

Directions: Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read all the statements and give answer:

- 1.** A person can purchase three articles in Rs. 49. What is the price of costliest article?

Statement I : The cost price of two articles each is Rs. 1 less than the cost price of costliest article.

Statement II : The cost price of two articles is same.

Statement III : The cost price of costliest article is 6.25% more than the cost price of cheapest article.

- A. Either statement I alone or statements II and III together are sufficient.
B. Only statement III is sufficient. C. Only statement I and II together are sufficient.
D. Only statement I and III together are sufficient. E. None of these

- 2.** Shatabdi Express leaves Patna at 8:00 am for Delhi. At what time will it reach Delhi?

Statement I : For the first 100 km it travels at the speed of 250 km per hour and maintains the same speed during the entire journey.

Statement II : It has 5 stoppages in between Delhi and Patna.

Statement III : Before every stoppages, it covers a same distance of 240 km

- A. Either statement III alone or statements I and II together are sufficient.
B. Only statement III is sufficient. C. Only statement I and II together are sufficient.
D. Only statement I, II, and III together are sufficient. E. None of these

- 3.** What is the sum of the age of Ram and Mohan?

Statement I : The age of Ram is 6 years more than the age of Mohan.

Statement II : 40% of the age of Mohan is equal to 30% of the age of Ram.

Statement III : The ratio between half of the age of Ram and one third of the age of Mohan is 2 : 1.

- A. Either statement III alone or statements I and II together are sufficient.
B. Only statement III is sufficient. C. Only statement I and II is sufficient.
D. Only statement I, II, and III are sufficient. E. None of these

4. In a kilometre race, by how many meters Chandu beats Chand?

Statement I : In a kilometer race, Chandu beats Chandan by 100 meters.

Statement II : The respective ratio of the speed of Chandan and Chand is 4 : 3.

Statement III : In a kilometer race, Chandan beats Chand by 150 meters.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Only statement I and II is sufficient.
- D. Only statement I, II, and III are sufficient.
- E. None of these

5. A metal block of density 'D' and mass 'M', in the form of a cuboid, is beaten into a thin square sheet of thickness 't', and rolled to form a cylinder of the same thickness. Find the inner radius of the cylinder—

Statement I : Cuboid has dimensions 10cm x 5 cm x 12 cm

Statement II : Thickness 't' = 1.5cm

Statement III : Mass of block, M = 216kg

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Statement I and Statement II together are sufficient.
- D. Only statement I, II, and III together are sufficient.
- E. None of these

6. On a recent journey Aman drove from City A to city B to city C. His average speed for the whole journey was 60 km/hr. Find the average speed on his journey from city B to city C.

Statement I : Average speed during the journey from city A to city B is 48 km/hr

Statement II : Total time taken for the entire journey is 3 hours

Statement III : Ratio of distance travelled while going from A to B and B to C is 2 : 3

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Statement I and Statement II together are sufficient.
- D. Statement I and Statement II together are sufficient.
- E. None of these

7. How much profit did the company earn in the year 2002?

Statement I : The company earned 40% more profit in the year 2003 than that in the year 2001.

Statement II : The company earned a total profit of Rs. 20 crores in the years 2001 and 2002 taken together.

Statement III : In the year 2003, the company earned 80% of the profit earned in 2002.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Statement I and Statement II together are sufficient.
- D. Only statement I, II, and III together are sufficient.
- E. None of these

8. Prena works for 4 days and leaves the job. In how many days can Prena alone finish the entire work?

Statement I: Rupa finishes the remaining work in 8 days.

Statement II: Prena and Rupa together can finish the work in $20/3$ days.

Statement III : The working efficiency of Rupa is double that of Prena.

- A. Any two statements together are sufficient
- B. Only statement III is sufficient.
- C. Statement I and Statement II together are not sufficient.
- D. Only statement I, II, and III together are sufficient.
- E. None of these

9. A sum of money is put at compound interest for 2 years. What is the rate of interest per annum?

Statement I: If the same amount of money is put at simple interest for three years then the amount of interest is Rs.600 more than the interest amount calculated on CI at the end of 2 years

Statement II: The simple interest on the same sum at the end of four years is Rs.3200

Statement III : Sum of money becomes 4 times in two years at compound interest

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Statement I and Statement III together are sufficient.
- D. Only statement I, II, and III together are sufficient.
- E. None of these

10. At what time will be Duronto Express reach Delhi from Lucknow.

Statement I: The train crosses another train of equal length of 200 metre and running in opposite direction in 15 secs.

Statement II: The train leaves Lucknow at 7.15 am for Delhi, situated a distance of 560 kms.

Statement III : Duronto Express has length 300 meter crosses a signal pole in 10 secs.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Statement II and Statement III together are sufficient.
- D. Only statement I, II, and III together are sufficient.
- E. None of these

11. Find the distance travelled by Rajdhani express in two hours if it travels with its original speed?

Statement I: The train started from the origin station 20.25 hours later than the scheduled time towards its destination which is 750 km away from the origin.

Statement II: To reach the destination station in the scheduled time the loco – piolet of the train increases the speed of the train to 125% of the original speed.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

12. What should be the selling price of washing machine so as to make a profit of 25%?

Statement I : An electronic shop dealer marks washing machine 80% above the cost price and after allowing a discount of 25% he claims a profit of Rs. 3500.

Statement II : A shopkeeper sold the same washing machine for Rs. 15000 on the condition that shopkeeper will pay the transportation cost of Rs 2000 and he gets a profit of 25%.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

13. How many years old will Anuj be p years from now?

Statement I : Ankur is 14 years older than Anuj.

Statement II : The sum of the ages of Ankur and Anuj is p years.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

14. If a rope is cut into three pieces of unequal length, what is the length of the shortest of these pieces of rope?

Statement I : The combined length of the longer two pieces of rope is 17 meters.

Statement II : The combined length of the shorter two pieces of rope is 15 meters.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

15. At present, the age of A is $\frac{1}{3}^{\text{rd}}$ of the age of B then what are their ages?

Statement I : After 10 years, the ratio of their ages will become 5 : 11.

Statement II : 5 years age, the age of A was 25% of the age of B.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

16. Find the value of $(a + b)$, given that $a > b$, and 'a' and 'b' are positive integers.

Statement I : $a^3 + b^3 = 1729$

Statement II : $a^2 + b^3 = 145$

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

17. Kunal takes 'a' days to complete a work while Sandeep takes 'b' less days than Kunal to complete the same work. Ravi takes 'b' more days than Kunal to complete the same work. Rahul takes 'ab' days to complete the work while Shyam takes 'ab²' days to complete it. Is the combined efficiency of Sandeep and Ravi together less than that of Rahul and Shyam together?

Statement I : $b \geq 1$

Statement II : $b \leq 1$

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

18. A solid wooden cone of radius 7 cm is cut vertically from the middle to form two halves. Find the volume of the wooden cone. [Use $\pi = 3$]

Statement I: If the curved surface area of one half of the cone is 82% of the curved surface area of the whole wooden cone.

Statement II: If the total surface area of the one half is 504 cm^2 .

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

19. 'x' boys can complete a work in 15 days and 'y' girls can complete the same work in 24 days. Find the number of days taken to complete the work by $(x - 8)$ boys and $(y - 7)$ girls together.

Statement I: If the efficiency of boys is twice than that of girls and $(x + y) = 27$.

Statement II: If $x = y$, then the number of days taken by all the boys is half the number of days taken by all the girls.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

20. A shopkeeper marked an article somewhat above the cost price and sold it after two consecutive discounts. Find the difference in the cost price and the marked price of the article.

Statement I: The shopkeeper marked the article 50% above the cost price and sold it after two consecutive discounts of 'd%' and '2d%' respectively. In this transaction the shopkeeper had a profit of 8%.

Statement II: The shopkeeper marked the article 'm%' above the cost price and sold it after two consecutive discounts of 10% and 20% respectively. In this transaction the shopkeeper had a profit of Rs. 1,248.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

21. What will be the cost of painting the four walls and ceiling of a room with length, width and height of 10 m, 15 m, and 20 m respectively? The room has two windows and one door.

Statement I: Cost of painting is Rs. 7 per square meter.

Statement II: Area of the ground of the room is 150 sq. meter.

Statement III: Area of one window is 15 sq. meter which is 50% of the area of the door.

- A. The data in statements I and III together are sufficient to answer the question, while the data in statement II are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statement I, II and III together are not sufficient to answer the question.
- D. The data in statement only I and II together or only statement III are sufficient.
- E. The data in all the statements I, II and III together are necessary to answer the question.

22. The average of the first four numbers is four times of the fifth number. Find the fifth number.

Statement I: Average of the first two numbers is equal to the average of the next two numbers.

Statement II: Average of the first two numbers is four times of the fifth number.

Statement III: The average of the all the numbers is 3.4

- A. The data in statements II and III together are sufficient to answer the question, while the data in statement I are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statement I, II and III together are not sufficient to answer the question.
- D. The data in statement III only are sufficient to answer the question.
- E. The data in all the statements I, II and III together are necessary to answer the question.

23. What is the rate of the compound interest?

Statement I: A sum of 1000, amounts to 1331 at the rate of compound interest

Statement II: The amount was invested for the period of three years

Statement III: The simple interest received on that amount in one year is equal to the compound interest received on that amount in the first year.

- A. The data in statements I and III together are sufficient to answer the question, while the data in statement II are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statement I, II and III together are not sufficient to answer the question.
- D. The data in statement only I and II together or only statement III are sufficient.
- E. The data in all the statements I, II and III together are necessary to answer the question.

24. Can Ram drive from Bangalore to Chennai in less than 3 hours?

Statement I: The average speed of Ram during the whole journey is less than 70 km/hr

Statement II: The distance from Bangalore to Chennai is greater than 210 km.

Statement III: He is driving a car the maximum speed of that can is 150 km/hr

- A. The data in statements I and III together are sufficient to answer the question, while the data in statement II are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- D. The data in statement only I and II together or only statement III are sufficient.
- E. The data in all the statements I, II and III together are necessary to answer the question.

25. A certain mixture of paint requires blue, red, and yellow in the ratio of 2 : 3 : 4 respectively and no other ingredients. If there are ample quantity of blue and red paints are available then is there enough quantity of yellow paint is available to get the desired amount of the mixture?

Statement I: Exactly 180 litres of the mixture is needed.

Statement II: The difference between the quantity of blue paint available and the red paint available is 60 litres

Statement III: Exactly 180 litres of red paint are available.

- A. The data in statements I and III together are sufficient to answer the question, while the data in statement II are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statement I, II and III together are not sufficient to answer the question.
- D. The data in statement only I and II together or only statement III are sufficient.
- E. The data in all the statements I, II and III together are necessary to answer the question.

26. What is the sum of the age of Ram and Mohan?

Statement I: The difference between the age of Prakash and Ram is 30 years.

Statement II: The difference between the age of Prakash and Mohan is 30 years.

Statement III: Prakash is older than Ram and Mohan.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Only statement I and II is sufficient.
- D. Only statement I, II, and III are sufficient.
- E. None of these

- 27.** The respective ratio of the salary of Nita and Sita is 3 : 4. What is the ratio of their saving?

Statement I: Sita saves 25% of her salary.

Statement II: The saving of Sita is Rs. 4500.

Statement III: The respective ratio of the expenditures of Nita and Sita is 4 : 5.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Only statement I and III is sufficient.
- D. Only statement I, II, and III are sufficient.
- E. None of these

- 28.** What is the marked price of an article?

Statement I : The selling price of the article is Rs. 500.

Statement II : Selling price after offering 5% discount on the marked price is Rs. 665.

Statement III : Marked price of the article is 40% above the cost price.

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement II is sufficient.
- C. Only statement I and III is sufficient.
- D. Only statement I, II, and III are sufficient.
- E. None of these

- 29.** What is the cost of flooring a rectangular hall?

Statement I: The difference between the length and breadth of the rectangle is 5 cm.

Statement II: The perimeter of the rectangular hall is 50 cm

Statement III: The cost of flooring 100 cm² area is Rs. 1000

- A. Either statement III alone or statements I and II together are sufficient.
- B. Only statement III is sufficient.
- C. Only statement I and III is sufficient.
- D. Statement I, II, and III together are sufficient.
- E. None of these

30. Find the simple interest on the sum after 4 years at the rate of 16% per annum.

Statement I: The sum amounted to Rs.72600 after two years at compound interest.

Statement II: The sum amounted to Rs.87846 after four years at compound interest.

Statement III: The sum amounted to Rs.96000 after 5 years at simple interest rate of 12% per annum.

- A. The data in statements I and III together are sufficient to answer the question, while the data in statement II are not sufficient to answer the question.
- B. The data in statements I and II together are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
- C. The data in statement I, II and III together are not sufficient to answer the question.
- D. The data in statement only I and II together or only statement III are sufficient.
- E. The data in all the statements I, II and III together are necessary to answer the question.

31. What is the area of a right-angled triangle ABC, right angled at A?

Statement I: The circum radius of the triangle is 6 cm.

Statement II: Angle ABC = 60 degrees

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

32. After 5 years, what will the sum of the age of Moni and Soni?

Statement I: 5 years before, Moni was 5 years older than Soni.

Statement II: At present, the ratio of their ages is 5 : 6.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

- 33.** Two trains, running in the opposite direction cross each other in 18 sec. What is the difference between their lengths?

Statement I: The difference between their speeds is 12 m/sec

Statement II: The sum of their speeds is 36 meters per second.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

- 34.** What is the value of three digits number, the unit digit of which is 3 and divisible by 7?

Statement I: The three digits number is divisible by 9.

Statement II: The three-digit number is divisible by 21.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

- 35.** In a school, 60% of the girls aged 14 and above play football then how many of girls play football?

Statement I: In the school, there are no girls below 14 years who play football.

Statement II: In the school, girls comprise 60% of the total number of students who play football.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

36. At present, the age of A to B is in the ratio of 7 : 9. B is how many years older than A?

Statement I: 5 years before, the ratio of the age of A to C was 4 : 5.

Statement II: After 5 years, the ratio of the age of A to D will become 6 : 7.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

37. Is x greater than y ?

Statement I: $1/x$ is greater than 1.

Statement II: $1/x$ is less than $1/y$.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

38. What is the area of a triangle ABC of base 12 cm?

Statement I: The height of the triangle is 8 cm.

Statement II: The triangle is an isosceles.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

.

39. What is the marked price of an article?

Statement I: The selling price after giving 25% discount on the marked price is Rs. 600.

Statement II: If the article was sold on the marked price then the profit earned on the cost price would be either 60% or Rs. 300.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

40. What is the speed (in metres per hour) of motorboat in still water?

Statement I: The motorboat covers 100 km downstream in 10 hours.

Statement II: The motorboat covers 60 km in still water in 10 hours.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
- B. The data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
- C. Either Statement I or Statement II alone is sufficient to answer the question.
- D. The data in both the statements I and II is not sufficient to answer the question.
- E. The data in both the statements I and II together is necessary to answer the question.

41. What is the present age of Rahul?

Statement I: At the time of marriage Rahul's age was 25 years.

Statement II: The average age of Rahul and Rahul's wife at the time of marriage was 24 years.

Statement III: The difference between the present ages of Rahul and his son is 24 years.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

42. What is the ratio of the volume of the cube to the volume of the cuboid?

Statement I: The Total Surface Area of the cuboid is 352 cm^2 and the ratio of the length, breadth and height of the cuboid is $3 : 2 : 1$.

Statement II: The Total Surface Area of the cube is 726 cm^2 .

Statement III: The length of the cuboid is 1.5 times of the breadth of the cuboid and 3 times of the height of the cuboid. The difference between the height and the length of the cuboid is 8 cm.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

43. Find the rate of simple interest per annum.

Statement I: Meetu borrowed Rs 9000 from Sneha for two years on simple interest.

Statement II: Meetu returned Rs 11700 to Sneha at the end of two years and settled the loan.

Statement III: A sum of money becomes double in $20/3$ years on simple interest.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

44. In a family there are 5 members, Nidhi, Vidhi, Nitya, Ajay and Anil. Find the present age of Anil.

Statement I: The average age of five family members is 36 years.

Statement II: The total age of Nidhi, Vidhi and Anil is 75 years.

Statement III: The present age of Anil is 12 years more than the age of Ajay.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

45. Find the value of x.

Statement I: $2xyz + 6y - 8z + 5 = 0, z = 1$

Statement II: $y = \sqrt{225 - 116}$

Statement III: $4xyz - 6z + 8y - 7 = 0, z = 3$

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

46. At what time will the train reach point X from point Y?

Statement I: The train crosses another train of equal distance of 250 m in 25 sec. running opposite direction.

Statement II: The train of 250 m crosses a signal pole in 10 sec.

Statement III: The distance between point X and point Y is 360 km.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

47. Karina and Katrina invested some money in a business in the ratio of 4 : 5. At the end of year find the difference between the profits of Karina and Katrina.

Statement I: Karina invested money for the whole year and Katrina invested money for 8 months.

Statement II: The total profit earned by both at the end of the year is Rs 22000.

Statement III: At the end of the year Karina earned Rs 12000.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

48. In an examination some students appeared for the examination. How many students cleared the exam?

Statement I: 35% of the students failed in the exams.

Statement II: The difference between the students who cleared the exam and failed in exam is 240.

Statement III: The ratio of the boys and girls who appeared for the examination is 4 : 5.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

49. Find the two digit number.

Statement I: The product of the two digits of the two digit number is 20.

Statement II: The difference between the two digits of the two digit numbers is 1.

Statement III: The sum of the two digits of the two digit numbers is 9.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

50. How much is monthly profit of a company?

Statement I: Company decided to give bonus with the salary to its employees. Bonus is 12% of the monthly profit of the company.

Statement II: On the day of salary distribution, company changed its mind and gave a total of Rs.24000 as bonus which was 125% of what the company had decided earlier.

Statement III : Company gives an amount of Rs.15000 as bonus which is $\frac{3}{4}$ th of total monthly profit.

- A. The data in statements I alone is sufficient to answer the question, while the data in statement II and III is not sufficient to answer the question.
- B. The data in statements II and III is sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
- C. The data in statements I and II or in statement II and III is sufficient to answer the question.
- D. The data in all the statements I, II and III is not sufficient to answer the question.
- E. The data in all the statements I, II and III together is necessary to answer the question.

Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	E	C	C	C	D	D	A	A	C
11	12	13	14	15	16	17	18	19	20
E	C	C	D	C	E	A	C	A	E
21	22	23	24	25	26	27	28	29	30
C	D	A	B	C	E	C	B	D	D
31	32	33	34	35	36	37	38	39	40
E	E	D	A	D	D	E	A	C	B
41	42	43	44	45	46	47	48	49	50
D	C	C	D	C	B	C	A	D	A

EXPLANATIONS:

1. From the Statement I

Let the CP of each of two cheapest articles = x and the CP of costliest article = $x + 1$

Then, $x + x + x + 1 = 49$,

$x = 16$ therefore the CP of costliest article = $16 + 1 = 17$

From the **Statement II**, we can say that the cost price of two articles is same and from **Statement III**, we can say that the cost price of costliest article is 6.25% more than the cost price of cheapest article therefore by combining both the statement we can also get our answer.

Hence, option A is correct.

2. From the Statement I we can conclude the speed of the train and by combining Statement II and Statement III, we can conclude the distance between Delhi and Patna. But we cannot conclude how long it has stopped at each stoppage because the speed we concluded from the statement I is the speed of the train not the average speed of the entire journey.

Hence, option E is correct.

3. By combining Statement I and Statement II we can conclude the age of Ram and the age of Mohan . So we can find the sum as well.

Statement II and Statement III indirectly mean the same.

So by combining Statement I and statement III we can get our answer as well.

So either Statement I and II together or Statement I and III together are sufficient.

Hence, option C is correct.

4. By combining statement I, and III we can conclude our answer as 250 meters

In the statement II, only ratio of speed is given therefore it is not possible to get our answer only with the help of statement II .

By combining Statement I and II also we can find the answer as the ratio between two people is given and in statement I the distance between the winner and loser is given so we can find the required distance as well.

So Statement I and III together or Statement I and II together are sufficient

Hence, option C is correct.

5. If we have the dimensions, from Statement a,

$$\text{Volume of cuboid} = 10 \times 5 \times 12 = 600\text{cm}^3$$

If thickness is 't' and let side of square sheet be S, then,

$$600 = (S^2) \times (t)$$

If $t = 1.5\text{cm}$ is taken from Statement II,

$$\frac{600}{1.5} = (S^2) = 400$$

$$S = 20\text{cm}$$

Height of cylinder = $S = 20\text{cm}$ [As square sheet is rolled so the side of the cylinder will be equal to side of square]

$$\text{Outer circumference} = S = 20\text{ cm} = 2\pi r$$

$$\text{Or, } r = \frac{10}{\pi} \approx 3.185$$

Thickness taken, $t = 1.5\text{cm}$

$$\text{So inner radius} = 3.185 - 1.5 = 1.685\text{ cm}$$

Whereas Statement III has no significance anywhere.

But none of the statement alone can answer the question individually.

Hence, answer is using statement I and II together is sufficient

Hence, option C is correct.

6. Given, on a recent journey Aman drove from City A to city B to city C. His average over the whole journey was 60 km/hr.

From statement I, average speed during journey from city A to city B is 48 km/hr.

From statement II, total journey time is 3 hours

From statement III, ratio of distance travelled while going from A to B and B to C is 2 : 3.

Thus, statement I and II, II and III or I and III are not sufficient to answer the question.

From statement III,

Let the distances to be covered be $2x$ and $3x$ respectively.

Total distance covered = $2x + 3x = 5x$

Average speed = $\frac{\text{total distance}}{\text{total time}}$

$$\Rightarrow \frac{5x}{3} = 60$$

$$\Rightarrow x = 36 \text{ km}$$

Now, distance travelled from city A to city B = $2x = 72 \text{ km}$

Let the time of this journey be 't'

$$72/t = 48$$

$$\Rightarrow t = 1.5 \text{ hours}$$

Thus, time taken for journey from city B to city C = $3 - 1.5 = 1.5 \text{ hours}$

Distance travelled in this journey = $3x = 108 \text{ km}$

Average speed on the journey from city B to city C = $\frac{108}{1.5} = 72 \text{ km/hr}$

Thus, statement I, II and III are together sufficient

Hence, option D is correct.

- 7.** Taking all statement together,
Let the profit earned by company in 2001 = Rs. x and in 2002 = Rs. y

Profit earned in 2003 = $1.4x$

$$x + y = \text{Rs. 20 crore (i)}$$

From statement III,

$$1.4x = y \times \frac{80}{100}$$

$$x = \frac{4}{5} \times \frac{1}{1.4} y$$

$$x = \frac{4}{7} y \text{ (ii)}$$

From equation (i) and (ii), we can get the required profit.

So all the statements are required to find profit in the year 2002.

Hence, option D is correct.

8. Let Prena can finish the work in x days alone.

From I,

Prena has worked for 4 days and done $\frac{4}{x}$ part of the work.

The remaining work = $\frac{1 - \frac{4}{x}}{1} = \frac{x - 4}{x}$ part will be done by Rupa in 8 days.

So Rupa can alone can finish the work in $\frac{8x}{x - 4}$ days.

From I and II,

$$\Rightarrow \frac{\frac{8x}{x - 4} \times x}{\frac{8x}{x - 4} + x} = 6 \frac{2}{3}$$

$\Rightarrow x$ can be obtained. i.e. $x = 20$ days.

From III,

Rupa alone can finish the work in $\frac{x}{2}$ days.

From I and III,

$$\Rightarrow \frac{8x}{x - 4} = \frac{x}{2}$$

So, x can be obtained.

From II and III,

$$\frac{x \times \frac{x}{2}}{x + \frac{x}{2}} = 6 \frac{2}{3}$$

x can be obtained.

Hence, option A is correct.

9. From statements I and II:

Let the sum be P

$$SI = \frac{P \times r \times n}{100}$$

$$3200 = \frac{P \times r \times 4}{100}$$

$$\frac{3200 \times 100}{4} = P \times r$$

$$SI = \frac{P \times r \times 3}{100}$$

Replacing the value of $P \times r$

$$SI = 3200 \times 100 \times \frac{3}{100 \times 4}$$

$$SI = 800 \times 3$$

$$SI = 2400$$

SI for first 3 years = Rs.2400

Then CI for first two years according to statement I is Rs. $2400 - 600 = \text{Rs. } 1800$

SI for 2 years = Rs. 1600

$$\text{Rate \%} = \frac{2 \times (CI - SI) \times 100}{SI}$$

$$= \frac{2 \times (1800 - 1600) \times 100}{1600}$$

$$= \frac{2 \times 200 \times 100}{1600} = 25\%$$

From statement III:

$$\text{Rate} = (\sqrt[4]{4} - 1) \times 100\% = 100\%$$

Hence, either statement I and II together or III alone is sufficient to answer the question

Hence, option A is correct.

10. From III,

We get the speed of the Durgam Cheruvu express.

$$\Rightarrow \frac{300}{10} = 30 \text{ m/s} = 108 \text{ kmph}$$

From II,

We get the distance between Delhi and Lucknow and also the starting time i.e. 7:15 am.

$$\Rightarrow \text{time to reach destination} = \frac{560}{108} = 5.18 \text{h}$$

Hence II & III statements are sufficient to answer the question.

Therefore, statement I is redundant and can be dispensed with.

Hence, option C is correct.

11. From I and II:

Let the original speed of the train is '100x' km/h

Increased speed = 125% of 100x = 125x km/h

According to question-

$$\Rightarrow \frac{750}{100x} - \frac{750}{125x} = 20.25$$

$$\Rightarrow x = \frac{2}{3}$$

$$\text{Original speed of the train} = 100x = 100 \times \frac{2}{3} = \frac{200}{3} \text{ km}$$

$$\text{Hence the distance travelled by train in 2 hours} = 2 \times \frac{200}{3} = \frac{400}{3} \text{ km}$$

Hence statements I and II together are sufficient.

Therefore, option (E) is correct.

12. From Statement I : Let the cost price of the working machine be x.

then the marked price of washing machine

$$= x + \frac{80}{100} \times x = 1.8x$$

$$\text{Selling price} = 1.8x \times \frac{100 - 25}{100} = 1.35x$$

$$\text{Now, profit} = 1.35x - x$$

$$\text{Profit} = 0.35x$$

but

$$0.35x = 3500$$

$$\therefore x = 10,000$$

So, the cost price of the washing is Rs. 10000. Selling price in order to earn 25% profit

$$= \frac{125}{100} \times 10000 = 12,500$$

Hence, statement I alone is sufficient

From Statement II: Let the cost price of the washing machine be x then,

Cost price after paying transportation = x + 2000 then

$$\Rightarrow \frac{x + 2000}{15000} = \frac{100}{125}$$

$$\Rightarrow x + 2000 = 12000$$

$$\Rightarrow x = 10000$$

Cost price is Rs. 10000

$$\text{Selling price in order to earn 25\% profit} = \frac{125}{100} \times 10000 = \text{Rs. } 125000$$

Hence, statement II alone is also sufficient. Here, Statement I or II alone is sufficient.

Therefore, option (C) is correct.

13. From Statement I :

Using the information given in above statement.

$$\text{Anuj} + 14 = \text{Ankur}$$

Here, we have no information about p and the actual age of Anuj.

So, we cannot find the answer.

Hence, statement I alone is not sufficient.

From Statement II:

Using the information given in above statement, we can say that

$$\text{Anuj} + \text{ankur} = p$$

Here, we have no information about the present age of Anuj

So, we cannot find the answer.

Both Statement I and II :-

$$\text{From statement I : Anuj} + 14 = \text{Ankur}$$

$$\text{From Statement II : Anuj} + \text{Ankur} = p$$

$$2 \text{ Anuj} + 14 = p$$

Here, cannot find the actual age of Anuj and the real value of p.

So, we cannot find the answer.

Hence, Both statement I and II together are not sufficient.

Hence, option (D) is correct.

- 14.** Let the length of layer piece, middle piece and shorter piece be l , m and s respectively.

From Statement I :

Using the information given in above statement.

$$l + m = 17$$

Here, we have no information about the total length of the rope or the length of shorter piece.

So, we cannot find the answer.

Hence, statement I alone is not sufficient.

From Statement II:

Using the information given in above statement,

$$s + m = 19$$

Here, we have no other information about the length of these pieces.

So, we cannot find the answer.

Hence, statement II alone is not sufficient.

Both Statement I and II :-

From statement I : $l + m = 17$

From Statement II : $s + m = 15$

Combining both statement I and II we get

$$l - s = 2$$

At this point, we have no information about total length or the length of any of these pieces of the rope. So, we cannot find the answer.

Hence, Both statement I and II together are not sufficient.

Hence, option (D) is correct.

15. From the question, $A : B = 1 : 3$

Statement I : after 10 years, the ratio will become $5 : 11$

Statement II : 5 years ago, the ratio was $1 : 4$

Therefore, statement I or Statement II alone is sufficient to get our answer, and their ages will be 15 years and 45 years respectively

Hence, option C is correct.

16. **Statement I:** $a^3 + b^3 = 1729$

By trial and error method, we can conclude that

$a = 10$ and $b = 9$

$a = 12$ and $b = 1$

There are two possible values of 'a' and 'b'.

So, statement I alone is not sufficient to answer the question.

Statement II: $a^2 + b^3 = 145$

By trial and error method, we can conclude that

$a = 9$ and $b = 4$

$a = 12$ and $b = 1$

There are two possible values of 'a' and 'b'.

So, statement II alone is not sufficient to answer the question.

Combining statement I and statement II:

$$a^3 + b^3 = 1729$$

By hit and trial method, we can conclude that

$a = 10$ and $b = 9$

$a = 12$ and $b = 1$

Also,

$$a^2 + b^3 = 145$$

By hit and trial method, we can conclude that

$a = 9$ and $b = 4$

$a = 12$ and $b = 1$

So, $a = 12$, and $b = 1$

$$(a + b) = 12 + 1 = 13$$

Hence, option E is correct.

- 17. Statement I:** Time taken by Sandeep and Ravi alone to complete the work is $(a - b)$ days and $(a + b)$ days, respectively.

Therefore, time taken by Sandeep and Ravi together to complete the work

$$\begin{aligned} &= \frac{(a - b)(a + b)}{a - b + a + b} \\ &= \frac{a^2 - b^2}{2a} = \frac{a}{2} - \frac{b^2}{2a} \text{ days} \end{aligned}$$

Therefore, time taken by Rahul and Shyam together to complete the work

$$= \frac{abab^2}{ab + ab^2} = \frac{ab^2}{1 + b} \text{ days}$$

Since, $b \geq 1$

So, $b^2 \geq b \geq 1$

$$1 + b \leq 2b^2$$

$$\frac{(1 + b)}{ab^2} \leq \frac{2b^2}{ab^2}$$

$$\frac{ab^2}{1 + b} \geq \frac{a}{2}$$

$$\text{And, } \frac{a}{2} - \frac{b^2}{2a} < \frac{a}{2}$$

$$\frac{a^2 - b^2}{2a} < \frac{ab^2}{1 + b}$$

So, statement I alone is sufficient to answer the question.

Statement II:

Time taken by Sandeep and Ravi alone to complete the work is $(a - b)$ days and $(a + b)$ days, respectively.

Therefore, time taken by Sandeep and Ravi together to complete the work

$$= \frac{(a - b)(a + b)}{a - b + a + b}$$

$$= \frac{a^2 - b^2}{2a} = \frac{a}{2} - \frac{b^2}{2a} \text{ days}$$

Therefore, time taken by Rahul and Shyam together to complete the work

$$= \frac{abab^2}{ab + ab^2} = \frac{ab^2}{1 + b} \text{ days}$$

Since, $b \leq 1$

$$b^2 \leq b \leq 1$$

$$1 + b \geq 2b^2$$

$$\frac{(1 + b)}{ab^2} \geq \frac{2b^2}{ab^2}$$

$$\frac{ab^2}{1 + b} \leq \frac{a}{2}$$

$$\text{And, } \frac{a}{2} - \frac{b^2}{2a} < \frac{a}{2}$$

We cannot say about whether the combined efficiency of Sandeep and Ravi together is less/more than that of Rahul and Shyam together using the above information.

So, statement II alone is not sufficient to answer the question.

Hence, option A is correct.

18. Statement I: Radius of wooden cone = 7 cm.

Diameter = 14 cm

Since, the wooden cone is cut from middle.

So, curved surface area of the cut half = $(1/2) \times \pi \times r \times l$ + Area of triangle formed with sides (l, l and d), where 'l' is slant height of the cone and 'd' is the diameter of the cone.

Given,

$$[(1/2) \times \pi \times r \times l + \sqrt{s(s-l)(s-l)(s-d)}] = 0.82 \times \pi \times r \times l \text{ --- (1)}$$

$$\text{Now, } s = \frac{(l + l + d)}{2}$$

$$= \frac{(l + l + 14)}{2}$$

$$= (l + 7)$$

Now, putting the value of 's' in equation (1), we get

$$0.5 \times \pi \times r \times l + \sqrt{[(l + 7)(l + 7 - l)(l + 7 - l)(l + 7 - 14)]} = 0.82 \times \pi \times r \times l$$

$$\sqrt{[(l + 7)(7)(7)(l - 7)]} = 0.32 \times \pi \times r \times l$$

$$l^2 - 49 = 0.9216 \times l^2$$

$$l^2 = 625$$

$$l = 25 \text{ cm}$$

$$\text{So, height of cone, } h = \sqrt{l^2 - r^2} = \sqrt{25^2 - 7^2} = 24 \text{ cm}$$

$$\text{Volume of wooden cone} = \frac{1}{3} \times \pi \times r^2 \times h$$

$$= \frac{1}{3} \times 3 \times 7^2 \times 24 = 1176 \text{ cm}^3$$

So, Statement I alone is sufficient to answer the question.

Statement II :

Radius of wooden cone = 7 cm.

Diameter = 14 cm

Since, the wooden cone is cut from middle.

So, total surface area of the cut half = $(1/2) \times \pi \times r \times l + [(\pi r^2) / 2]$ + Area of triangle formed with sides (l, l and d), where 'l' is slant height of the cone and 'd' is the diameter of the cone.

Given,

$$(1/2) \times \pi \times r \times l + [(\pi r^2) / 2] + \sqrt{[s(s - l)(s - l)(s - d)]} = 504 \text{ --- (1)}$$

$$\text{Now, } s = \frac{(l + l + d)}{2}$$

$$= \frac{(l + l + 14)}{2}$$

$$= (l + 7)$$

Now, putting the value of s in eq. (1), we get

$$0.5 \times 3 \times 7 \times l + \sqrt{[(l + 7)(l + 7 - l)(l + 7 - l)(l + 7 - 14)]} + [(3 \times 7^2) / 2] = 504$$

$$10.5 \times l + \sqrt{[(l + 7)(7)(7)(l - 7)]} + 73.5 = 504$$

$$10.5 \times l + \sqrt{[(l + 7)(7)(7)(l - 7)]} = 430.5$$

$$\sqrt{[(l + 7)(l - 7)]} = [430.5 - 10.5 \times l] / 7$$

Solving the above equation, we get

$$l = 25 \text{ cm}$$

$$\text{So, height of cone, } h = (l^2 - r^2)^{0.5} = (25^2 - 7^2)^{0.5} = 24 \text{ cm}$$

$$\text{Volume of wooden cone} = \frac{1}{3} \times \pi \times r^2 \times h$$

$$= \frac{1}{3} \times 3 \times 7^2 \times 24 = 1176 \text{ cm}^3$$

So, Statement II alone is sufficient to answer the question.

Hence, option C is correct.

19. Statement I: Let the efficiency of each boy be 2e unit/day.

Then, the efficiency of each girl = e unit/day.

According to question,

$$15 \times x \times 2e = 24 \times y \times e$$

$$30x = 24y$$

$$x : y = 4 : 5$$

Also, $x + y = 27$

$$\text{So, } x = \frac{4}{9} \times 27 = 12$$

$$y = 27 - 12 = 15$$

Let the number of days taken by $(x - 8)$ boys and $(y - 7)$ girls together to complete the same work be 'D' days.

Then,

$$[(12 - 8) \times 2e + (15 - 7) \times e] \times D = 15 \times 12 \times 2e$$

$$(8e + 8e) \times D = 360e$$

$$D = 360e \div 16e$$

$$D = 22.5 \text{ days}$$

So, Statement I alone is sufficient to answer the question.

Statement II:

Since, $x = y$, then the number of days taken by all the boys is half the number of days taken by all the girls.

This means, that the efficiency of boys is twice the efficiency of girls.

Let the efficiency of each boy be $2e$ unit/day.

Then, the efficiency of each girl = e unit/day.

According to question,

$$15 \times x \times 2e = 24 \times y \times e$$

$$30x = 24y$$

$$x : y = 4 : 5$$

So, Statement II alone is not sufficient to answer the question.

Hence, option A is correct.

20. Statement I: Let the cost price of the article = Rs. $100x$

Marked price of the article = $1.50 \times 100x = 150x$

Selling price of the article = $150x \times (100 - d)(100 - 2d) \div 100 \div 100 = 100x \times 1.08$

$$(100 - d)(100 - 2d) = 7200$$

$$10000 + 2d^2 - 300d = 7200$$

$$d^2 - 150d + 1400 = 0$$

$$d^2 - 140d - 10d + 1400 = 0$$

$$d(d - 140) - 10(d - 140) = 0$$

$$(d - 140)(d - 10) = 0$$

$$d = 10, 140$$

Here x is eliminated. So the cost price and the marked price of the article can't be determined

So statement I alone is not sufficient to answer the question.

Statement II: Let the cost price of the article = Rs. $100x$

Marked price of the article = $100x \times (100 + m) \div 100 = \text{Rs. } 100x + xm$

Selling price of the article = $(100x + xm) \times 0.80 \times 0.90 = 72x + 0.72 \times xm$

Profit earned = $72x + 0.72 \times xm - 100x = 1248$

$$0.72 \times xm - 28x = 1248$$

Here we have two variables so the equation can't be solved

So statement II alone is not sufficient to answer the question.

Now combining statement I and statement II

Let the cost price of the article = $100x$

So the profit earned = $100x \times 0.08 = 1248$

$$8x = 1248$$

$$x = 156$$

So the cost price of the article = Rs. 15,600

Marked price of the article = $15600 \times 1.50 = \text{Rs. } 23,400$

Difference in the cost price and marked price = $23400 - 15600 = \text{Rs. } 7,800$

So data in statement I and statement II together are sufficient to answer the question

Hence, option E is correct.

21. In the room two window and one door are there. From the statement III, we can conclude that the area of one window was 15sq. cm but we cannot find the area of the other window so we would not get our answer even by using all the statements.

Hence, option C is correct.

22. Let the number is a, b, c, d, and e where a is the first number, b is the second number and so on

According to question

$$\frac{a + b + c + d}{4} = 4e$$

$$a + b + c + d = 16e \dots\dots\dots (i)$$

Statement I: Average of the first two numbers is equal to the average of the next two numbers

$$\text{It means } a + b = c + d \dots\dots\dots (ii)$$

Statement II: Average of the first two numbers is four times of the fifth number.

$$\frac{a + b}{2} = 4e, a + b = 8e \dots\dots\dots (iii)$$

Statement III: The average of the all the numbers is 3.4

$$\text{So sum of all the numbers} = 3.4 \times 5 = 17$$

$$a + b + c + d + e = 17$$

From the question statement given,

$$a + b + c + d = 16e$$

$$\text{Or, } 16e + e = 17$$

$$\text{Therefore, } e = 1$$

Clearly, only statement (iii) is sufficient to answer the question.

Hence, option D is correct.

23. From the statement I: $P = 1000$ and $A = 1331$ so interest will become $1331 - 1000 = 331$

From the statement II: Time = 3 years but we could not conclude that the rate of interest was compounded annually or half-yearly.

From the statement III: we can conclude that the rate of interest was compounded annually because the simple interest of one year will be equal to the compound interest of the first year only if the rate of interest is compounded annually.

Now $P = 1000$, $CI = 331$ time = 3 years and rate of interest is compounded annually so we can easily find the rate of interest.

So, all the statements are needed to get our answer.

Hence, option E is correct.

24. From the Statement I, speed is less than 70 km/hr and from the Statement II, distance is more than 210 km so it is clear that he could not drive from Bangalore to Chennai in less than 3 hours. So Statement I and Statement II are needed to get our answer.

In Statement III he can drive up to the speed of 150 km/hr but he drove at the speed of less than 70 km/hr so this statement is insufficient to get our answer.

Hence, option B is correct.

25. From the Statement I, the desired amount of mixture is 180 litres

From the Statement II and Statement III, we can conclude that he had 180 litres of red paint and 120 litres of blue paint but we cannot conclude that how much quantity of yellow paint he has because the given ratio is the ratio to make the mixture. It is not the ratio of quantity he has.

Hence, option C is correct.

26. Let P = Prakash's age R = Ram's age M = Mohan's age

Statement I:

$P - R = 30$ ----- (i) (from the statement III it is clear that we can get positive difference only if we take $P - R$ because P is older than R and M)

Statement II: $P - M = 30$ ----- (ii)

Two equation and three variables, therefore it is not possible to get answer even by combining all the statement

Hence, option E is correct.

27. Let the salary of Nita = $3x$ and the salary of Sita = $4x$

From the statement I, Sita saves 25% of her salary then her expenditure = 75% of $4x = 3x$

From the statement III, Let the expenditure of Nita is $4y$ and the expenditure of Sita is $5y$

$$\text{Therefore, } 3x = 5y, y = \frac{3x}{5}$$

Therefore, the expenditure of Nita = $4y$

$$= \frac{12x}{5} \text{ and her saving} = 3x - \frac{12x}{5} = 0.6x$$

Therefore, from the statement I and III together we can get the ratio.

From the statement II and III, $3X - 4500 = 5Y$

$$3X - 5Y = 4500$$

Here we could not find the two unknown term from the one equation.

Therefore, only statement I and III is sufficient to get our answer.

Hence, option C is correct.

28. From the statement II alone, we can conclude our answer as MP = Rs. 700

But from the statement I or III, we could not get the marked price because in the statement I, SP is given and, in the statement III, we only can conclude that MP = 140% of CP

Hence, option B is correct.

29. By combining statement I, and Statement II we can conclude that length and breadth of the rectangular hall is 10 cm and 15 cm therefore area will be $10 \times 15 = 150 \text{ cm}^2$

Now from the statement III, we can conclude that for, 100 cm^2 cost = 1000 therefore for 150 cm^2 cost will be 1500.

So all the three statements are required to answer.

Hence, option D is correct.

30. From I:

$$P \left(1 + \frac{r}{100}\right)^2 = 72600$$

From II:

$$P \left(1 + \frac{r}{100}\right)^4 = 87846$$

From I and II:

Dividing (II) by (I)

$$\left(1 + \frac{r}{100}\right)^2 = \frac{87846}{72600}$$

$$\Rightarrow \left(1 + \frac{r}{100}\right)^2 = \frac{121}{100}$$

$$\Rightarrow \left(1 + \frac{r}{100}\right)^2 = \left(\frac{11}{10}\right)^2$$

$$\Rightarrow 1 + \frac{r}{100} = \frac{11}{10}$$

$$\Rightarrow \frac{r}{100} = \frac{11}{10} - 1$$

$$\Rightarrow \frac{r}{100} = \frac{11 - 10}{10}$$

$$\Rightarrow \frac{r}{100} = \frac{1}{10}$$

$$\Rightarrow r = 10\%$$

Now,

$$P \left(1 + \frac{10}{100}\right)^2 = 72600$$

$$\Rightarrow P \left(1 + \frac{1}{10}\right)^2 = 72600$$

$$\Rightarrow P \left(\frac{11}{10} \right)^2 = 72600$$

$$\Rightarrow P = 72600 \times \frac{100}{121}$$

$$\Rightarrow P = 60000$$

$$SI = \frac{60000 \times 4 \times 16}{100} = \text{Rs. } 38400$$

From III:

$$P \times \frac{12 \times 5}{100} + P = 96000$$

$$\Rightarrow \frac{3P}{5} + P = 96000$$

$$\Rightarrow 8P = 96000 \times 5$$

$$\Rightarrow P = \frac{480000}{8}$$

$$\Rightarrow P = 60000$$

$$SI = \frac{60000 \times 4 \times 16}{100} = \text{Rs. } 38400$$

Hence, I and II together or only III are sufficient.

Hence, option D is correct.

31. If circum radius in the statement 1 is given then hypotenuse will be double of the circum radius.

From the statement II, one angle is 60 degrees then other will be 30 degrees. Here we know all the angles and by combining with the statement I, we can conclude one side that is hypotenuse

By using $\sin 60 = \text{height}/\text{hypotenuse}$ we can conclude the other side then after we can easily conclude the area of the triangle.

Hence, option E is correct.

32. 5 years before, let the age of moni = x then the age of soni = $x - 5$

At present, their age will be, Moni = $x + 5$ years, Soni = $x - 5 + 5 = x$ years

In the statement II, the ratio of $x + 5$ and x are given therefore, by combining both the statement, we can conclude our answer.

Hence, option E is correct

33. If we combine both the statement, then we can conclude their speed as 24 m/sec and 12 m/sec

Now we can conclude the sum of their length but the difference of their lengths is not possible to get.

Therefore, the data in both the statements I and II is not sufficient to answer the question.

Hence, option D is correct.

34. From the question, the unit digit of the three-digit number is 3, and it is divisible by 7.

From the statement I, the number is divisible by 9

LCM of 9 and 7 = 63

The only number which is multiple of 63 and the unit digit of which is 3, is $63 \times 11 = 693$

Therefore, we can conclude our answer by this statement

From the statement II, the number is divisible by 21 therefore, LCM of 21 and 7 = 21

There are many numbers like, 273, 483 ---- which is divisible by 21 and 7, and the unit digit of which is 3

Therefore, we could not get a unique answer by this statement.

Therefore, the data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.

Hence, option A is correct.

35. In none of the statement or in question, it is given any information about number therefore by using only percentage, we could not conclude our answer.

Hence, option D is correct.

36. $A : B = 7 : 9$

Let us assume it $7x$ and $9x$

From the statement I: A's age = $4y = 7x - 5$

From the statement II: A's age = $6z = 7x + 5$

If we combine both the statement, we could not find three variables

Therefore, the data in both the statements I and II is not sufficient to answer the question.

Hence, option D is correct.

37. From the statement I, $1/x$ is greater than 1 it means x is less than 1.

We could not conclude if x is greater than or less than y

From the statement II, $1/x$ is less than $1/y$

$$\frac{1}{x} < \frac{1}{y}$$

If x and y both are positive then

This will be only possible if x is greater than y .

But, if x is negative i.e. -2 and y is positive i.e. 2 then $x < y$

$$\frac{1}{x} = -0.5 \text{ and } \frac{1}{y} = 0.5$$

Here, $\frac{1}{x}$ is also less than $\frac{1}{y}$

From the statement I, x is less than 1

Therefore, if we combined both the statement then we can conclude that x is less than y

Hence, option E is correct.

38. Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

In the statement I, height is given then we can conclude the area by the formula.

In the statement II, we only have information that the triangle is isosceles

Therefore, statement II alone is not sufficient to conclude our answer.

Therefore, the data in statements I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.

Hence, option A is correct.

39. From the statement I, discount percentage is given and selling price is given then we can conclude the marked price as Rs. 800

In the statement II, Let CP = Rs. $100x$ then Selling price = MP = Rs. $160x$

$$\text{Profit} = 160x - 100x = 60x = 300$$

$$x = 5$$

It means, MP = $160x$ = Rs. 800

Therefore, either Statement I or Statement II alone is sufficient to answer the question.

Hence, option C is correct.

40. From the statement I alone, we can conclude downstream speed but we could not conclude the speed of motorboat in still water.

From the statement II alone, we can conclude that the speed of motorboat in still water = 6 km per hour

Now, we can change it in the term of meters per hour

Therefore, the data in statements II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.

Hence, option B is correct.

41. Statement I:

The age of Rahul at the time of marriage = 25 years.

Statement I alone is not sufficient to answer the question.

Statement II:

Total age of Rahul and his wife at the time of marriage = $24 \times 2 = 48$ years.

Statement II alone is not sufficient to answer the question.

Statement III:

Difference between the ages of Rahul and his son = 24 years.

Statement III alone is not sufficient to answer the question.

All the statements are not sufficient to answer the question because in these statements it is not given that when Rahul got married

Hence, option D is correct.

42. Statement I:

Total Surface Area of cuboid = $2(lb + bh + hl)$

Let length = $3x$, breadth = $2x$, height = x

$$352 = 2(3x \times 2x + 2x \times x + x \times 3x)$$

$$176 = (6x^2 + 2x^2 + 3x^2)$$

$$176 = 11x^2$$

$$x^2 = 16$$

$$x = 4$$

Length = 12cm, Breadth = 8cm, Height = 4cm

$$\text{Volume} = lbh = 12 \times 8 \times 4 = 384\text{cm}^3$$

Statement II:

$$\text{Total Surface Area of cube} = 6s^2$$

$$384 = 6s^2$$

$$s^2 = 64$$

$$s = 8 \text{ cm}$$

$$\text{Volume of the cube} = s^3$$

$$= 8^3 = 512 \text{ cm}^3$$

Statement III:

Height of the cuboid = x cm, length = $3x$, breadth = $2x$

$$\text{Difference} = 3x - x$$

$$8 = 2x$$

$$x = 4$$

length = 12cm, breadth = 8cm, height = 4cm

$$\text{Volume} = lbh$$

$$= 12 \times 8 \times 4 = 384 \text{ cm}^3$$

We can solve this question with the help of either statement I and II or statement II and III.

Hence, option C is correct.

43. Statement I:

$$\text{Principal} = \text{Rs } 9000$$

$$\text{Interest} = \frac{\text{Principal} \times \text{Rate} \times \text{time}}{100}$$

$$2700 = \frac{9000 \times \text{Rate} \times 2}{100}$$

$$\frac{2700}{180} = \text{Rate}$$

Statement I alone is not sufficient to give the answer.

Statement II:

Amount = Rs 11700

Statement II alone is not sufficient to give the answer.

Statement I + Statement II:

Principal = Rs 9000, Amount = Rs 11700, time = 2 years, Interest = $11700 - 9000 = \text{Rs } 2700$

Rate = 15%

Data in Statement I and II is sufficient to give the answer.

Statement III:

Let Principal = Rs x , Amount = Rs $2x$, time = $20/3$ years, interest = $2x - x = \text{Rs } x$

$$\text{Interest} = \frac{\text{Principal} \times \text{Rate} \times \text{time}}{100}$$

$$x = \frac{x \times \text{Rate} \times 20}{300}$$

Rate = 15%

Statement III alone is sufficient to give the answer.

Hence, option C is correct.

44. Statement I: Total age of five family member = $36 \times 5 = 180$ years

Statement I alone is not sufficient to give the answer.

Statement II: Total age of Nidhi, Vidhi and Anil = 75 years

Statement II alone is not sufficient to give the answer.

Statement III: Let the age of Ajay = x years

Age of Anil = $x + 12$ years

Statement III alone is not sufficient to give the answer.

The data in statement I, II and III is not sufficient to give the answer.

Hence, option D is correct.

45. Statement I:

$$2xyz + 6y - 8z + 5 = 0, z = 1$$

$$2xy \times 1 + 6y - 8 \times 1 + 5 = 0$$

$$2xy + 6y - 8 + 5 = 0$$

$$2xy + 6y - 3 = 0$$

Statement II:

$$\text{II. } y = \sqrt{225 - 116}$$

$$y = \sqrt{9}$$

$$y = 3$$

Statement III:

$$4xyz - 6z + 8y - 7 = 0, z = 3$$

$$4xy \times 3 - 6 \times 3 + 8y - 7 = 0$$

$$12xy - 18 + 8y - 7 = 0$$

$$12xy + 8y - 25 = 0$$

We can receive the value of x with the help of any two statements.

Hence, option C is correct.

46. Statement I:

$$\text{Relative Speed} = \frac{D}{T}$$

$$S_1 + S_2 = \frac{250 + 250}{25}$$

$$= \frac{500}{25} = 20 \text{ m/s}$$

Statement II:

$$S = \frac{D}{T}$$
$$= \frac{250}{25} = 10 \text{ m/s}$$

Statement III:

Distance from point X to point Y = 360 km

Statement II and III:

Speed = 10 m/s

$$\text{or } 10 \times \frac{18}{5} = 36 \text{ km/h}$$

$$S = \frac{D}{T}$$

$$36 = \frac{360}{T}$$

$$T = 10 \text{ hours}$$

Hence, option B is correct.

47. Statement I: Ratio of the investment = $4 \times 12 : 5 \times 8 = 48 : 40 = 6 : 5$

Statement II: Total profit = Rs 22000

Statement III: karina earned = Rs 12000

Statement I + Statement II:

$$\text{Karina's profit} = 22000 \times \frac{6}{11} = \text{Rs } 12000$$

$$\text{Karina's profit} = 22000 \times \frac{5}{11} = \text{Rs } 10000$$

$$\text{Difference} = 12000 - 10000 = \text{Rs } 2000$$

Statement II + Statement III:

Karina's profit = Rs 12000

Katrina's profit = 22000 – 12000 = Rs 10000

Difference = 12000 – 10000 = Rs 2000

Statement III + Statement I:

Ratio of investment = 6 : 5 Karina's profit = Rs 12000

Karina's profit = $\frac{12000}{6} \times 5 = \text{Rs } 10000$

Difference = 12000 – 10000 = Rs 2000

Hence, option C is correct.

48. Let the total students = x

Statement I: Failed students = $x \times 35\%$, Passed students = $x \times 65\%$

Statement II: Difference between failed and passed students = 240

Statement III: Ratio of Boys and Girls = 4 : 5

Statement I + Statement II:

$$x \times 65\% - x \times 35\% = 240$$

$$x \times 30\% = 240$$

$$x = 800$$

$$\text{students who cleared the exam} = 800 \times 65\% = 520$$

Statement I and II together is sufficient to answer the question.

Hence, option A is correct.

49. Let the two digit number is xy .

Statement I: $x \times y = 20$

Statement I alone is not sufficient to give the answer.

Statement II: $x - y = 1$ or $y - x = 1$

Statement II alone is not sufficient to give the answer.

Statement III: $x + y = 9$

Statement III alone is not sufficient to give the answer.

Statement I + Statement II:

$$x \times y = 20 \dots 1$$

$$x - y = 1 \text{ or } y - x = 1$$

$$x = y + 1 \text{ or } y = x + 1 \dots 2$$

After solving equation 1 and 2

$$x = 4 \text{ or } 5, y = 4 \text{ or } 5$$

Statement II + Statement III:

$$x - y = 1 \text{ or } y - x = 1 \dots 3$$

$$x + y = 9 \dots 4$$

After solving equation 3 and 4

$$x = 5, y = 4 \text{ or } x = 4, y = 5$$

Statement I + Statement III:

$$x \times y = 20 \dots 5$$

$$x + y = 9 \dots 6$$

After solving equation 5 and 6

$$x = 4 \text{ or } 5, y = 4 \text{ or } 5$$

In all the cases we don't have the exact value two digit number so the data in all the statements is not sufficient to give the answer.

Hence, option D is correct.

50. From I:

Company decided to give bonus with the salary to its employees.

Bonus is 12% of the monthly profit of company.

But here the amount of bonus is not given.

Hence, statement I alone is not sufficient.

From II:

On the day of salary distribution, company changed its mind and gave total of Rs.24000 as a bonus Which was 125% of what the company had decided earlier.

Here the amount of bonus is given but change is given in per cent.

Hence, statement II alone is not sufficient.

From III:

Company gives an amount of Rs.15000 as bonus which is $\frac{3}{4}$ th of total monthly profit

$$\text{So monthly profit of company} = \frac{15000 \times 4}{3} = \text{Rs.20000}$$

Hence, statement III alone is sufficient.

From I and II:

Bonus is 12% of the monthly profit and company gave total of Rs.24000 as a bonus

Which was 125% of what the company had decided earlier.

New bonus = 125% of 12% of monthly profit = 24000 **(Given)**

$$\text{Monthly profit} = \frac{24000 \times 100}{12} \times \frac{100}{125} = 160000$$

Hence statements I and II together are sufficient.

Hence, option A is correct.