

SNAP Quantitative, Data Interpretation and Data Sufficiency

Sample Paper – 6

Duration: 20 Minutes

Maximum Marks: 20

Instructions

- This paper contains **20** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative, Data Interpretation and Data Sufficiency section of **SNAP** (Symbiosis National Aptitude Test).
- Each correct answer carries **+1 mark**. **0.25 marks** are deducted for every wrong answer. Unattempted questions carry no penalty.
- Only **one** option is correct. Choose the most appropriate answer.
- SNAP is a computer-based test with no sectional time limit; attempt this practice paper in one timed sitting of about **20 minutes**.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Part A: Arithmetic

- Q1.** In an election between two candidates, the winner secured 60% of the valid votes and won by a margin of 800 votes. What was the total number of valid votes?
- (A) 3600
(B) 4000
(C) 4200
(D) 3800
- Q2.** A vessel contains 40 litres of a mixture of milk and water in the ratio 3 : 1. How many litres of water must be added so that the ratio of milk to water becomes 3 : 2?



- (A) 5 litres
- (B) 8 litres
- (C) 12 litres
- (D) 10 litres

Q3. By selling an article for Rs. 675, a man loses 10%. At what price should he sell it to gain 20%?

- (A) Rs. 900
- (B) Rs. 810
- (C) Rs. 850
- (D) Rs. 945

Q4. Find the compound interest on Rs. 8000 at 10% per annum for 2 years, compounded annually.

- (A) Rs. 1600
- (B) Rs. 1680
- (C) Rs. 1700
- (D) Rs. 1764

Q5. The average age of 3 friends is 25 years. When a fourth friend joins them, the average age becomes 27 years. What is the age of the fourth friend?

- (A) 29 years
- (B) 31 years
- (C) 33 years
- (D) 35 years

Q6. A can complete a piece of work in 12 days and B can complete the same work in 24 days. Working together, in how many days will they finish the work?



- (A) 8 days
- (B) 9 days
- (C) 6 days
- (D) 10 days

Part B: Algebra and Number System

Q7. If $a + b = 7$ and $ab = 12$, what is the value of $a^2 + b^2$?

- (A) 13
- (B) 37
- (C) 49
- (D) 25

Q8. What is the remainder when 7^{100} is divided by 4?

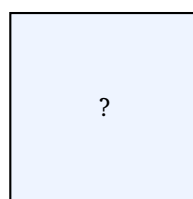
- (A) 3
- (B) 0
- (C) 2
- (D) 1

Q9. What are the roots of the equation $x^2 - 5x + 6 = 0$?

- (A) 1 and 6
- (B) -2 and -3
- (C) 2 and 3
- (D) 1 and 5

Part C: Geometry and Mensuration

Q10. The perimeter of the square shown below is 36 cm. Find its area.

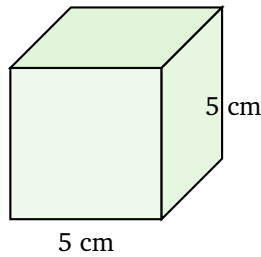


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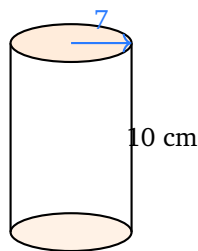
- (A) 72 sq. cm
- (B) 81 sq. cm
- (C) 64 sq. cm
- (D) 144 sq. cm

Q11. Find the volume of the cube shown below, whose edge measures 5 cm.



- (A) 125 cubic cm
- (B) 150 cubic cm
- (C) 100 cubic cm
- (D) 75 cubic cm

Q12. Find the volume of the cylinder shown below, with radius 7 cm and height 10 cm. (Take $\pi = \frac{22}{7}$.)

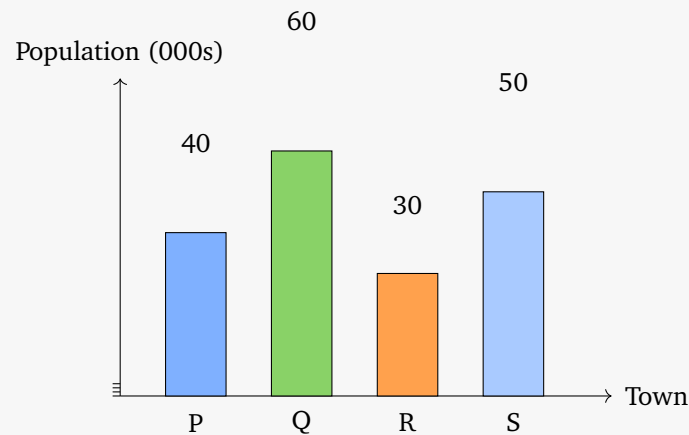


- (A) 440 cubic cm
- (B) 1000 cubic cm
- (C) 2200 cubic cm
- (D) 1540 cubic cm

Part D: Data Interpretation



Directions (Q13–Q16): The bar chart below shows the population (in thousands) of four towns P, Q, R and S. Study it and answer the questions that follow.



Q13. Which town has the lowest population?

- (A) Town P
- (B) Town Q
- (C) Town R
- (D) Town S

Q14. What is the total population (in thousands) of all four towns together?

- (A) 180
- (B) 170
- (C) 190
- (D) 175

Q15. The population of town Q is what percent more than the population of town R?

- (A) 50%
- (B) 75%
- (C) 100%
- (D) 200%



Q16. What is the ratio of the population of town P to that of town S?

- (A) 5 : 4
- (B) 3 : 5
- (C) 1 : 2
- (D) 4 : 5

Part E: Data Sufficiency

Directions (Q17–Q20): Each question is followed by two statements, I and II. Decide whether the statements are sufficient to answer the question, and mark:

- (A) if Statement I alone is sufficient but Statement II alone is not;
- (B) if Statement II alone is sufficient but Statement I alone is not;
- (C) if both statements together are sufficient but neither alone is;
- (D) if either statement alone is sufficient.

Q17. What is the value of the number x ?

- I. x is a perfect square lying between 20 and 30.
- II. x is an odd number lying between 20 and 30.

- (A) Statement I alone is sufficient
- (B) Statement II alone is sufficient
- (C) Both statements together are needed
- (D) Either statement alone is sufficient

Q18. What is the present age of Ram?

- I. Ram is 6 years older than Shyam.
- II. Shyam is 18 years old.

- (A) Statement I alone is sufficient
- (B) Statement II alone is sufficient
- (C) Both statements together are needed
- (D) Either statement alone is sufficient



Q19. What is the area of a rectangle?

- I. The perimeter of the rectangle is 26 cm.
- II. The length is 8 cm and the breadth is 5 cm.

- (A) Statement I alone is sufficient
- (B) Statement II alone is sufficient
- (C) Both statements together are needed
- (D) Either statement alone is sufficient

Q20. What is the value of x ?

- I. $x^2 = 16$.
- II. $x^3 = 27$.

- (A) Statement I alone is sufficient
- (B) Statement II alone is sufficient
- (C) Both statements together are needed
- (D) Either statement alone is sufficient



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

Concept — Election percentages: With only two candidates, their vote shares add up to 100%, and the winning margin is the difference of their shares.

Step 1: The winner got 60% of the valid votes, so the loser got $100\% - 60\% = 40\%$.

Step 2: The margin between them is $60\% - 40\% = 20\%$ of the total votes.

Step 3: This 20% equals 800 votes, so $0.20 \times \text{Total} = 800$.

Step 4: $\text{Total} = \frac{800}{0.20} = 4000$ votes.

Why other options are wrong:

- Option A: 3600 would make 20% equal to 720, not 800.
- Option C: 4200 gives a margin of 840 votes.
- Option D: 3800 gives a margin of 760 votes.

Final Answer: The total number of valid votes is 4000 $\Rightarrow$ **B**

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

Q2.**Solution**

Concept — Mixture and ratio: Adding water does not change the amount of milk, so keep the milk fixed and adjust the water.

Step 1: In 40 litres with milk : water = 3 : 1, the parts total $3 + 1 = 4$.

Step 2: Milk = $\frac{3}{4} \times 40 = 30$ litres and water = $\frac{1}{4} \times 40 = 10$ litres.

Step 3: We want milk : water = 3 : 2. Milk stays 30 litres, which is the 3 parts, so one part = 10 litres.

Step 4: The new water must be $2 \times 10 = 20$ litres, so water to be added = $20 - 10 = 10$ litres.

Why other options are wrong:

- Option A: 5 litres gives a ratio of $30 : 15 = 2 : 1$, not 3 : 2.
- Option B: 8 litres gives $30 : 18 = 5 : 3$.



- Option C: 12 litres gives 30 : 22, which does not simplify to 3 : 2.

Final Answer: 10 litres of water must be added $\Rightarrow$ D

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

Q3.

Solution

Concept — Cost price from loss, then gain: First recover the cost price from the loss sale, then apply the required gain.

Step 1: A 10% loss means the selling price is 90% of the cost price, so $0.90 \times \text{CP} = 675$.

Step 2: Cost price $= \frac{675}{0.90} = 750$ rupees.

Step 3: For a 20% gain, selling price $= 1.20 \times 750 = 900$ rupees.

Why other options are wrong:

- Option B: Rs. 810 is only an 8% gain on Rs. 750.
- Option C: Rs. 850 does not correspond to a 20% gain.
- Option D: Rs. 945 wrongly adds 20% to Rs. 787.50.

Final Answer: The required selling price is Rs. 900 $\Rightarrow$ A

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

Q4.

Solution

Concept — Compound interest: $\text{CI} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$.

Step 1: Here $P = 8000$, $R = 10$ and $T = 2$.

Step 2: $\left(1 + \frac{10}{100} \right)^2 = (1.1)^2 = 1.21$.

Step 3: $\text{CI} = 8000 \times (1.21 - 1) = 8000 \times 0.21 = 1680$ rupees.

Why other options are wrong:

- Option A: Rs. 1600 is the simple interest, which ignores interest on interest.
- Option C: Rs. 1700 does not follow from the formula.



- Option D: Rs. 1764 uses 3 years instead of 2.

Final Answer: The compound interest is Rs. 1680 $\Rightarrow$ B

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

Q5.

Solution

Concept — Average and totals: Total = average $\times$ count; find both totals and take the difference.

Step 1: Sum of the ages of the 3 friends = $25 \times 3 = 75$ years.

Step 2: After the fourth friend joins, sum of 4 ages = $27 \times 4 = 108$ years.

Step 3: Age of the fourth friend = $108 - 75 = 33$ years.

Why other options are wrong:

- Option A: 29 wrongly uses the new average of 27 plus 2.
- Option B: 31 misreads one of the totals.
- Option D: 35 overstates the fourth friend's age.

Final Answer: The fourth friend is 33 years old $\Rightarrow$ C

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

Q6.

Solution

Concept — Time and work: Add the one-day work of each person to get their combined one-day work.

Step 1: A's one-day work = $\frac{1}{12}$ and B's one-day work = $\frac{1}{24}$.

Step 2: Combined one-day work = $\frac{1}{12} + \frac{1}{24} = \frac{2}{24} + \frac{1}{24} = \frac{3}{24} = \frac{1}{8}$.

Step 3: Time to finish together = $\frac{1}{1/8} = 8$ days.

Why other options are wrong:

- Option B: 9 days does not match the combined rate of $\frac{1}{8}$.
- Option C: 6 days is faster than the true combined rate.



- Option D: 10 days is slower than the combined rate allows.

Final Answer: They finish in 8 days $\Rightarrow$ A

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

Q7.

Solution

Concept — Algebraic identity: $a^2 + b^2 = (a + b)^2 - 2ab$.

Step 1: We are given $a + b = 7$ and $ab = 12$.

Step 2: $(a + b)^2 = 7^2 = 49$.

Step 3: $a^2 + b^2 = 49 - 2 \times 12 = 49 - 24 = 25$.

Why other options are wrong:

- Option A: 13 subtracts ab once but from a wrong square.
- Option B: 37 subtracts ab only once ($49 - 12$).
- Option C: 49 forgets to subtract $2ab$ entirely.

Final Answer: The value is 25 $\Rightarrow$ D

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

Q8.

Solution

Concept — Remainders with powers: Reduce the base modulo the divisor first, then use the pattern of powers.

Step 1: Dividing 7 by 4 leaves a remainder of 3, and $3 \equiv -1 \pmod{4}$.

Step 2: So $7^{100} \equiv (-1)^{100} \pmod{4}$.

Step 3: Since the exponent 100 is even, $(-1)^{100} = 1$, so the remainder is 1.

Why other options are wrong:

- Option A: 3 would be the remainder for an odd power like 7^1 .
- Option B: 0 would need 4 to divide 7^{100} exactly, but 7 is odd.
- Option C: 2 does not arise from powers of an odd number modulo 4.

Final Answer: The remainder is 1 $\Rightarrow$ D



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

Q9.

Solution

Concept — Factorising a quadratic: Find two numbers whose sum is the middle coefficient and whose product is the constant term.

Step 1: For $x^2 - 5x + 6 = 0$, we need two numbers with sum 5 and product 6.

Step 2: The numbers 2 and 3 satisfy $2 + 3 = 5$ and $2 \times 3 = 6$.

Step 3: So $x^2 - 5x + 6 = (x - 2)(x - 3) = 0$, giving $x = 2$ or $x = 3$.

Why other options are wrong:

- Option A: 1 and 6 have product 6 but sum 7, not 5.
- Option B: -2 and -3 give the equation $x^2 + 5x + 6 = 0$.
- Option D: 1 and 5 have neither the correct sum nor product.

Final Answer: The roots are 2 and 3 $\Rightarrow$ **C**

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

Q10.

Solution

Concept — Square perimeter and area: A square has four equal sides, so side $= \frac{\text{perimeter}}{4}$, and area $= \text{side}^2$.

Step 1: Side $= \frac{36}{4} = 9$ cm.

Step 2: Area $= 9^2 = 81$ sq. cm.

Why other options are wrong:

- Option A: 72 sq. cm does not come from squaring a side of 9.
- Option C: 64 sq. cm uses a side of 8 cm.
- Option D: 144 sq. cm uses a side of 12 cm.

Final Answer: The area is 81 sq. cm $\Rightarrow$ **B**

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



Q11.

Solution**Concept — Volume of a cube:** $\text{Volume} = \text{edge}^3$.**Step 1:** The edge is 5 cm.**Step 2:** $\text{Volume} = 5^3 = 5 \times 5 \times 5 = 125$ cubic cm.**Why other options are wrong:**

- Option B: 150 cubic cm does not equal 5^3 .
- Option C: 100 cubic cm wrongly uses $4 \times 5 \times 5$.
- Option D: 75 cubic cm uses $3 \times 5 \times 5$ (surface-style error).

Final Answer: The volume is 125 cubic cm $\Rightarrow$ AAnswer: (A) [Go Back to Q11](#)

Q12.

Solution**Concept — Volume of a cylinder:** $\text{Volume} = \pi r^2 h$.**Step 1:** Here $r = 7$ cm, $h = 10$ cm and $\pi = \frac{22}{7}$.**Step 2:** $r^2 = 7 \times 7 = 49$.**Step 3:** $\text{Volume} = \frac{22}{7} \times 49 \times 10 = 22 \times 7 \times 10 = 1540$ cubic cm.**Why other options are wrong:**

- Option A: 440 cubic cm uses only $2\pi r h$ (curved surface area, not volume).
- Option B: 1000 cubic cm does not follow from the formula.
- Option C: 2200 cubic cm wrongly uses $r = 10$ and $h = 7$ with an extra factor.

Final Answer: The volume is 1540 cubic cm $\Rightarrow$ DAnswer: (D) [Go Back to Q12](#)

Q13.

Solution

Concept — Reading a bar chart: The shortest bar shows the smallest value.

Step 1: The populations are $P = 40$, $Q = 60$, $R = 30$, $S = 50$ (thousand).

Step 2: The smallest value, 30, belongs to town R.

Why other options are wrong:

- Option A: Town P has 40 thousand, not the lowest.
- Option B: Town Q has the highest, 60 thousand.
- Option D: Town S has 50 thousand.

Final Answer: Town R has the lowest population $\Rightarrow$

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

Q14.

Solution

Concept — Total from a chart: Add the values of all the bars.

Step 1: Total = $40 + 60 + 30 + 50$.

Step 2: $40 + 60 = 100$; $100 + 30 = 130$; $130 + 50 = 180$ (thousand).

Why other options are wrong:

- Option B: 170 undercounts by 10.
- Option C: 190 overcounts by 10.
- Option D: 175 misreads one of the bars.

Final Answer: The total is 180 thousand $\Rightarrow$

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

Q15.

Solution

Concept — Percent more: “How much percent more” uses the smaller value as the base: $\frac{\text{difference}}{\text{base}} \times 100$.

Step 1: Population of $Q = 60$ and of $R = 30$ (thousand).



Step 2: Difference = $60 - 30 = 30$ thousand.

Step 3: Percent more = $\frac{30}{30} \times 100 = 100\%$.

Why other options are wrong:

- Option A: 50% wrongly uses 60 as the base.
- Option B: 75% does not match the values.
- Option D: 200% doubles the correct answer.

Final Answer: Town Q is 100% more than town R $\Rightarrow$ **C**

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

Q16.

Solution

Concept — Ratio: Write the two values as a ratio and reduce to lowest terms.

Step 1: Population of P = 40 and of S = 50 (thousand).

Step 2: Ratio = 40 : 50.

Step 3: Divide both by 10 to get 4 : 5.

Why other options are wrong:

- Option A: 5 : 4 reverses the order of the towns.
- Option B: 3 : 5 does not match the populations.
- Option C: 1 : 2 would need P to be 25 if S is 50.

Final Answer: The ratio of P to S is 4 : 5 $\Rightarrow$ **D**

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

Q17.

Solution

Concept — Data sufficiency: Test each statement on its own to see if it pins down a single value.

Statement I: “ x is a perfect square between 20 and 30” allows only 25, since 25 is the sole perfect square in that range. This gives a unique value, so I alone is sufficient.



Statement II: “ x is an odd number between 20 and 30” allows 21, 23, 25, 27 or 29. This does not give a unique value, so II alone is not sufficient.

Conclusion: Statement I alone is sufficient but Statement II alone is not.

Final Answer: Statement I alone is sufficient $\Rightarrow$ **A**

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

Q18.

Solution

Concept — Data sufficiency: A relationship between two ages and one actual age are each incomplete alone but complete together.

Statement I: “Ram is 6 years older than Shyam” gives $R = S + 6$, but with S unknown there are many possibilities, so I alone is not sufficient.

Statement II: “Shyam is 18 years old” fixes $S = 18$ but says nothing about Ram directly, so II alone is not sufficient.

Both together: Substitute $S = 18$ into $R = S + 6$ to get $R = 18 + 6 = 24$ years. A unique answer results only when both are used.

Final Answer: Both statements together are needed $\Rightarrow$ **C**

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

Q19.

Solution

Concept — Data sufficiency: Area of a rectangle needs both dimensions; the perimeter alone allows many shapes.

Statement I: “The perimeter is 26 cm” gives $2(l + b) = 26$, so $l + b = 13$. Many pairs such as (8, 5) or (9, 4) fit, giving different areas, so I alone is not sufficient.

Statement II: “Length = 8 cm and breadth = 5 cm” fixes both dimensions, so area = $8 \times 5 = 40$ sq. cm. This gives a unique value, so II alone is sufficient.

Conclusion: Statement II alone is sufficient but Statement I alone is not.

Final Answer: Statement II alone is sufficient $\Rightarrow$ **B**

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



Q20.

Solution

Concept — Data sufficiency: A statement is sufficient only if it fixes exactly one value of x .

Statement I: " $x^2 = 16$ " gives $x = 4$ or $x = -4$, two possible values, so I alone is not sufficient.

Statement II: " $x^3 = 27$ " gives only $x = 3$, since a cube root has a single real value, so II alone is sufficient.

Conclusion: Statement II alone is sufficient but Statement I alone is not.

Final Answer: Statement II alone is sufficient $\Rightarrow$ B

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



Answer Key

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

