute values:

$$A = \frac{1}{2}(8 + 12) \times 5 = \frac{1}{2} \times 20 \times 5 = 50 \text{ cm}^2$$

Why other options are wrong:

- Option A (40 cm²): Uses only the shorter base: $\frac{1}{2} \times 8 \times 10 = 40$.
- Option C (60 cm²): Uses only the longer base: $\frac{1}{2} \times 12 \times 10 = 60$.
- Option D (45 cm²): Arithmetic error — possibly uses wrong height or sum.

Final Answer: Area = 50 cm² $\Rightarrow$ **B**

Answer: (B) [Go Back to Q14](#)

Q15.

Solution

Quick Solution: Concept: Area of Sector. **Chapter:** Mensuration 2D. . **Answer:** C.

Concept — Area of Sector:

$$A = \frac{\theta}{360} \times \pi r^2$$

Step 1 — Substitute values ($\theta = 90$, $r = 10$ cm, $\pi = 3.14$):

$$A = \frac{90}{360} \times 3.14 \times 10^2 = \frac{1}{4} \times 3.14 \times 100 = \frac{314}{4} = 78.5 \text{ cm}^2$$

Why other options are wrong:



- Option A (39.25 cm^2): $= \frac{1}{8}\pi r^2$ — uses 45° instead of 90° .
- Option B (157 cm^2): $= \frac{1}{2}\pi r^2$ — area of a semicircle (180), not a quarter.
- Option D (314 cm^2): $= \pi r^2$ — full circle area; sector angle is only 90° .

Final Answer: Area of sector $= 78.5 \text{ cm}^2 \Rightarrow \boxed{C}$

Answer: (C) [Go Back to Q15](#)

Q16.

Solution

Quick Solution: Concept: Volume of Cone. **Chapter:** Mensuration 3D. **Answer:** D.

Concept — Volume of Cone:

$$V = \frac{1}{3}\pi r^2 h$$

Step 1 — Substitute values:

$$V = \frac{1}{3} \times \frac{22}{7} \times 7^2 \times 24 = \frac{1}{3} \times \frac{22}{7} \times 49 \times 24$$

Step 2 — Simplify:

$$V = \frac{1}{3} \times 22 \times 7 \times 24 = \frac{1}{3} \times 3,696 = 1,232 \text{ cm}^3$$

Why other options are wrong:

- Option A ($3,696 \text{ cm}^3$): $= \pi r^2 h$ — volume of a cylinder; omits the $\frac{1}{3}$ factor.
- Option B ($2,464 \text{ cm}^3$): $= \frac{2}{3}\pi r^2 h$ — uses $\frac{2}{3}$ instead of $\frac{1}{3}$.
- Option C (924 cm^3): Arithmetic error; $3696/4 = 924$ uses divisor 4 instead of 3.

Final Answer: Volume $= 1,232 \text{ cm}^3 \Rightarrow \boxed{D}$

Answer: (D) [Go Back to Q16](#)



Q17.

Solution

Quick Solution: Concept: Total Surface Area of Cylinder. **Chapter:** Mensuration 3D. . **Answer:** A.

Concept — Total Surface Area of Cylinder:

$$\text{TSA} = 2\pi r(r + h)$$

Step 1 — Substitute values ($r = 5 \text{ cm}$, $h = 12 \text{ cm}$, $\pi = 3.14$):

$$\text{TSA} = 2 \times 3.14 \times 5 \times (5 + 12) = 2 \times 3.14 \times 5 \times 17 = 2 \times 267.9 = 533.8 \text{ cm}^2$$

Why other options are wrong:

- Option B (376.8 cm^2): $= 2\pi rh$ only — curved surface area, omits the two circular ends.
- Option C (267.9 cm^2): $= \pi r(r + h)$ — off by a factor of 2.
- Option D ($1,067.6 \text{ cm}^2$): $= 4\pi r(r + h)$ — doubled the TSA.

Final Answer: $\text{TSA} = 533.8 \text{ cm}^2 \Rightarrow \boxed{A}$

Answer: (A) [Go Back to Q17](#)

Q18.

Solution

Quick Solution: Concept: Probability without Replacement. **Chapter:** Probability. . **Answer:** B.

Concept — Probability without Replacement:

$$P(\text{both blue}) = \frac{\binom{6}{2}}{\binom{10}{2}}$$

Step 1 — Compute combinations:

$$\binom{6}{2} = \frac{6 \times 5}{2} = 15; \quad \binom{10}{2} = \frac{10 \times 9}{2} = 45$$



Step 2 — Probability:

$$P = \frac{15}{45} = \frac{1}{3}$$

Why other options are wrong:

- Option A ($\frac{2}{9}$): Would arise from $P = \frac{6}{10} \times \frac{4}{9}$ — wrong second draw.
- Option C ($\frac{2}{15}$): $= \frac{C(4,2)}{C(10,2)} = \frac{6}{45}$ — probability of both being *red*.
- Option D ($\frac{3}{10}$): $= \frac{6}{10} \times \frac{5}{10}$ — draws with replacement, not without.

Final Answer: $P(\text{both blue}) = \frac{1}{3} \Rightarrow \boxed{B}$

Answer: (B) [Go Back to Q18](#)

Q19.

Solution

Quick Solution: Concept: Median. **Chapter:** Statistics. Arrange data in ascending order; the middle value is the median. **Answer:** C.

Concept — Median: Arrange data in ascending order; the middle value is the median.

Step 1 — Sort the data:

2, 3, 5, **7**, 8, 10, 12

Step 2 — Identify the middle term: There are 7 values; the 4th value is the median.

Median = 7

Why other options are wrong:

- Option A (5): Third value in sorted order, not the 4th (middle).
- Option B (8): Fifth value in sorted order.
- Option D (10): Sixth value in sorted order.

Final Answer: Median = 7 $\Rightarrow \boxed{C}$

Answer: (C) [Go Back to Q19](#)



Q20.

Solution

Quick Solution: Concept: Mode. **Chapter:** Statistics. The mode is the value that appears most frequently in the dataset. **Answer:** D.

Concept — Mode: The mode is the value that appears most frequently in the dataset.

Step 1 — Frequency count for {4, 7, 4, 8, 7, 4, 9, 6, 7, 4}:

$$4 \rightarrow 4 \text{ times}, \quad 7 \rightarrow 3 \text{ times}, \quad 8 \rightarrow 1, \quad 9 \rightarrow 1, \quad 6 \rightarrow 1$$

Step 2 — Mode: The value 4 appears most often (4 times).

Why other options are wrong:

- Option A (7): Appears only 3 times — second most frequent, not the mode.
- Option B (6): Appears only once.
- Option C (8): Appears only once.

Final Answer: Mode = 4 $\Rightarrow$ D

Answer: (D) [Go Back to Q20](#)

Q21.

Solution

Quick Solution: Concept: Difference Series. **Chapter:** Analytical — Series. Identify the pattern in successive differences. **Answer:** A.

Concept — Difference Series: Identify the pattern in successive differences.

Step 1 — Compute differences:

$$5 - 2 = 3, \quad 10 - 5 = 5, \quad 17 - 10 = 7, \quad 26 - 17 = 9$$

Step 2 — Pattern: Differences are odd numbers: 3, 5, 7, 9, ... The next difference is 11.

Step 3 — Next term:

$$26 + 11 = 37$$

Alternate view: Terms = $n^2 + 1$ for $n = 1, 2, 3, \dots$: 2, 5, 10, 17, 26, 37.



Why other options are wrong:

- Option B (35): $26 + 9 = 35$ — repeats the previous difference instead of incrementing.
- Option C (38): $26 + 12$ — next difference should be 11 (odd), not 12.
- Option D (36): $26 + 10$ — uses an even increment, breaking the odd-difference pattern.

Final Answer: Next term = 37 $\Rightarrow$ A

Answer: (A) [Go Back to Q21](#)

Q22.

Solution

Quick Solution: Concept: Distance Problem (Pythagorean Theorem). **Chapter:** Direction Sense. When two legs of a right triangle are known, the hypotenuse (direct return distance) follows from Pythagoras. **Answer:** B.

Concept — Distance Problem (Pythagorean Theorem): When two legs of a right triangle are known, the hypotenuse (direct return distance) follows from Pythagoras.

Step 1 — Identify the right triangle:

- Leg 1 (East): 3 km
- Leg 2 (North): 4 km
- Hypotenuse (direct return from R to P): $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ km

Step 2 — Total distance covered:

$$3 + 4 + 5 = 12 \text{ km}$$

Why other options are wrong:

- Option A (5 km): Only the straight-line distance from R to P, not the total path.
- Option C (7 km): $3 + 4 = 7$ — omits the return leg.
- Option D (10 km): Miscalculates as $3 + 4 + 3 = 10$, treating return as horizontal only.

Final Answer: Total distance = 12 km $\Rightarrow$ B

Answer: (B) [Go Back to Q22](#)



Q23.

Solution

Quick Solution: Concept: Coding-Decoding (Letter Shift). **Chapter:** Coding-Decoding. Identify the shift rule from the given example. **Answer:** C.

Concept — Coding-Decoding (Letter Shift): Identify the shift rule from the given example.

Step 1 — Analyse BOOK → BNNJ:

$$B \rightarrow B (+0), \quad O \rightarrow N (-1), \quad O \rightarrow N (-1), \quad K \rightarrow J (-1)$$

Rule: first letter unchanged; each subsequent letter shifted one position back in the alphabet.

Step 2 — Apply rule to COOL:

$$C \rightarrow C (+0), \quad O \rightarrow N (-1), \quad O \rightarrow N (-1), \quad L \rightarrow K (-1)$$

Coded word = CNNK

Why other options are wrong:

- Option A (BNNK): Shifts the first letter C back to B — violates the rule.
- Option B (DNNK): Shifts the first letter C forward to D — violates the rule.
- Option D (CMMK): Shifts O by -2 to M instead of -1 to N.

Final Answer: COOL is coded as CNNK $\Rightarrow$ C

Answer: (C)

[Go Back to Q23](#)

Q24.

Solution

Quick Solution: Concept: Tool–Action Analogy. **Chapter:** Analogy. A pen is the tool used to *write*; a knife is the tool used to *cut*. **Answer:** D.

Concept — Tool–Action Analogy: A pen is the tool used to *write*; a knife is the tool used to *cut*.

Step 1 — Identify the relationship:

$$\text{Pen} \xrightarrow{\text{primary function}} \text{Write}; \quad \text{Knife} \xrightarrow{\text{primary function}} \text{Cut}$$



Why other options are wrong:

- Option A (Cook): Cooking is an activity, not the knife's primary function.
- Option B (Eat): We eat *with* a fork/spoon; a knife's function is to cut, not eat.
- Option C (Sharp): "Sharp" is an *attribute* of a knife, not its function.

Final Answer: Knife : Cut $\Rightarrow$ D

Answer: (D) [Go Back to Q24](#)

Q25.

Solution

Quick Solution: Concept: Syllogism (Transitive Property). **Chapter:** Syllogism. If "All P are Q" and "All Q are R", then every P is contained within Q, which is entirely within R. **Answer:** A.

Concept — Syllogism (Transitive Property): If "All P are Q" and "All Q are R", then every P is contained within Q, which is entirely within R.

Step 1 — Chain of inclusion:

$$P \subseteq Q \subseteq R \implies P \subseteq R$$

Therefore **Conclusion I** (All P are R) **definitely follows**.

Step 2 — Test Conclusion II (All R are P): Knowing $P \subseteq R$ does *not* imply $R \subseteq P$ (the set of R may be much larger). **Conclusion II does NOT necessarily follow.**

Why other options are wrong:

- Option B (Only II): II is not valid by the given premises.
- Option C (Both I and II): II cannot be concluded; only I is valid.
- Option D (Neither): Incorrect; the transitive property guarantees Conclusion I.

Final Answer: Only Conclusion I follows $\Rightarrow$ A

Answer: (A) [Go Back to Q25](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	B	3	C	4	D	5	A
6	B	7	C	8	D	9	A	10	B
11	C	12	D	13	A	14	B	15	C
16	D	17	A	18	B	19	C	20	D
21	A	22	B	23	C	24	D	25	A

