Data Sufficiency

Solution

1. **Answer: (E)**
Let length of the rectangular plot be 'L' and breadth be 'B'
From statement I:
Area of rectangular plot = L × B = 1500
Also given,
1500 = 50 × B
B = 30 m
we can calculate, L = 50 m
Perimeter of rectangular plot
= 2 × (L + B) = 2 × (50 + 30) = 160 m
Cost of fencing @ Rs. 500 per metre
= 160 × 500 = Rs. 80000
Hence, statement I alone is sufficient to answer the given question.
From statement II:
L = 4B .....(i)
B = 0.25L.....(ii)
Hence, statement II alone is not sufficient to answer the given question.

2. **Answer: (D)**
From I,
Let the present age of Riya be 7x and her father's be 16x
From II,
(x/2)/(y/8) = 7/4
16x = 7y ……(ii)
combining (i) and (ii) we cannot find the present age of Riya.
So, the data even both the statements together are not sufficient to answer the question.

3. **Answer: (C)**
Using statement I,
SP = Rs. 480000 and Profit = Rs. 28000
CP = 480000 – 28000 = Rs. 452000
profit = SP - CP
we can easily find the % profit = (profit/CP × 100)
Using statement II,
SP = 480000 and CP is also known.
CP = 240000
So, Profit = SP - CP
we can easily find the % profit
= (profit/CP × 100)
So, the data in statement I alone OR in statement II alone are sufficient to answer the question.

4. **Answer: (E)**
Cost price per unit is not given.

5. **Answer: (C)**
From (i)
Let speed of boat in still water be 4x km /hr and that of stream be x km/ hr
From (ii)
ATQ
$\frac{60}{3x} - \frac{60}{5x} = 0$
$x = 4$
Both the statement taken together are necessary to answer the question, but neither of the statement alone is sufficient to answer the question.

6. **Answer: (C)**
From I) Speed of boat in upstream = 10 km/hr
From II) speed of boat in downstream = 20 km/hr
From III) $\frac{Speed\ of\ boat\ in\ downstream}{speed\ fo\ boat\ in\ upstream} = \frac{2}{1}$
Any two and three statements are sufficient to are sufficient to find the speed of stream

7. **Answer: (B)**
Let speed of stream be x km/hr.
Speed of boat in still water be y km/hr.
From (I)
$x = \frac{2}{3}y$
From (II)
x + y = $\frac{20}{2} = 10km/hr$
From (III),
y − x = $\frac{10}{5} = 2km/hr$
So, Any two are sufficient.

8. **Answer: (D)**
P = Principal, Rate % = X% T, = time
From →
$\frac{PX^2}{100^2} = 250$
$\Rightarrow X^2 = \frac{250 \times 100 \times 100}{2500} = 100$
⇒ X = 10%
From II →
$\frac{P \times X \times T}{100} = P$
⇒ X = 10%
Either statement I or statement II by itself Is sufficient to answer the question.

9. **Answer: (D)**
Let rate of interest be z% p.a.
From I
SI received = 12000 – 4800 = Rs. 7200
R = $\frac{7200 \times 100}{12000 \times 4} = 15\%$
From II
$\frac{P \times x \times 6\frac{2}{3}}{100} = P$
⇒ x = 15%

10. **Answer: (E)**
From (I)
R = 6%
From (II) & (III),
SI for 2 years = 1200
Principal = 10 × 1200 = 12000
∴ Amount = $p\left(1 + \frac{R}{100}\right)^t$
So, statement II and either I or III are sufficient.

11. **Answer: (E)**
From A)
Let 'A' invested Rs. x, then investment of 'B'
= x – 6000 while investment of C = x – 9000.
From B)
A's profit = Rs. 32,000.
Question can't be solved using only 'A' or only 'B' or together

12. **Answer: (A)**
From A)
HCF × LCM of (x, y) = x × y
⇒ If 'x' positive integer than 'y' should also be a positive integer.
From B)
$\frac{x + y + y + 1}{3} = integers$
⇒ From only statement 'B' we can't conclude whether 'y' is a positive integer or not.
Hence, only statement 'A' is necessary to answer the question.

13. **Answer: (C)**
From I
Total weight of all students = $(48 + 28) \times 45$
$= 3420\ kg$
From II
Total weight of all girls = $3420 - (28 \times 35 + (48 - 28) \times 40) = 1640\ kg$
Average weight of girls = $\frac{1640}{28} = 58\frac{4}{7} kg$
So, statement I & II together are required to given answer of the question.

14. **Answer: (D)**
Using statement I: Let pipe C takes t hours to fill the tank, = > pipe A takes 3t hours and pipe B takes 1.5t hours.
At this stage, we have no more information to solve the question. Hence, statement 1 is insufficient.
Using the data given in the second statement:
Working together, they take 1 hour to fill the tank
= > 1/t + 1/3t + 1/1.5t = 1 = > t = 2 hours.
Thus pipe A takes 6 hours and pipe B takes 3 hours to fill the tank. Working together, they take 2 hours to fill the tank.
Working together, B & C take 1/0.833 = 1.204 hours. Difference can be found out.
Therefore, both statements are needed to get the answer.

15. **Answer: (D)**
Let the amount deposited in bank x and bank y be Rs. x and Rs. y respectively & the latest period be n years

$x + x \times (6) \times (n - 2)/100 = 2400$
$y + y(5)(n)/100 = 2400$.
Here are two equations in three variables. Statement 2 must be used.
Putting $y = x$
$n = 12$, $x = 1500$. The periods are 10 years & 12 years, amount deposited in each bank is Rs. 1500.

16. Answer: (C)
From Statement I, we get
Distance **(D)** = Speed (S) × Time (T)
$D = (3S/4) \times (T + 15)$
We know $D = ST$,
$ST = 3S/4 \times (T + 15)$
$T = 45$ minutes
Usual time to reach office is 45 minutes
Therefore, statement I alone is sufficient.
From statement II,
$12/S - 12/3S/4 = -4/S$
Solving,we cannot get the usual time taken by Karan to reach the office.
Therefore, statement II alone is not sufficient.

17. Answer: (C)
Bobby's net profit (considering statement 1 only) = Rs 500.
Bobby sold the article to Mandeep at $120 \times 1440/100 = 1200$
Cost price for Bobby = 1200-500 = 700
%age profit = $500 \times 100/700 = 71.4\%$
But statement II:
Bobby purchased it at Rs $0.8 \times 1440 = 1152$
Bobby's profit percent is given = 25%
So, the question can be answered by using either statement alone.

18. Answer: (D)
Using statement I:
Let pipe R takes t hours to fill the tank,
pipe P takes 3t hours and pipe Q takes 1.5t hours.
At this stage, we have no more information to solve the question.
Hence, statement I is insufficient.
Using the data given in the second statement:
Working together, they take 1 hour to fill the tank
$1/t + 1/3t + 1/1.5t = 2$
$t = 1$ hour.
Thus pipe P takes 3 hour and pipe Q takes 1.5 hours to fill the tank.
Working together, they take 1 hour to fill the tank.
Therefore, both statements are needed to get the answer.

19. Answer: (A)
Multiplying factor = $(120/80) \times (80/100) = 6/5$.
According to statement I, cost = Rs2000.
Amount obtained by selling = $2000 \times 6/5 = 400 \times 6 = 2400$.
Total profit = Rs 400.
From statement II, nothing can be determined.
Therefore, only statement I alone can answer the question.

20. Answer: (A)
From statement I:
Let the each installment be Rs. x
Then, $28140 (1 + 25/300)^3 = x (1 + 25/300)^2 + x (1 + 25/300) + x$
or, $28140 (13/12)^3 = x (169/144 + 13/12 + 1)$
or, $28140 (13/12)^3 = x (469/144)$
or, x = Rs. 10985
So, statement I is alone sufficient to answer the above question.