XAT Quantitative Ability & DI

Sample Paper – 2

Duration: 64 Minutes **Maximum Marks: 28**

Instructions

- This paper contains **28** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative Ability & Data Interpretation section of **XAT** (Xavier Aptitude Test), conducted by XLRI.
- Each correct answer carries **+1 mark**, with **0.25 marks deducted** for every incorrect answer. (In the actual XAT you may leave up to **8** questions across Part 1 unattempted without penalty; thereafter each blank costs **0.10** marks.)
- **Section A** has **20** standalone Quantitative Ability questions; **Section B** has **two Data Interpretation sets** of four questions each.
- **No calculator is allowed** in XAT; do all working by hand. Attempt this practice paper in one timed sitting of about **64 minutes**.
- Use of mobile phones and electronic gadgets is strictly prohibited.

Section A: Quantitative Ability

Q1. A trader marks his goods 60% above cost price and then allows a discount of 20% on the marked price. His profit percent is:

(A) 40%

(B) 28%

(C) 32%

(D) 24%

Q2. A man sells two articles at Rs 1200 each. On one he gains 20% and on the other he loses 20%. Overall he makes:

(A) a gain of 4%

(B) no profit and no loss

(C) a loss of 2%

(D) a loss of 4%

Q3. A train 240 m long crosses a platform 360 m long in 30 seconds. The speed of the train is:

(A) 72 km/h

(B) 60 km/h

(C) 66 km/h

(D) 68 km/h

Q4. A can finish a piece of work in 20 days and B in 30 days. Working together, they will finish it in:

(A) 10 days

(B) 15 days

(C) 12 days

(D) 25 days

Q5. The average of 13 numbers is 40. The average of the first seven is 42 and that of the last seven is 44. The seventh number is:

(A) 40

(B) 44

(C) 42

(D) 82

Q6. A 60-litre mixture contains milk and water in the ratio $5 : 1$. How much water must be added so that the ratio becomes $5 : 3$?

(A) 10 litres

(B) 15 litres

(C) 12 litres

(D) 20 litres

Q7. The difference between the compound interest and the simple interest on a sum for 2 years at 10% per annum is Rs 120. The sum is:

(A) Rs 10000

(B) Rs 12000

(C) Rs 15000

(D) Rs 6000

Q8. If $x + \frac{1}{x} = 5$, then $x^2 + \frac{1}{x^2}$ equals:

(A) 25

(B) 27

(C) 23

(D) 21

Q9. The sum of the first 15 terms of the arithmetic progression $5, 9, 13, \ldots$ is:

(A) 480

(B) 510

(C) 500

(D) 495

Q10. The roots of the equation $x^2 - 7x + 12 = 0$ are:

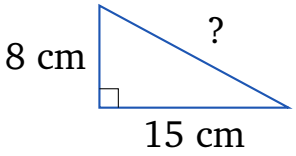
(A) 2 and 6

(B) -3 and -4

(C) 3 and 4

(D) 3 and -4

Q11. In the right-angled triangle shown, the two legs measure 8 cm and 15 cm. The length of the hypotenuse is:



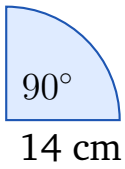
(A) 23 cm

(B) 17 cm

(C) 19 cm

(D) 21 cm

Q12. A sector of a circle of radius 14 cm subtends an angle of 90° at the centre. Its area is (take $\pi = \frac{22}{7}$):



(A) 154 cm^2

(B) 196 cm^2

(C) 308 cm^2

(D) 77 cm^2

Q13. The radius of a cylinder is 7 cm and its height is 5 cm. Its curved surface area is (take $\pi = \frac{22}{7}$):

(A) 220 cm^2

(B) 154 cm^2

(C) 308 cm^2

(D) 110 cm^2

Q14. The remainder when 3^{101} is divided by 5 is:

(A) 1

(B) 4

(C) 3

(D) 2

Q15. The number of positive factors of 720 is:

(A) 24

(B) 30

(C) 28

(D) 36

Q16. The number of distinct arrangements of all the letters of the word **BALLOON** is:

(A) 2520

(B) 1260

(C) 5040

(D) 630

Q17. Two fair dice are thrown together. The probability that the sum of the numbers shown is 10 is:

(A) $\frac{1}{6}$

(B) $\frac{1}{9}$

(C) $\frac{1}{12}$

(D) $\frac{1}{18}$

Q18. If $\log_3 x = 4$, then x equals:

(A) 12

(B) 27

(C) 64

(D) 81

Q19. A's salary is 20% more than B's salary. By what percent is B's salary less than A's?

(A) $16\frac{2}{3}\%$

(B) 20%

(C) 25%

(D) 15%

Q20. If $5x - 9 < 3x + 7$, then:

(A) $x > 8$

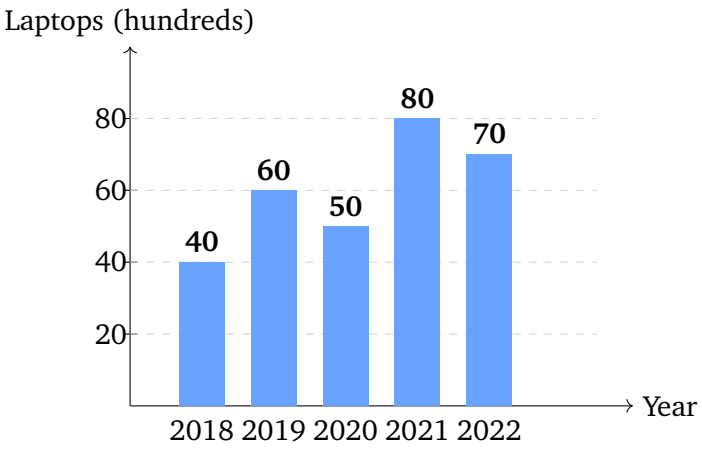
(B) $x < 8$

(C) $x > 16$

(D) $x < 16$

Section B: Data Interpretation – Set I

Directions (Q21–Q24): The bar chart shows the number of laptops (in hundreds) sold by an electronics store from 2018 to 2022. Study it and answer the questions.



Q21. What is the total number of laptops (in hundreds) sold over the five years?

(A) 280

(B) 320

(C) 290

(D) 300

Q22. The number sold in 2021 is what percent more than the number sold in 2020?

(A) 50%

(B) 60%

(C) 37.5%

(D) 40%

Q23. What is the average number of laptops (in hundreds) sold per year over the five years?

(A) 60

(B) 50

(C) 55

(D) 65

Q24. In which year was the number sold exactly equal to the five-year average?

(A) 2019

(B) 2020

(C) 2018

(D) 2022

Section B: Data Interpretation – Set II

Directions (Q25–Q28): The table shows the number of tickets (in hundreds) sold by four cinemas over two weekends. Study it and answer the questions.

Cinema	Weekend 1	Weekend 2	Total
W	45	55	100
X	60	50	110
Y	35	65	100
Z	70	55	125

Q25. What is the total number of tickets (in hundreds) sold by all four cinemas over the two weekends?

(A) 420

(B) 430

(C) 435

(D) 445

Q26. Which cinema sold the highest number of tickets over the two weekends taken together?

(A) W

(B) X

(C) Y

(D) Z

Q27. By how many hundred tickets did the total Weekend 2 sales exceed the total Weekend 1 sales?

(A) 15

(B) 20

(C) 10

(D) 25

Q28. What is the ratio of Y's two-weekend total to Z's two-weekend total?

(A) $5:4$

(B) $1:1$

(C) $4:5$

(D) $5:6$

Detailed Solutions

Q1.

Solution

Concept – successive markup and discount.

Step 1: Let CP $= 100$. Marked price $= 100 + 60\% = 160$.

Step 2: Selling price $= 160 \times (1 - 0.20) = 160 \times 0.80 = 128$.

Step 3: Profit $= 128 - 100 = 28$, so profit percent $= 28\%$.

Why the others are wrong: 40% subtracts 20% from 60%; 32% and 24% misapply the discount base. The correct chained value is 28%.

Final Answer: B

Answer: (B) Go Back to Q1

Q2.

Solution

Concept – equal SP, equal opposite %: always a loss.

Step 1: CP of the gaining article $= \dfrac{1200}{1.2} = 1000$; CP of the losing one $= \dfrac{1200}{0.8} = 1500$.

Step 2: Total CP $= 2500$, total SP $= 2400$, loss $= 100$.

Step 3: Loss percent $= \dfrac{100}{2500} \times 100 = 4\%$ (matches the shortcut $\dfrac{20^2}{100}\% = 4\%$ loss).

Why the others are wrong: There is always a net loss here, so A and B fail; the loss is 4%, not 2%.

Final Answer: D

Answer: (D) Go Back to Q2

Q3.

Solution

Concept – crossing a platform covers (train + platform) length.

Step 1: Distance $= 240 + 360 = 600$ m in 30 s.

Step 2: Speed $= \dfrac{600}{30} = 20$ m/s.

Step 3: $20 \times \dfrac{18}{5} = 72$ km/h.

Why the others are wrong: B/C/D use a wrong distance or a wrong m/s-to-km/h

factor.

Final Answer: A

Answer: (A) Go Back to Q3

Q4.

Solution

Concept – combined one-day work.

Step 1: $\frac{1}{20}+\frac{1}{30}=\frac{3+2}{60}=\frac{5}{60}=\frac{1}{12}$ per day.

Step 2: Time $=12$ days.

Why the others are wrong: 10 and 15 ignore the correct LCM combination; 25 adds the times.

Final Answer: C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept – overlap in averages.

Step 1: Sum of all $13=13\times 40=520$.

Step 2: Sum of first seven $=7\times 42=294$; sum of last seven $=7\times 44=308$; their sum $=602$.

Step 3: The seventh number is counted in both, so it $=602-520=82$.

Why the others are wrong: 40/44/42 ignore the double-counted seventh term.

Final Answer: D

Answer: (D) Go Back to Q5

Q6.

Solution

Concept – only water changes; milk stays fixed.

Step 1: Milk $=\frac{5}{6}\times 60=50$, water $=10$.

Step 2: For $5:3$ with milk $=50$: water $=50\times\frac{3}{5}=30$.

Step 3: Water to add $=30-10=20$ litres.

Why the others are wrong: 10/15/12 come from changing milk or mis-setting the target ratio.

Final Answer: D

Answer: (D) Go Back to Q6

Q7.

Solution

Concept – for 2 years, CI − SI $= P\left(\frac{r}{100}\right)^2$.

Step 1: $P \times (0.1)^2 = 0.01P = 120$.

Step 2: $P = \frac{120}{0.01} = 12000$.

Why the others are wrong: 10000/15000/6000 do not satisfy $0.01P = 120$.

Final Answer: B

Answer: (B) Go Back to Q7

Q8.

Solution

Concept – square the given expression.

Step 1: $\left(x + \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2 = 25$.

Step 2: $x^2 + \frac{1}{x^2} = 25 - 2 = 23$.

Why the others are wrong: 25 forgets the -2; 27 adds instead of subtracting; 21 mis-squares.

Final Answer: C

Answer: (C) Go Back to Q8

Q9.

Solution

Concept – AP sum $S_n = \frac{n}{2}[2a + (n-1)d]$.

Step 1: $a = 5$, $d = 4$, $n = 15$.

Step 2: $S_{15} = \frac{15}{2}[10 + 14 \times 4] = \frac{15}{2}[10 + 56] = \frac{15}{2} \times 66 = 495$.

Why the others are wrong: 480/510/500 use a wrong $n - 1$ or d.

Final Answer: D

Answer: (D) Go Back to Q9

Q10.

Solution

Concept – factor the quadratic.

Step 1: $x^2 - 7x + 12 = (x - 3)(x - 4)$.

Step 2: Roots are $x = 3$ and $x = 4$ (both positive, product 12, sum 7).

Why the others are wrong: A has the wrong product; B/D have wrong signs.

Final Answer: C

Answer: (C) Go Back to Q10

Q11.

Solution

Concept – Pythagoras theorem.

Step 1: Hypotenuse $= \sqrt{8^2 + 15^2} = \sqrt{64 + 225}$.

Step 2: $= \sqrt{289} = 17$ cm (an 8-15-17 Pythagorean triple).

Why the others are wrong: 23 adds the legs; 19 and 21 do not satisfy Pythagoras.

Final Answer: B

Answer: (B) Go Back to Q11

Q12.

Solution

Concept – sector area $= \dfrac{\theta}{360}\pi r^2$.

Step 1: $\dfrac{90}{360} = \dfrac{1}{4}$; $\pi r^2 = \dfrac{22}{7} \times 196 = 616$.

Step 2: Area $= \dfrac{1}{4} \times 616 = 154$ cm^2.

Why the others are wrong: 616 is the full circle; 308 is a semicircle; 196 is r^2; 77 halves the wrong figure.

Final Answer: A

Answer: (A) Go Back to Q12

Q13.

Solution

Concept – cylinder curved surface area $= 2\pi rh$.

Step 1: $r = 7$ cm, $h = 5$ cm.

Step 2: CSA $= 2 \times \dfrac{22}{7} \times 7 \times 5 = 2 \times 22 \times 5 = 220$ cm^2.

Why the others are wrong: 154 uses πr^2 (a base area); 308 doubles wrongly; 110 drops the factor 2.

Final Answer: A

Answer: (A) Go Back to Q13

Q14.

Solution

Concept – cyclicity of $3^n \bmod 5$.

Step 1: Powers of 3 mod 5 cycle as $3, 4, 2, 1$ with period 4.

Step 2: $101 = 4 \times 25 + 1$, so $3^{101} \equiv 3^1 = 3 \pmod 5$.

Why the others are wrong: 1/4/2 correspond to other positions in the cycle $3, 4, 2, 1$.

Final Answer: C

Answer: (C) Go Back to Q14

Q15.

Solution

Concept – number of factors from prime factorisation.

Step 1: $720 = 2^4 \times 3^2 \times 5^1$.

Step 2: Number of factors $= (4+1)(2+1)(1+1) = 5 \times 3 \times 2 = 30$.

Why the others are wrong: 24/28/36 drop a prime power or mis-add an exponent.

Final Answer: B

Answer: (B) Go Back to Q15

Q16.

Solution

Concept – arrangements with repeated letters.

Step 1: BALLOON has 7 letters with L repeated twice and O repeated twice.

Step 2: Arrangements $= \dfrac{7!}{2!\,2!} = \dfrac{5040}{4} = 1260.$

Why the others are wrong: 5040 ignores both repeats; 2520 divides by only one $2!$; 630 over-divides.

Final Answer: B

Answer: (B) Go Back to Q16

Q17.

Solution

Concept – favourable outcomes over 36.

Step 1: Sum 10: $(4,6),(5,5),(6,4) = 3$ ways.

Step 2: Probability $= \dfrac{3}{36} = \dfrac{1}{12}.$

Why the others are wrong: $\frac{1}{6}, \frac{1}{9}, \frac{1}{18}$ miscount the favourable pairs.

Final Answer: C

Answer: (C) Go Back to Q17

Q18.

Solution

Concept – definition of a logarithm.

Step 1: $\log_3 x = 4 \Rightarrow x = 3^4.$

Step 2: $x = 81.$

Why the others are wrong: 12 multiplies 3×4; 27 is 3^3; 64 is 4^3.

Final Answer: D

Answer: (D) Go Back to Q18

Q19.

Solution

Concept – the base changes when comparing the other way.

Step 1: Let $B = 100$, so $A = 120$.

Step 2: B is less than A by $\frac{120-100}{120} \times 100 = \frac{20}{120} \times 100 = 16\frac{2}{3}\%$.

Why the others are wrong: 20% keeps the wrong base; 25/15 mis-divide.

Final Answer: A

Answer: (A) Go Back to Q19

Q20.

Solution

Concept – solve the linear inequality.

Step 1: $5x - 9 < 3x + 7 \Rightarrow 5x - 3x < 7 + 9$.

Step 2: $2x < 16 \Rightarrow x < 8$.

Why the others are wrong: the inequality direction gives $x < 8$; $x > 8$ flips it, and 16 skips the division by 2.

Final Answer: B

Answer: (B) Go Back to Q20

Q21.

Solution

Concept – add the bar heights.

Step 1: $40 + 60 + 50 + 80 + 70$.

Step 2: $= 300$ (hundreds).

Why the others are wrong: 280/320/290 drop or mis-add a year's bar.

Final Answer: D

Answer: (D) Go Back to Q21

Q22.

Solution

Concept – percent increase over the earlier year.

Step 1: 2021 $= 80$, 2020 $= 50$; increase $= 30$.

Step 2: $\frac{30}{50} \times 100 = 60\%$.

Why the others are wrong: 37.5% divides by 80; 50/40 use wrong figures.

Final Answer: B

Answer: (B) Go Back to Q22

Q23.

Solution

Concept – average = total ÷ count.

Step 1: Total $= 300$ (from Q21), count $= 5$.

Step 2: Average $= \frac{300}{5} = 60$ (hundreds).

Why the others are wrong: 50/55/65 do not equal $300 \div 5$.

Final Answer: A

Answer: (A) Go Back to Q23

Q24.

Solution

Concept – match a year to the average of 60.

Step 1: The five values are $40, 60, 50, 80, 70$; the average is 60.

Step 2: The year with value exactly 60 is **2019**.

Why the others are wrong: 2018/2020/2022 read 40, 50, 70, none equal to 60.

Final Answer: A

Answer: (A) Go Back to Q24

Q25.

Solution

Concept – add the "Total" column.

Step 1: $100 + 110 + 100 + 125$.

Step 2: $= 435$ (hundreds).

Why the others are wrong: 420/430/445 drop part of a cinema's total.

Final Answer: C

Answer: (C) Go Back to Q25

Q26.

Solution

Concept – compare the totals.

Step 1: Totals: W $= 100$, X $= 110$, Y $= 100$, Z $= 125$.

Step 2: The largest is 125, which is **Z**.

Why the others are wrong: W, X and Y all total less than Z's 125.

Final Answer: D

Answer: (D) Go Back to Q26

Q27.

Solution

Concept – column sums for each weekend.

Step 1: Weekend $1 = 45+60+35+70 = 210$; Weekend $2 = 55+50+65+55 = 225$.

Step 2: Difference $= 225 - 210 = 15$ (hundreds).

Why the others are wrong: 20/10/25 come from a mis-added column.

Final Answer: A

Answer: (A) Go Back to Q27

Q28.

Solution

Concept – form and reduce the ratio.

Step 1: Y's total $= 100$, Z's total $= 125$.

Step 2: $100 : 125 = 4 : 5$.

Why the others are wrong: $5 : 4$ reverses it; $1 : 1$ and $5 : 6$ do not match $100 : 125$.

Final Answer: C

Answer: (C) Go Back to Q28

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	D	3	A	4	C	5	D
6	D	7	B	8	C	9	D	10	C
11	B	12	A	13	A	14	C	15	B
16	B	17	C	18	D	19	A	20	B
21	D	22	B	23	A	24	A	25	C
26	D	27	A	28	C				