

Data Sufficiency

INTRODUCTION

Data sufficiency is not a new kind of problem. It is just a way to check your known reasoning ability in new format. In fact, in such problems 2 statements are given from different part of reasoning like coding, decoding. Problem solving, blood relation, etc, and the examinee is required to find out if each statement alone/combinedly sufficient to answer the question. Let us the format of the problem given below:-

PROBLEM FORMAT

Directions: The problem(s) below consist of a question/questions followed by two statements labelled I and II. You have to decide if these statements are sufficient to answer the question.

Mark Answer:

- If statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.
- If only statement II is sufficient to answer the question but statement I is not sufficient to answer the question.
- If both statements I and II are together sufficient to answer the question although neither statement suffices by itself.
- If both the statements are sufficient to answer the question independently and separately.
- If both the statements are not sufficient but still more data is needed to answer the questions.

EXAMPLE 1. What is the age of x ?

- Statements:** I The age of y is 50 years.
II x is older than y .

After seeing the sample problem, you must have got the idea of what is the problem all about. But before solving the sample problem, we must solve some other problems related to this segment. Only the solution of some problems will give you the clear concept about this chapter. Let us see some examples of solutions given below:-

EXAMPLE 2. What is the value of m ?

- Statements:**
I. $m + n = 50$
II. $5x - n = 1$

Sol. As we know that when the question involves two unknowns then two distinct equations required for it. Here is the same situation. We have 2 equations and two unknowns (m and n). Then, we can easily conclude that both the statements are needed to answer the given question.

EXAMPLE 3. What is the date of birth of Rama?

Statements:

- I. Veena remembers that Rama's date of birth is between 17th June and 21st June.

II. Surbhi says that Rama's date of birth is after 19th June but before 23rd June.

Sol. From I, we conclude that the possible answers are 18th June, 19th June, and 20th June. From II we come to the conclusion that 18th June and 19th June are ruled out. Hence, 20th June must be the answer clearly, both the statements are needed to answer the question but none of the two statements alone is sufficient to get the answer.

EXAMPLE 4. Who is the heaviest among L, M, N and O?

Statements:

- I. M is heavier than L, but lighter than O.
II. N is lighter than M.

Sol. Write statement I as

$O > M > L$ ('>' means heavier than) Write II as $M > N$

Now the two inequalities can be combined as

$O > M > N > L$ or $O > M > L > N$

But in either case O is the heaviest. Hence, I and II are together needed to answer the question but neither of the two statement alone can give the answer.

EXAMPLE 5. Find the value of x .

Statements:

- I. $x - 4 = 15$
II. $x + 2x + x = 3x$
From I.

$$x - 4 = 15$$

$$\therefore x = 15 + 4 = 19$$

$\therefore$ I alone is sufficient to answer the question.

From II.

$$x + 2x + x = 3x$$

$$\Rightarrow 4x = 3x$$

$$\therefore x = 0$$

$\therefore$ II alone is sufficient to answer the question.

Now, from above solved example you must have got the clear concept about data sufficiency and in a position to solve the sample problem also.

Solution to sample problem (Problem Format)

Answer choice 5 will be our correct answer as the given information is not sufficient. x can be of any age greater than 50 years.

Thus, it is clear to you that while solving problems related to data sufficiency, the following method is used :-

Step I — Check statement I

Step II — Check statement II

Step III — Check both statement I and II if required.

EXERCISE

Directions (Qs. 1-173) : Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

Read both the statements and Give answer

- (a) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
 - (b) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
 - (c) if the data either in statement I alone or in statement II alone are sufficient to answer the question.
 - (d) if the data in both the statements I and II together are not sufficient to answer the question.
 - (e) if the data in both the statements I and II together are necessary to answer the question.
1. What was the ratio between the ages of P and Q four years ago?
 - I The ratio between the present ages of P and Q is 3:4.
 - II The ratio between the present ages of Q and R is 4:5.
 2. What was the cost price of the suitcase purchased by Samir?
 - I Samir got 25 per cent concession on the labelled price.
 - II Samir sold the suitcase for ₹ 2000 with 25 per cent profit on the labelled price :
 3. What is the height of a triangle?
 - I The area of the triangle is 20 times its base.
 - II The perimeter of the triangle is equal to the perimeter of a square of 10 cm side.
 4. What percentage rate of simple interest per annum did Ashok pay to Sudhir?
 - I Ashok borrowed ₹ 8000 from Sudhir for four years.
 - II Ashok returned ₹ 8800 to Sudhir at the end of two years and settled the loan.
 5. What is the speed of a running train?
 - I The train crosses a signal post in 6 seconds.
 - II The train crosses another train running in the opposite direction in 15 seconds.
 6. What does 'pit' mean in a certain code language?
 - I 'ja na pit sod' means 'beautiful bunch of flowers' in that code language.
 - II 'na sod pa tok' means 'huge-bunch of twigs' in that code language.
 7. Towards which direction is P from R?
 - I S is towards west of M and north-east of R.
 - II P is towards south of S.
 8. How is M related to R?
 - I P and R are children of K, who is wife of M.
 - II N's sister M is married to R's father.
 9. Among Q, R, S, T and V who is third from the top when they are arranged in ascending order of their heights?
 - I T is taller than Q and V but shorter than R.
 - II R and S are taller than T and Q is shorter than T but taller than V.
 10. When was the election of the president of the society held?
 - I Suresh submitted his nomination for the election on 13th and left on 17th for Delhi the day after he won the election.
 - II The nominations were scrutinised on 14th and the ballot papers were prepared on the following day.
 11. What is the original number?
 - I Sum of two digits of a number is 10. The ratio between the two digits is 1 : 4.
 - II Product of two digits of a number is 16. Quotient of the two digits is 4.
 12. What is the rate of the compound interest?
 - I A certain amount invested at the compound interest rate amounts to ₹ 1331.
 - II The amount was invested for a period of three years.
 13. What is the present age of the mother?
 - I Father's age is eight years more than the mother's age. Father got married at the age of 28 years.
 - II Present age of the father is 30 years. Four years back the ratio of mother's age to father's age was 12 : 13.
 14. How many children are there in the group?
 - I Average age of this group of children is 16, years. The total of ages of all the children in the group is 240 years.
 - II The total of ages of all the children in the group and the teacher is 262 years. The teacher's age is six years more than the average age of the children.
 15. What is the percentage profit earned?
 - I A shopkeeper invested ₹ 14000 and purchased a certain number of articles.
 - II All the articles were sold at ₹ 15000.
 16. By selling a product at 20% profit, how much profit was earned?
 - I The difference between cost and selling price is ₹ 40.
 - II The selling price is 120 per cent of the cost price.
 17. A train crosses another train running in the opposite direction in x seconds. What is the speed of the train?
 - I Both the trains have the same length and are running at the same speed.
 - II One train crosses a pole in 5 seconds.
 18. What is a two-digit number?
 - I The difference between the two digits is 9.
 - II The sum of the digits is equal to the difference between the two digits.
 19. A spherical ball of radius x cm is melted and made into a right circular cylinder. What is the height of the cylinder?
 - I The volume of the cylinder is equal to the volume of the ball.
 - II The area of the base of the cylinder is given.

20. The area of a square is equal to that of a circle. What is the circumference of the circle?
- The diagonal of the square is x inches.
 - The side of the square is y inches.
21. A , B and C are positive integers. Is their product an even number?
- A is an even number.
 - The product of A and B is an even number and that of A and C is also an even number.
22. What is the meaning of “nic” in a certain code language?
- In that code language “pat nic no ran” means “what is your name”?
 - In that code language “nic sa ran ja” means “my name is Shambhu”.
23. How many daughters does K have?
- L and N are sisters of M .
 - N 's mother is K who has only one son.
24. How is S related to R ?
- R 's sister is the mother of N , who is daughter of S .
 - P is the sister of S .
25. Is D brother of J ?
- J is the sister of M and K .
 - K is the brother of D .
26. Which direction is John facing?
- Alok is to the right of John.
 - Aman is sitting opposite of Alok facing north.
27. Who is the tallest among A , B , C , D and E ?
- C is taller than B and E .
 - E is taller than D and A and D is taller than B and C .
28. A box contains oranges, bananas and apples. How many apples are there in the box?
- Of the hundred fruits in the box, fifty per cent constitute oranges and bananas together.
 - Fifty per cent of the fruits in the box are apples.
29. The area of a playground is 1600 square metres. What is its perimeter?
- It is a perfect square playground.
 - It costs ₹ 3200 to put a fence around the playground at the rate of ₹ 20 per metre.
30. A , B , C and D made their project presentation, one on each day, on four consecutive days but not necessarily in that order. On which day did ‘ C ’ make his presentation?
- The first presentations was made on 23rd, Tuesday and was followed by ‘ D ’s presentation.
 - ‘ A ’ did not make his presentation on 25th and one of them made his presentation, between A 's and B 's.
31. What is the shortest distance between Devipur and Durgapur?
- Durgapur is 20 km away from Rampur.
 - Devipur is 15 km away from Rampur.
32. In a certain code “*al ed nop*” means “We play chess”. Which code word means “chess”?
- “*id nim nop*” means “We are honest”.
 - “*gob ots al*” means “They play cricket”.
33. “You must submit your application within 10 days from the date of release of this advertisement.” What is exact date before which the application must be submitted?
- The advertisement was released on 18th February.
 - It was a leap year.
34. Kiran is older than Manoj and Dilip is older than Neelam. Who among them is the youngest?
- Kiran is older than Neelam.
 - Manoj is younger than Dilip.
35. ‘ B ’ is the sister of ‘ A ’. How is ‘ A ’ related to ‘ B ’?
- ‘ A ’ is the brother of ‘ C ’.
 - ‘ A ’ is the uncle of ‘ D ’.
36. Brinda’s merit rank is 17th in her class. What is her rank from the last?
- There are 70 students in her class.
 - Nisha who ranks 20th in Brinda’s class is 51st from the last.
37. Mandar is taller than Sunil and Raghu is shorter than Abhishek. Who among them is the shortest?
- Raghu is shorter than Mandar.
 - Abhishek is shorter than Sunil.
38. How is ‘go’ written in a certain language?
- ‘you may come’ is written as ‘*pic na ta*’ in that code language.
 - ‘he may go’ is written as ‘*ja ho pic*’ in that code language.
39. Among P , Q , R , S , T and V , who is the heaviest?
- P and S are heavier than Q , T and V but none of them is the heaviest.
 - P is heavier than S but lighter than R .
40. A , B , C , D and F are seated around a circular table facing at the center. Who is on the immediate right of B ?
- D is between A and F .
 - C is between B and F .
41. What is the relation between M and F ?
- M has two sons, one of whom is B .
 - The mother of F has two sons D and B .
42. H is in which direction with respect to V ?
- S is to the south of K , who is to the west of V .
 - M is to the north of H , who is to the east of V .
43. By selling a product for ₹ 100 how much profit was earned?
- 20% profit would have been earned if it had been sold for ₹ 90.
 - The profit was one-third of the purchase price.
44. A train crosses another train running in the opposite direction in x seconds. What is the speed of the train?
- Both the trains are running at the same speed.
 - The first train is y cm long.
45. The difference between the two digits of a number is 6. What is the number?
- The digit at the units place is bigger than the other digit.
 - The sum of the two digits is 12.
46. X , Y and Z are integers. Is X an odd number?
- An odd number is obtained when X is divided by 5.
 - $(X + Y)$ is an odd number.
47. What is the capacity of a cylindrical tank?
- Radius of the base is half of its height, which is 28 metres.
 - Area of the base is 616 sq metres and height is 28 metres.

48. What is the per cent rate of interest per annum on an investment of ₹ 12500?
I. The compound interest for 2 years is more than the simple interest for the same period by ₹ 500.
II. The income from simple interest is ₹ 5000.
49. What is the length of the train which crosses a signal pole in 20 seconds?
I. The speed of the train is 54 kmph.
II. The train crosses a 150-metre-long platform in 30 seconds.
50. What is the depth of a cylindrical pipe?
I. The area of the base is 616 cm^2 .
II. The perimeter of the base is 88 cm.
51. 48 children of a class were asked to sit in rows and columns. How many children are seated in each row?
I. The number of columns is more than the number of rows.
II. The number of rows is $\frac{3}{4}$ of the number of columns.
52. What is the height of the triangle ABC ?
I. AB is the base and the sum of the sides is 25 cm.
II. The ratio of the sides AB , BC and CA is $2 : 2 : 1$.
53. Who among M , T , R , K and Q is the tallest?
I. T is taller than R , M and Q but shorter than K .
II. R , T and M are shorter than K but taller than Q .
54. In which month of the year was Mohan born?
I. Mohan was born in winter.
II. Mohan was born exactly fourteen months after his elder sister, who was born in October.
55. D is in which direction of P ?
I. S is to the south of P , which is to the west of D .
II. P and R are in a straight line and R is to the south of D .
56. How is P related to M ?
I. P is brother of K and T .
II. T is daughter of Q and sister of M 's daughter.
57. In a certain code language what does 'come' mean?
I. 'pit na ja' means 'come and go' in the code language.
II. 'na dik sa' means 'you may go' in the code language.
58. What is Meena's rank from top in a class of twenty students?
I. Rama is fifth from the top and two ranks above Meena.
II. Ashok is tenth from the bottom and three ranks below Meena.
59. Who among P , Q , S , T , V and W is the shortest?
I. S is taller than T , P and W and is not the tallest.
II. T is shorter than Q but is not the shortest.
60. Which of the following means 'very' in a certain code language?
I. 'pit jo ha' means 'very good boy' in that code language.
II. 'jo na pa' means 'she is good' in that code language.
61. On which day of the week was Pramod born?
I. Pramod's sister was born on Wednesday.
II. Pramod's birthday was after his brother's birthday but before his sister's birthday.
62. How many sisters does P have?
I. M and T are sister of K .
II. D is husband of B , who is mother of K and P .
63. Who scored highest among A , B , C , D , and E ?
I. B scored more than D , but not as much as C .
II. E scored more than C but not more than A .
64. How many boys are there in the class?
I. Mita's rank among girls is 5th from the top and her rank in the class is 9th from the bottom.
II. No. of boys in the class is twice the number of girls.
65. Who is to the immediate right of P among five persons P , Q , R , S and T facing North?
I. R is third to the left of Q ; P is second to the right of R .
II. Q is to the immediate left of T , who is second to the right of P .
66. Z is in which direction with respect of X ?
I. Y is to the South of X and Z is to the East of P , which is to the North of Y .
II. P is to the South of X .
67. How is P related to N ?
I. N is sister of M , who is son of Q , whose wife is P .
II. M is brother of N and son of Q , whose wife is P .
68. What is the speed of a boat?
I. The boat covers a distance of 48 km in 6 hours while running upstream.
II. It covers the same distance in 4 hours while running downstream.
69. What was the population of State 'A' in 1999?
I. Population of State 'A' increases every year by 20%.
II. Population of State 'A' in 1999 was 172.8% of its population in 1996.
70. What is a two-digit number?
I. Sum of the digits is equal to the difference between the digits.
II. Difference between the digits is 9.
71. What is Sudha's present age?
I. Sudha's present age is five times her son's present age.
II. Five years ago her age was twenty-five times her son's age that time.
72. What is the average age of the children in a class?
I. The age of the teacher is as many years as the number of children.
II. The average age increases by 1 year if teachers' age is also included.
73. What is Sunil's position in a row of forty students?
I. There are sixteen students towards the left of Sunil.
II. There are twenty-three students towards the right of Sunil.
74. On which date in April was Varun born?
I. Varun's mother remembers that Varun was born before nineteenth but after fifteenth.
II. Varun's sister remembers that Varun was born before seventeenth but after twelfth.
75. How is 'go' written in a code language?
I. 'you may go' is written as 'pit. ja ho' in that code language.
II. 'he may come' is written as, 'ja da na' in that language.
76. How is D related to M ?
I. M has two sisters K and R .
II. D 's mother is sister of K 's father.
77. Who among M , T , R , J and K is the lightest?
I. R is heavier than T and K but lighter than J .
II. J is not the heaviest.

78. What is the distance (in km) between Achalpur and Durgapur by the shortest route?
- Durgapur is 8 km to the north of Meerapur which is 162 km away from Achalpur.
 - Achalpur is 69 km away from Bijnaur which is 28 km away from Durgapur.
79. Is Mr 'Y' entitled to get promotion in the month of September 2002?
- As per his office rules, the only condition for promotion is completion of 12 years of service in a particular grade on 31st December of every year.
 - Mr 'Y' has been working in this office for the last 12 years.
80. What is the area of a square ABCD?
- The perimeter of the square is 16 cm.
 - The difference between the length of side CD and the sum of the lengths of side AB and CD is 4 cms.
81. How is 'M' related to 'N'?
- 'P' is the daughter of 'M' and mother of 'S'?
 - 'T' is the son of 'P' and husband of 'N'.
82. On which date of a particular year was Aryabhatta commissioned into the Earth's orbit?
- China's secret services claim that it was between 7th and 10th of May.
 - The Japan's space research scientists claim that it was between 5th and 10th of May.
83. How is 'A' related to 'D'?
- 'C' is the daughter of A and sister of B.
 - 'D' is the son of F who is C's grandfather.
84. How many employees of bank 'X' opted for VRS?
- 18% of the 950 officer cadre employees and 6% of the 1100 of all other cadre employees opted for VRS.
 - 28% of the employees in the age group of 51 to 56 and 17% of the employees in all other age groups opted for VRS.
85. In a row of five buildings A, B, C, D and E, which building is in the middle?
- Buildings D and B are at the two extreme ends of the row.
 - Building E is to the right of building C.
86. Which codeword stands for 'good' in the coded sentence '*sin co bye*' which means 'He is good'?
- In the same code language '*co mot det*' means 'They are good'.
 - In the same code language '*sin mic bye*' means 'He is honest'.
87. Among five colleagues, A, B, C, D and E who is the highest salary earner?
- B's salary is less than the sum of the salaries of A and C, but more than the sum of salaries of E and D.
 - A's salary is more than that of both E and D but less than that of C who ranks second in the descending order of their salaries.
88. How many students are there in the school?
- The number of boys is 90 more than that of girls.
 - The percentage of boys to the percentage of girls is 145.
89. What is a two-digit number?
- The sum and difference of digits are 9.
 - The unit's digit is less than the ten's digit.
90. What is the rate of compound interest?
- The principal was invested for 4 years.
 - The interest earned was ₹ 1491.
91. What is the measure of the third angle of a triangle?
- The sum of the other two angles is 130° .
 - The sum of second and third angles is 110° .
92. What is the distance between the points X and Y?
- A boat takes 4 hours in covering a distance from X to Y downstream and from Y to X in upstream.
 - The speed of the boat in still water is 5 kmph.
93. What is the volume of a 32-metre-high cylindrical tank?
- The area of its base is 154 m^2 .
 - The diameter of base is 14 m.
94. Aparna is twice as old as Savita. What is the difference between their ages?
- Five years hence, the ratio of their ages would be 9: 5.
 - Ten years back, the ratio of their ages was 3: 1.
95. A train crosses a pole in 10 seconds. What is the length of the train?
- The train crosses another train running in opposite direction at a speed of 80 km/hr in 22 seconds.
 - The speed of the train is 108 km/hr.
96. What is the area of a rectangle?
- The difference between the sides is 5 cm.
 - The measure of its diagonal is 10 cm.
97. Is X an odd integer?
- When multiplied by an even number, it gives an even number.
 - When multiplied by an odd number, it gives an odd number.
98. How is 'flower' written in a code language?
- 'it is a beautiful flower' is written as '*ho na ta ja pa*' in that code language.
 - 'this is a beautiful place' is written as '*ko ja ta po na*' in that code language.
99. K is in which direction of T?
- P is towards South of T and towards East of N.
 - M is towards North of T and towards West of K.
100. How many children are there between M and P in a row of children?
- M is fifteenth from the left in the row.
 - P is exactly in the middle and there are ten children towards his right.
101. P, Q, R, S and T are sitting in a circle, facing towards the centre of the circle. Who is second to the right of P?
- R is on the immediate left of T and second to the right of S.
 - Q is on the immediate right of S and third to the left of P.
102. Among M, K, B, D and W, who is the youngest?
- B is younger than D.
 - W is younger than K but older than M.
103. What does 'Ne' stands for in the code language?
- 'Na Ni Nok Ne' means 'I will tell you' and 'Ni Nok Ne Nam' means 'he will tell you' in that code language.
 - 'Ni Ne Mo Nam' means 'will he call you' and 'Ne Mok Sac Ni' means 'how will you go' in that code language.

104. Who amongst P, Q, R, S, T and U is the tallest?
I. P is taller than R and T but not as tall as U, who is taller than Q and S.
II. R is the third in height in the ascending order and not as tall as U, P and Q, Q being taller than P but not the tallest.
105. Who among A, B, C, D, E & F read the book last?
I. F, who gave the book to B after reading, was third to read the same.
II. C, who read the book after A, was the third person to read the book before it reached E.
106. Who is paternal uncle of P?
I. P is brother of L, who is daughter of Q, who is sister of N, who is brother of S.
II. M is brother of K, who is husband of L, who is mother of G, who is sister of P.
107. What is Sudin's rank in the class of 44 students?
I. Ramesh, whose rank is 17th in the class, is ahead of Shyam by 6 ranks, Shyam being 7 ranks ahead of Sudin.
II. Suketu is 26 ranks ahead of Sudin and Shyamala is 6 ranks behind Sudin while Savita stands exactly in the middle of Shyamala and Suketu in ranks, her rank being 17.
108. What will be the compounded amount?
I. ₹ 200 were borrowed for 192 months at 6% compounded monthly.
II. ₹ 200 were borrowed for 16 years at 6%.
109. What would have been the selling price per kg of rice?
I. 50 kg of rice was purchased for ₹ 3,350 and ₹ 150 was spent on transport.
II. Profit earned was 5%.
110. What will be ratio of men to women and children in the town?
I. Population of the town is 93,280 of which 56,100 are men.
II. The ratio of men to children is 5 : 2 and women are double in number than the children.
111. What will be the average weight of the remaining class?
I. Average weight of 30 children out of total 46 in the class is 22.5 kg and that of the remaining children is 29.125 kg. A child having weight more than 40 kg is excluded.
II. Average weight of a class of 46 children is 23.5 kg. A child weighing 46 kg is dropped out.
112. What will be the number?
I. One-fifth of a number is equal to 20% of that number.
II. Thirty-five percent of a number is $\frac{7}{20}$ of that number.
113. How many children are there in the class?
I. Numbers of boys and girls are in the respective ratio of 3 : 4.
II. Number of girls is more than the number of boys by 18.
114. What was the population of State 'A' in 1997?
I. Population of the State increases every year by 20% and its population in 1997 was 1,20,000.
II. Population of State A in 1997 was twice that of State B in the same year.
115. What is the cost of laying carpet in a rectangular hall?
I. Cost of the carpet is ₹ 450 per square metre.
II. Perimeter of the hall is 50 metres.
116. What is the rate of interest p.c.p.a.?
I. Difference between compound interest and simple interest on an amount of ₹ 10,000 for two years is ₹ 225.
II. The amount doubles itself on simple interest in $6\frac{2}{3}$ years.
117. What is a two-digit number?
I. The number obtained by interchanging the digits is smaller than the original number by 63.
II. Sum of the digits is 11.
118. What will be the cost of the second necklace?
I. The cost of the first necklace is more than $\frac{1}{5}$ of the second and the cost of the third necklace is more than $\frac{2}{5}$ of the second. The total cost of all the three necklaces is Rs. 120000.
II. The cost of the first necklace is $\frac{2}{5}$ more than the second. The cost of the third necklace is the least and total cost of all the three necklaces is Rs. 1,20,000.
119. How many items did the distributor purchase?
I. The distributor purchased all the items for Rs. 4500.
II. If the distributor had given Rs. 5 more for each item, he would have purchased 10 items less.
120. How long will it take to fill a tank?
I. One pipe can fill the tank completely in 3 hours.
II. Second pipe can empty that tank in 2 hours.
121. What will be the area of a plot in sq. metres?
I. The length of that plot is $1\frac{2}{3}$ times the breadth of that plot.
II. The diagonal of that plot is 30 metres.
122. How much minimum marks will be required to pass an examination?
I. Student A secured 32% marks in that examination and he failed by 1 mark. Student B secured 36% marks in the same examination and his marks was 1 more than the minimum pass marks.
II. Student A secured 30% of full marks in the examination and he failed by 2 marks. If he had secured 5 more marks his percentage of marks would have been 40%.
123. What is the height of a circular cone?
I. The area of that cone is equal to the area of a rectangle whose length is 33 cm.
II. The area of the base of that cone is 154 sq cm.
124. What is the price of a table?
I. The total price of 3 chairs and 5 tables is ₹ 18,800.
II. The total price of 6 chairs and 4 tables is ₹ 20,800.

125. What was the speed of a running train A?
I. The relative speed of train A and another train B running in opposite direction is 160 kmph.
II. The train B crosses a signal post in 9 seconds.
126. What is the difference between the two digits in a two-digit number?
I. The sum of the two digits is 8.
II. $\frac{1}{5}$ of that number is 15 less than $\frac{1}{2}$ of 44.
127. What is the monthly income of Q?
I. Q earns ₹ 6000 more than R, who earns ₹ 3000 less than P.
II. The total monthly income of P and Q is ₹ 27,000.
128. What will be the share of P in the profit earned by P, Q & R together?
A. P, Q & R invested total amount of ₹ 25,000 for a period of two years.
B. The profit earned at the end of two years is 30%.
C. The amount invested by Q is equal to the amount invested by P & R together.
(a) A only **(b)** B only
(c) C Only
(d) All A, B & C are required to answer the question
(e) Question cannot be answered even with the information given in all three statements.
129. What is the rate of simple interest per annum?
I. The sum triples in 20 years at simple interest.
II. The difference between the sum and the simple interest earned after 10 years is ₹1000.
130. What is the sum which earned interest?
I. The total simple interest was ₹7000 after 7 years.
II. The total of sum and simple interest was double of the sum after 5 years.
131. A train crosses a signal post in X seconds. What is the length of the train?
I. The train crosses a platform of 100 metres in Y seconds.
II. The train is running at the speed of 80 km/hr.
132. What is the area of a circle?
I. The circumference of the circle is 308 metres.
II. The radius of the circle is 28 metres.
133. A, B and C are integers. Is B an even number?
I. $(A + B)$ is an odd number.
II. $(C + B)$ is an odd number.
134. P, Q, R, S and T are sitting around a circular table facing the centre. Who is on the immediate right of R?
I. P and T are on the either sides of S.
II. Q is on the immediate left of T.
135. How is M related to D?
I. D says I have only one brother.
II. M says I have only one sister.
136. How is 'over' written in a code language?
I. 'go over there' is written as 'na ho ja' in that code language.
II. 'over and again' is written as 'pit tak na' in that code language.
137. B is F's brother. K is mother of F. How is F related to B?
I. K has only one son and one daughter.
II. B is the only son of M, who has two children.
138. Among M, T, R, D, B, each one of them having different weight, who is the third from top when they are arranged in descending order of their weights?
I. R is heavier than M and T but lighter than B.
II. M is lighter than R but heavier than T.
139. What will be the cost of painting of the inner wall of a room if the rate of painting is ₹ 20 per square metre?
I. Perimeter of the floor is 44 feet.
II. Height of the wall of the room is 12 feet.
140. What is the ratio of the number of boys and girls in a school?
I. Number of boys is 40 more than the girls.
II. Number of girls is 80 per cent of the number of boys.
141. What is the difference between two numbers?
I. First number is 60 per cent of the other number.
II. 50 per cent of the sum of first and second numbers is 24.
142. What was the speed of the running train?
I. Length of the train was 120 metre.
II. The train crossed the other train whose length was 180 m in 4 seconds.
143. What will be the compound interest after 3 years?
I. Rate of interest is 5 per cent.
II. The difference between the total simple interest and the total compound interest after two years is ₹ 20.
144. Which village is to the North-East of village A?
I. Village 'B' is to the North of village A, and village 'C' and 'D' are to the East and West of village 'B', respectively.
II. Village 'P' is to the South of village 'A', and village 'E' is to the East of village 'P', village 'K' is to the North of village 'P'.
145. Can Rohan retire from office 'X' in January 2000 with full pension benefits?
I. Rohan will complete 30 years of service in office 'X' in April 2000 and desires to retire.
II. As per office 'X' rules, an employee has to complete minimum 30 years of service and attain age of 60. Rohan has 3 years to complete age of 60.
146. Among five friends P, Q, R, S and T, who ranks third in terms of salary obtained by them?
I. T's salary is more than P and Q but not more than S.
II. R's salary is lowest among them.
147. How is P related to Q?
I. J has two daughters, one of them 'R' is married to 'P'
II. Q is the mother of 'S', the younger sister of 'R'
148. Which word in the code language means 'flower'?
I. 'dem fu la pane' means 'rose flower is beautiful' and 'la quiz' means 'beautiful tree'.
II. 'dem fu chin' means 'red rose flower' and 'pa chin' means 'red tea'.
149. How many marks did Prakash obtain in Mathematics?
I. Prakash secured on an average 55 per cent marks in Mathematics, Physics and Chemistry together.
II. Prakash secured 10 per cent more than the average in Mathematics.
150. What is the rate of compound interest on a sum of money?
I. The total compound interest at the end of two years is ₹ 820.
II. The total simple interest at the same rate on ₹ 5,000 at the end of three years is ₹ 750.

151. Which is the smaller of the two numbers?
I. The difference between these two numbers is one-third of the largest number.
II. The sum of these two numbers is 30.
152. What is the height of a right-angled triangle?
I. The area of the right-angled triangle is equal to the area of a rectangle whose breadth is 12 cm.
II. The length of the rectangle is 18 cm.
153. What is the speed of a running train which takes 9 seconds to cross a signal post?
I. The length of the train is 90 metres.
II. The train takes 27 seconds to cross a platform of 180 metres.
154. In an examination 'X' four tests P, 'Q, R and S are given. Which is the easiest one?
I. Most of the examinees attempted test, 'Q' first. While 'P' was left incomplete by many.
II. Test 'R' is found easier than test 'S' by all the examinees.
155. In a row of five A, B, C, D and E, who is standing in the middle?
I. D is to the immediate right of E and B is to the immediate left of E.
II. B is at the extreme left of the row.
156. What is the distance between villages 'X' and 'Y' by the shortest route?
I. Village 'X' is to the North of village 'Z' at a distance of 35 km.
II. Village 'Y' is to the west of village 'Z' at a distance of 20 km.
157. How is Sushma related to Nandini?
I. Sushma's husband is the only son of Nandini's mother.
II. Sushma's brother and Nandini's husband are cousins.
158. How many candidates were interviewed everyday by the panel 'A' out of the three panels A, B and C?
I. The three panels on an average can interview 15 candidates every day.
II. Out of a total of 45 candidates interviewed everyday by the three panels, the no. of candidates interviewed by panel 'A' is less by 2 than the candidates interviewed by panel 'C' and is less by 1 than the candidates interviewed by panel 'B'.
159. Which direction is Shashidhar facing?
Statements :
I. In the early morning Shashidhar was standing in front of a puppet and the shadow of the puppet was falling to the right of Shashidhar.
II. In the early morning Shashidhar was standing on the ground. His shadow was falling behind him when he turned to his left.
160. Who among A, B, C, D and E teaches History?
Statements :
I. Each one of them teaches only one subject. B teaches Mathematics, while E teaches Science. A or C does not teach Geography. A or D does not teach English.
II. C and E are teachers of English and Science respectively and A is the teacher of Mathematics.
161. In a row of boys facing South who is immediate left to Ramakant?
Statements :
I. Suresh is immediate right to Chandrakant, who is fourth to the right of Ramakant.
II. Suresh is third to the right of Ramakant and Naresh is second to the right of Suresh.
162. Who has secured the maximum marks among six friends A, B, C, D, E and F?
Statements :
I. B secured less marks than A and F but not less than C, D and E.
II. F secured more marks than B but not as much as A.
163. What will be the position of hour hand of a clock at 7.30 PM?
Statements :
I. There are English alphabets on the dial of the clock instead of digits.
II. The hour hand is at P at 7 O'clock.
164. Mahesh's flat is on which floor of the five-floor apartment?
I. His flat is exactly above Ganesh's flat whose flat is exactly above Nitin's first-floor flat.
II. Jeevan's flat, which is adjacent to Mahesh's flat, is exactly below Ahmed's flat, who is on fourth floor.
165. At present, how many villagers are voters in village 'X'?
I. There were 860 voters in village 'X' in the list prepared for the last election.
II. The present list of village 'X' has 15% more voters than the list for the last election.
166. How many stations are there while going from station 'X' to station 'Y'?
I. Station 'G' precedes station 'Y' and station 'K' is next station after station 'X'.
II. Station 'M' is third from 'K' and there are 4 stations between M and Y.
167. How many books did Dinesh purchase in 'X' bookshop?
I. Dinesh wanted to purchase 65 books, but only 45 books were available in shop 'X'.
II. Dinesh selected 37 books but had money to purchase 27 books and asked for some credit to which the shop-keeper of 'X' bookstall did not agree.
168. If the first day of a month is Thursday, how many days were there in that month?
I. The fourth Sunday happened to be on 25th.
II. The last day of the month was the fifth Saturday of that month.
169. How many girls are taller than Samir in his class?
I. When students of Samir's class are ranked in descending order of their height, Samir's rank is 17th from the top among all the students and 12th among boys.
II. Samir's rank from the bottom on the basis of height among boys is 18th and among all students is 29th.
170. Among Nitin, Amit, Sudesh, Rekha and Sujata, who came last for the programme?
I. Nitin came after Amit but not after Sujata.
II. Rekha came after Sujata but not after Sudesh.

171. (b) Out of the four teams A, B, C and D which team is not likely to win as per the opinion poll?
- I.** As per the opinion poll, chances of team C's winning are more than that of team A but not as much as that of team B, whose chances of winning are more than that of team A.
- II.** As per the opinion poll team C's chances of winning are less than that of team B but not less than that of team D, whose chances of winning are more than that of team A.

172. How is Pratibha related to Suresh?

- I.** Suresh's mother is Pratibha's mother-in-law.
- II.** Suresh is the only son of Sushila, who is Pratibha's mother-in-law.

173. Five friends P, Q, R, S and T are standing in a row facing East. Who is standing at the extreme right end?

- I.** Only P is between S and T ; R is to the immediate right of T.
- II.** R is between T and Q.

Directions (Qs. 174 - 188): In each of the following questions, a question is followed by information given in three statements. You have to study the question along with the statements and decide the information given in which of the statement(s) is necessary to answer the question.

174. What is the cost of flooring a rectangular hall?

- I.** The length and the breadth of the hall are in the ratio of 3 : 2.
- II.** The length of the hall is 48 metres and the cost of flooring is ₹ 850 per square metre.
- III.** The perimeter of the hall is 160 metres and the cost of flooring is ₹ 850 per square metre.
- (a) Only I and II (b) Only I and III
(c) Only III (d) Only I and either II or III
(e) Any two of the three

175. What is the rate of interest pcpa?

- I.** The amount doubles itself in 5 years on simple interest.
- II.** Difference between the compound interest and the simple interest earned on this amount in two years is ₹400.
- III.** Simple interest earned per annum is ₹ 2000.
- (a) Only I
(b) Only II and III
(c) Any two of the three
(d) All I, II and III
(e) Only I or only II and III

176. What is a two-digit number?

- I.** The difference between the two-digit number and the number formed by interchanging the digits is 27.
- II.** The difference between the two digits is 3.
- III.** The digit at unit's place is less than that at ten's place by 3.
- (a) Only I and II
(b) Only I and either II or III
(c) Only I and III
(d) All I, II and III
(e) Even with all the three statements the answer cannot be given.

177. What is the present age of Subir?

- I.** The present age of Subir is half that of his father.
- II.** After 5 years the ratio of Subir's age to his father's will be 6 : 11.
- III.** Subir is 5 years younger than his brother.
- (a) Only I and II (b) Only I and III
(c) Only II and III (d) All I, II and III
(e) Even with all the three statements answer cannot be given.

178. In how many days can 10 women finish a work?

- I.** 10 men can complete the work in 6 days.
- II.** 10 men and 10 women together can complete the work in $3\frac{3}{7}$ days.
- III.** If 10 men work for 3 days and thereafter 10 women replace them, the remaining work is completed in 4 days.
- (a) Only I and II (b) Any two of the three
(c) Only I and III (d) Only II and III
(e) None of these

179. What is Sudha's present salary?

- I.** The salary increases every year by 15%.
- II.** Her salary at the time of joining was ₹ 10000.
- III.** She had joined exactly 5 years ago.
- (a) II and III only (b) I and II only
(c) All I, II and III (d) I and III only
(e) None of these

180. What was the amount of profit earned?

- I.** 10% discount was offered on the labelled price.
- II.** Had there been no discount, profit would have been 30%.
- III.** Selling price was more than the cost price by 20%.
- (a) I and either II or III (b) Any two of the three
(c) All I, II and III (d) Either I or II and III
(e) Question cannot be answered even with the information in all three statements

181. How many students are there in all in the institute of Arts, Commerce and Science?

- I.** 20% of the student study Science.
- II.** The numbers of students studying Arts and Commerce are in the ratio 3:5
- III.** The number of students studying Commerce is more than that studying Science by 375.
- (a) II and III only (b) III and either I or II only
(c) Any two of the three (d) All I, II and III
(e) Question cannot be answered even with the information in all three statements

182. What is the cost of flooring a rectangular hall?

- I.** Perimeter of the hall is 76 m.
- II.** Area of the hall is 336 m^2 .
- III.** Cost of flooring per square metre is ₹ 550.
- (a) I and III only (b) II and III only
(c) Any two of the three (d) All I, II and III
(e) None of these

183. In how many days can a work be completed by A and B together?
- A alone can complete the work in 8 days.
 - If A alone works for 5 days and B alone works for 6 days, the work gets completed.
 - B alone can complete the work in 16 days.
- (a) Any two of the three (b) II and either I or III
(c) I and II only (d) II and III only
(e) None of these
184. What is the capacity of a cylindrical tank?
- The radius of the base is half of its height.
 - The area of the base is 616 sq. metres.
 - The height of the cylinder is 28 metres.
- (a) Only I and II (b) Only II and III
(c) Only I and III (d) All I, II and III
(e) Any two of the three
185. What is the speed of a train?
- The train crosses a signal pole in 18 secs.
 - The train crosses a platform of equal length in 36 secs.
 - Length of the train is 330 metres.
- (a) I and III only (b) II and III only
(c) I and II only (d) III and either I or II only
(e) Any two of the three
186. What is the staff strength of Company 'X'?
- Male and female employees are in the ratio of 2 : 3 respectively.
 - Of the officer employees 80% are males.
 - Total number of officers is 132.
- (a) I and III only
(b) II and either III or I only
(c) All I, II and III
(d) Any two of the three
(e) Question cannot be answered even with the information in all the three statements.
187. What is this two-digit number?
- The number obtained by interchanging the digits is more than the original number by 9.
 - Sum of the digits is 7.
 - Difference between the digits is 1.
- (a) I and III only (b) I and II only
(c) II and III only (d) All I, II and III
(e) Question cannot be answered even with the information in all the three statements.
188. How many articles were sold?
- Total profit earned was ₹ 1,596.
 - Cost price per article was ₹ 632.
 - Selling price per article was ₹ 765.
- (a) II and III only (b) I and II only
(c) All I, II and III (d) Any two of the three
(e) Question cannot be answered even with the information in all the three statements.
- Directions (Qs. 189 - 193) :** Each of the questions below consists of a question and three statements denoted A, B and C are given below it. You have to study the questions and all the three statements and decide whether the question can be answered with any one or two of the statements or all the statements are required to answer the question.
189. What is R's share of profit in a joint venture?
- Q started a business investing ₹. 80,000/-.
 - R joined him after 3 months.
 - P joined after 4 months with a capital of ₹. 1,20,000 and got ₹. 6,000 as his share of profit.
- (a) Only A and C are required
(b) Only B and C are required
(c) All A, B and C together are required
(d) Even with all A, B and C the answer cannot be arrived at
(e) None of these
190. What is the area of a right-angled triangle?
- The perimeter of the triangle is 30 cm.
 - The ratio between the base and the height of the triangle is 5 : 12.
 - The area of the triangle is equal to the area of a rectangle of length 10 cm.
- (a) Only B and C together are required
(b) Only A and B together are required
(c) Only either A or B and C together are required
(d) Only A and C together are required
(e) None of these
191. What is the sum of two numbers?
- The bigger of these two number is 6 more than the smaller number.
 - 40% of the smaller number is equal to 30% of the bigger number.
 - The ratio between half of the bigger number and one-third of the smaller number is 2:1.
- (a) Only B and C together are required
(b) Only A and B together are required
(c) Any two of A, B and C together are required
(d) All A, B and C together are required
(e) None of these
192. How many marks did Arun get in English?
- Arun secured an average of 60 marks in four subjects including English.
 - He secured a total of 170 in English and Mathematics together.
 - He secured a total of 180 in Mathematics and Science together.
- (a) All A, B and C together are required
(b) Only A and B together are required
(c) Only B and C together are required
(d) Only A and C together are required
(e) None of these
193. What was the profit earned on the cost price by Mahesh by selling an article?
- He got 15% concession on labelled price in buying that article.
 - He sold it for ₹. 3,060/-.
 - He earned a profit of 2%, on the labelled price.
- (a) Only A and B together are required
(b) Only B and C together are required
(c) Only either A or C and B together are required
(d) Even with all A, B and C the answer cannot be arrived at
(e) All A, B and C together are required

Directions (Qs. 194-198): In each of the following questions, a question is asked followed by three statements. While answering the question, you may or may not require the data provided in the statements. you have to read the question and the three statements and then decide whether the question can be answered with any one or two of the statements or all the three statements are required to answer the question. The answer number bearing the combination of statements or single statement which is necessary to answer the question is your answer.

194. What is the perimeter of a rectangular garden?

- A. The area of the garden is 2400 sq. metres.
- B. The diagonal of the garden is 50 metres.
- C. The ratio between the length and the breadth of the garden is 3 : 2.
- (a) All A, B and C together are required
- (b) Any two of A, B and C are sufficient
- (c) Only A and B are required
- (d) Only B and C are required
- (e) None of these

195. What was the rate of compound interest on an amount of money?

- A. The amount fetches a total of ₹ 945.75 as compound interest at the end of three years.
- B. The difference between the total simple interest and the total compound interest at the end of two years with the same rate of interest was ₹ 15.
- C. The ratio between the principal amount and the total simple interest at the end of three years is 20 : 3.
- (a) Only A and B are required
- (b) Only B and C are required
- (c) All A, B and C together are required
- (d) Even with all A, B and C together the answer cannot be determined
- (e) None of these

196. What is the difference between two numbers X and Y?

- A. X is 20 per cent more than another number Z.
- B. Y is 20 per cent less than Z.
- C. The sum of Y and Z is 72.
- (a) Only A and B are required
- (b) Only A and C are required
- (c) All A, B and C together are required
- (d) Any two of A, B and C are required
- (e) Even with all A, B and C together the answer cannot be arrived at

197. What is the monthly salary of Pravin?

- A. Pravin earns ₹ 1,200 more than Amal.
- B. The ratio between Amal and Vimal's monthly salary is 5 : 3.
- C. Vimal earns ₹ 1,000 less than Amal.
- (a) Any two of A, B and C are required
- (b) Only A and B are required
- (c) Only B and C are required
- (d) All A, B and C together are required
- (e) None of these

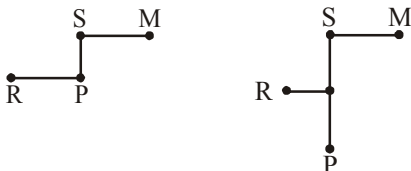
198. How much marks was obtained by Mukesh in Geography?

- A. The average marks obtained by Mukesh in English, History and Geography was 65.
- B. The difference between the marks obtained by Mukesh in English and History was 15.
- C. The total marks obtained by Mukesh in Geography and Mathematics was 140.
- (a) All A, B and C together are required
- (b) Only A and C are required
- (c) Only B and C are required
- (d) Even with all A, B and C together the answer cannot be determined
- (e) Any two of A, B and C are sufficient

ANSWER KEY

1	(d)	21	(c)	41	(d)	61	(d)	81	(d)	101	(b)	121	(e)	141	(e)	161	(d)	181	(d)
2	(e)	22	(d)	42	(b)	62	(d)	82	(d)	102	(d)	122	(c)	142	(e)	162	(e)	182	(b)
3	(d)	23	(e)	43	(c)	63	(e)	83	(d)	103	(d)	123	(d)	143	(e)	163	(d)	183	(a)
4	(e)	24	(d)	44	(d)	64	(d)	84	(a)	104	(c)	124	(e)	144	(a)	164	(c)	184	(e)
5	(d)	25	(d)	45	(e)	65	(c)	85	(d)	105	(d)	125	(d)	145	(d)	165	(e)	185	(d)
6	(d)	26	(d)	46	(a)	66	(e)	86	(c)	106	(b)	126	(b)	146	(d)	166	(e)	186	(e)
7	(d)	27	(b)	47	(c)	67	(c)	87	(b)	107	(c)	127	(e)	147	(e)	167	(b)	187	(b)
8	(c)	28	(a)	48	(c)	68	(e)	88	(e)	108	(c)	128	(e)	148	(d)	168	(b)	188	(c)
9	(b)	29	(c)	49	(c)	69	(d)	89	(a)	109	(e)	129	(a)	149	(d)	169	(a)	189	(d)
10	(e)	30	(e)	50	(d)	70	(b)	90	(d)	110	(b)	130	(e)	150	(b)	170	(e)	190	(b)
11	(d)	31	(d)	51	(b)	71	(e)	91	(a)	111	(b)	131	(c)	151	(e)	171	(b)	191	(e)
12	(d)	32	(e)	52	(e)	72	(d)	92	(d)	112	(d)	132	(c)	152	(d)	172	(b)	192	(e)
13	(b)	33	(a)	53	(c)	73	(c)	93	(c)	113	(e)	133	(d)	153	(c)	173	(e)	193	(e)
14	(a)	34	(d)	54	(b)	74	(e)	94	(c)	114	(a)	134	(e)	154	(c)	174	(e)	194	(b)
15	(e)	35	(c)	55	(a)	75	(d)	95	(b)	115	(d)	135	(d)	155	(e)	175	(e)	195	(e)
16	(a)	36	(c)	56	(e)	76	(e)	96	(e)	116	(c)	136	(e)	156	(e)	176	(e)	196	(c)
17	(d)	37	(b)	57	(d)	77	(d)	97	(b)	117	(e)	137	(c)	157	(c)	177	(a)	197	(d)
18	(a)	38	(d)	58	(c)	78	(d)	98	(d)	118	(a)	138	(d)	158	(b)	178	(b)	198	(d)
19	(b)	39	(a)	59	(d)	79	(d)	99	(b)	119	(e)	139	(d)	159	(c)	179	(c)		
20	(c)	40	(d)	60	(d)	80	(c)	100	(e)	120	(d)	140	(b)	160	(a)	180	(e)		

Hints & Explanations

1. (d) For solving this question, we want two equations in terms of P and Q.
2. (e) Combining both the statements together.
Let the labelled price be ₹ 100.
Now, SP of the suitcase = 125% of 100
= ₹ 125
$$\therefore \text{Labelled price} = \frac{2000}{125} \times 100 = ₹ 1600$$
$$\therefore \text{CP of the suitcase} = 1600 \times \frac{3}{4} = ₹ 1200$$
3. (d) Here, we do not know the type of triangle. If the triangle is right-angled, then the height can be determined with the help of statement I alone.
4. (e) Combining both the statements together, 800
$$\text{Rate of interest} = \frac{800}{2 \times 8000} \times 100 = 5\%$$
5. (d) Here distance is not given.
6. (d) **From I:** ja na pit sod = beautiful bunch of flowers
From II: na sod pa tok = huge bunch of twigs
Even using I & II together, we can't determine the code of *pit*. It may be *beautiful* or *flowers*.
7. (d) **From I:** S M **From II:** S
R
Using I & II, we get

- Hence, 'P' may be east of 'R', or 'P' may be southeast of 'R', or 'P' may be north-east of 'R'.
8. (c) **From I:** (+) M $\leftrightarrow$ K (-)
P R
Clearly, 'M' is father of R.
From II:
N - M(-) $\leftrightarrow$ $\square$
R
Clearly 'M' is mother of R.
9. (b) **From I:** R > T > Q, V
The position of S is not known. Hence I alone is not sufficient.
From II: R, S > T > Q > V
It is clear that when they are arranged in ascending order, T is third from the top.
10. (e) **From I:** The election was held some day between 14th and 16th.
From II: The election was held after 15th.
Using I & II we get election was held on 16th.
11. (d) Let the original number be $10x + y$.
I. Case (A): $x + y = 10$ and $x : y = 1 : 4$

$$\therefore x = \frac{1}{5} \times 10 = 2 \text{ and } y = 8 \text{ and}$$

$$\therefore \text{Number} = 10 \times 2 + 8 = 28, y = 2$$

Case (B): $x + y = 10$ and $y : x = 1 : 4$

$$\therefore x = \frac{4}{5} \times 10 = 8 \text{ and } y = 2$$

$$\therefore \text{Number} = 10 \times 8 + 2 = 82$$

II. Case (A): $xy = 16$ and $\frac{x}{y} = 4$

$$x = \frac{16}{y} \text{ and } x = 4y$$

$$\therefore 4y = \frac{16}{y} \Rightarrow y = 2 \text{ and } x = 8$$

$$\therefore \text{Number} = 10 \times 8 + 2 = 82$$

Case (B): $xy = 16$ and $\frac{y}{x} = 4$

$$y = \frac{16}{x} \text{ and } y = 4x$$

$$\therefore 4x = \frac{16}{x} \Rightarrow x = 2 \text{ and } y = 8$$

$$\therefore \text{Number} = 10 \times 2 + 8 = 28$$

From both the statements, we get two numbers 28 and 82. Hence the original number can't be determined.

12. (d) **I.** $1331 = p \left(1 + \frac{\text{rate}}{100} \right)^{\text{time}}$

II. $1331 = p \left(1 + \frac{\text{rate}}{100} \right)^3$ [using statement I]

In the statement II, we have two variables but one equation, hence can't be determined.

13. (b) From statement I we can not determine the ages of father and mother

II. $\frac{M - 4}{F - 4} = \frac{12}{13}$

or, $13M - 52 = 12F - 48$

or, $13M = 12 \times 30 - 48 + 52 = 364$

$$\therefore M = 28 \text{ years}$$

Hence, only statement II alone is sufficient.

14. (a) **I.** No. of children = $\frac{240}{16} = 15$

15. (e) **Combining both the statements**

$$\text{Percentage profit} = \frac{15000 - 14000}{14000} \times 100 = 7\frac{1}{7}\%$$

16. (a) To answer the question we need one of the following:
a. Cost price of the product
b. Selling price of the product

- c. Difference of the selling price and the cost price
From I: We get that the required profit is ₹ 40.
 $[\because \text{Profit} = \text{Selling price} - \text{Cost price}]$
From II: It is restatement. Because when profit earned is 20% then obviously selling price will be 120% of the cost price.
 Thus, only statement I alone is sufficient.
17. (d) We know sum of the speeds of the trains.

$$= \frac{\text{Sum of the length of the trains}}{\text{Time taken to cross each other when the trains are running in opposite direction}}$$

From I: $S_1 = S_2$ and $L_1 = L_2$
 where S_1 and S_2 are speeds of the trains and L_1 and L_2 are the lengths of the trains.
 These informations do not lead us to answer.
 Hence, not sufficient.
 Again, **From II:** We get,

$$\frac{L_1}{S_1} = 5$$

 Hence, II alone is also not sufficient.
From I and II: We still lack information regarding the length and the speed of the train.
 Hence, statement I and II even together are not sufficient.
18. (a) **From I:** Digit at ten's place – digit at unit's place = 9.
 This can be possible only in the case of 90. Hence, statement I alone is sufficient.
From II: The sum of two digits is equal to the difference between the two digits. This implies that unit's place digit is 0. And digits at ten's place may be any of the remaining nine digits. Hence, statement II alone is not sufficient.
19. (b) **From II:** Radius of the sphere in question part will give us the volume of the sphere as well as that of the right circular cylinder. We know height of right circular cylinder

$$= \frac{\text{Volume of the cylinder}}{\text{Area of the base of the cylinder}}$$
20. (c) **From I:** We will get the answer in following way:
 Diagonal of the square → Side of the square
 → Area of the square → Area of the circle
 → Radius of the circle → Circumference of the circle.
 Hence, statement I alone is sufficient. Similarly, we will get the answer also with the help of statement II alone.
22. (d) pat nic no ran = what is your name nic sa ran ja = my name is Shambhu 'nic' and 'ran' is common in both sentences. Hence 'nic' means 'is' or 'name'.
23. (e) **From I:**
 $L(-) - (-) N - M$
From II:
 $K(-)$
 $|$
 $N(-)$
 Now, combining I and II, we get $K(-)$
 $L(-) - N(-) - M(+)$
 K has two daughters.
24. (d) From I, S is either R 's sister or brother-in-law. II is no help either.
25. (d) **From I:**
 $J(-) - M - K$
- From II:**
 $K(+) - D$
 Combining all, we get, $J(-) - M - K(+) - D$ Hence, 'D' may be either brother or sister of J .
27. (b) **From I:**
 $C > B, E$.
From II:
 $E > D, A \dots (i) D > B, C \dots (ii)$
 From (i) and (ii), E is the tallest.
28. (a) **From I:** Total fruits = 100
 50% of = 50
 Hence, number of oranges and bananas is 50.
 Therefore, number of apples = $100 - 50 = 50$. Hence only statement I alone is sufficient. Statement II does not give any absolute figure of fruits or apples.
29. (c) **From I:** We get the ratio of sides. Since, we have been given the total area of the playground in the question, we will get the answer through the following steps:
 Area → Side → Perimeter
From II: Rate of fencing and total cost of fencing is sufficient to answer, because Perimeter $\times$ rate of fencing (₹/m) = Total cost (in rupees)
 Hence, either statement I or statement II alone is sufficient.
30. (e) **From I:** We get
 First presentation : 23rd (Tuesday)
 Second presentation : 24th (Wednesday) : D
 Third presentation : 25th (Thursday)
 Fourth presentation : 26th (Friday)
From II: A did not make his presentation on 25th and one of them made his presentation between A and B.
From I and II: 'A' did not make his presentation on 26th also, because 'D' made presentation on 24th. Hence, 'A' made presentation on 23rd, 'B' on 25th and 'C' on 26th.
31. (d) We have no idea about the location of Durgapur, Devipur and Rampur. Mere distances between Durgapur and Rampur and Devipur and Rampur are not enough to locate the places.
32. (e) **From I:** code for 'We' is 'nop'.
From II: code for 'play' is 'al'.
 Hence, from I and II together code for 'chess' is 'ed'.
33. (a) Within ten days means before 28th Feb because advertisement was released on 18th February.
34. (d) We have been given
 $\text{Kiran} > \text{Manoj} \dots (i)$
 $\text{Dilip} > \text{Neelam} \dots (ii)$
 Now, who is the youngest? We need information by which the above equations can be combined into a single equation.
From I: If $\text{Kiran} > \text{Neelam}$ then either Manoj or Neelam will be the youngest.
From II: If $\text{Dilip} > \text{Manoj}$ then either Manoj or Neelam be the youngest.
 Hence, neither I nor II is sufficient.
35. (c) We have been given 'B' is the sister of 'A'. To answer 'How is 'A' related to 'B'' we need information regarding the sex of 'A'.
From I: If 'A' is the brother of 'C', obviously 'A' is a male.
From II: if 'A' is the uncle of 'D', obviously 'A' is a male.
 Hence, either I or II is sufficient.

36. (c) **From I:** Required rank = $70 - 17 + 1 = 54$

From II: Total students in Bindra's class = $51 + 20 - 1 = 70$

Now, required rank = $70 - 17 + 1 = 54$

37. (b) We have been given

Mandar > Sunil(i)

Abhishek > Raghu(ii)

From I: We get either Raghu or Sunil is the shortest.

From II: Mandar > Sunil > Abhishek > Raghu.

Hence, Raghu is the shortest.

38. (d) I alone is not sufficient because the word 'go' is absent in statement I. Statement II alone is not sufficient because there is no such indication by which we can find out code for 'go'. Note that you can't assume that the codes used for words of the statement are in the same order as the words are.

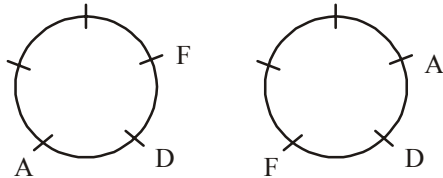
Now, when we use the data given in both statement, we can get code for 'may' only, i.e., 'pic'.

39. (a) **From I:** P, S > Q, T, V

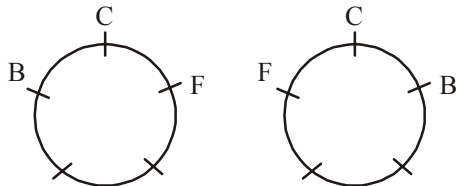
Since none of them is the heaviest. Hence, R is the heaviest among them.

From II: R > P > S

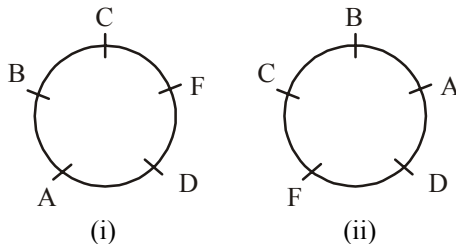
40. (d) **From I:**



From II:

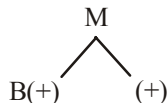


From I and II:

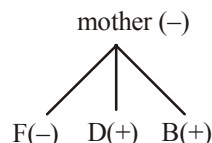


The person who is immediate right of B is either A or C

41. (d) **From I:**



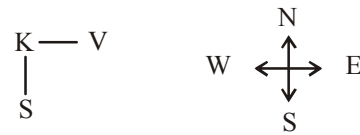
From II:



Both the statements I and II are not independently sufficient because statement I does not say about F and statement II does not say about M.

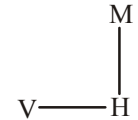
From statement I and II together, F is the daughter of M. But we don't know the sex of M.

42. (b) **From I:**



[Information regarding H is absent. Hence, I alone is not sufficient]

From II:



Hence, H is to the east of V

43. (c) **I** $CP = 90 \times \frac{100}{120} = ₹ 75$

Profit = $90 - 75 = ₹ 15$

Profit on S.P. = 100

Profit on S.P. will be = $100 - 75 = ₹ 25$

II. $SP = CP + \text{Profit}$

or, $x + \frac{x}{3} = 100$

or, $x = \frac{100 \times 3}{4} = 75$

$\therefore \text{Profit} = \frac{75}{3} = ₹ 25$

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

44. (d) The length of the other train is not given in any of the statements.

45. (e) Let the digits be x and y . We have given $x - y = 6$ (Assume $x > y$)

From statement I: x occupies units place.

From statement II: $x + y = 12$

With the help of information in the question part and in statement II, we can find the value of x and y easily because there are two equations to know about two unknowns. But to determine the number we need the help of statement I.

46. (a) Statement I alone is sufficient to answer the question. We know that whenever any odd number is divided by any odd number, it gives an odd number.

47. (c) We know the capacity of a cylindrical tank can be found out by using the following formula:

Area of the base of cylinder $\times$ height of cylinder

or $\pi r^2 \times h$ where r = radius of cylinder

h = height of cylinder

Now,

Statement I gives the value of r and h . Hence, statement I alone is sufficient. Again, statement II gives information about area of the base and height. Hence, statement II alone is also sufficient.

48. (c) (I) $250R + 500 = 12500 \left[\left(1 + \frac{R}{100} \right)^2 - 1 \right]$

$\Rightarrow R = 20\%$

(II) $5000 = \frac{12500 \times R \times 2}{100} \Rightarrow R = 20\%$

Hence either I or II is sufficient.

49. (c) **From statement (I),**
 Length of the train = $54 \times \frac{5}{18} \times 20 = 300$ m
From statement (II),
 Let the length of train be d m.
 $\frac{d}{20} = \frac{d+150}{30}$
 $\Rightarrow d = 300$ m
 Hence, either (I) or (II) is sufficient.
50. (d) From both the statements, we get the value of radius only. Hence, even after combining together, depth can't be determined.
51. (b) **From statement (II) alone,**
 let the number of columns be C .
 $\therefore$ No. of rows = $\frac{3}{4}C$
 $\therefore$ No. of children = $\frac{3}{4}C^2$
 $\therefore \frac{3}{4}C^2 = 48$
 $\Rightarrow C = 8$
 The number of children seated in each row is equal to the number of columns = 8
 Hence, statement (II) alone is sufficient.
52. (e) **Combining statements (I) and (II),**
 $2x + 2x + x = 25 \Rightarrow x = 5$
 $\therefore$ Area of the triangle = $\sqrt{12.5 \times 2.5 \times 2.5 \times 7.5}$
 $= 24.20 \text{ cm}^2$
 Height of the triangle = $\frac{2 \times 24.20}{10} = 4.84 \text{ cm}$
53. (c) **From I:**
 $K > T > R, M, Q$
 Hence, 'K' is tallest among them.
From II:
 $K > R, T, M > Q$
 Hence, 'K' is tallest among them.
54. (b) **From II:**
 (October + 12 + 2 =) December.
 Hence, Mohan was born in December.
55. (a) **From I:**

P	D
S	

From II:

D	D	D
RP	PR	R
		P

 D is east of P .
 Many arrangements are possible.
 Hence, we can't determine
56. (e) **From I:**
 $P(+)-K-T$
From II:
 $Q(-) \leftrightarrow M(+)$
 $T(-)$ Using I and II together, we set
 $Q(-) \leftrightarrow M(+)$
 $T(-)-K-P(+)$
 Hence, 'P' is son of 'M'.
58. (c) **From I:** Meena's rank is $(5 + 2 =)$ 7th from the top.
From II: Meena's rank is $(11 - 3 =)$ 8th from the top.
59. (d) **From I:** $S > T, P$ and W . And at least one person is taller than S .
From II: $Q > T$ And at least one person is shorter than T .
 From I and II even together, we get no clue regarding the shortest person.
60. (d) **From I:** 'pit jo ha' $\Rightarrow$ very good boy ... (i)
From II: 'jo na pa' $\Rightarrow$ she is good ... (ii)
 From I and II, we get 'jo' means 'good'. But still we do not know whether 'pit' or 'ha' means 'very'.
61. (d) The information given in both the statements I and II together gives no clue about which day of the week Pramod was born on.
62. (d) Both the statements I and II even together can't specify the sex of K .
63. (e) **From I:** $C > B > D$ **From II:** $A > E > C$
 Combining both, we get, $A > E > C > B > D$
 Hence, both statements together are necessary.
64. (d) From I, it can't be determined how many girls are there behind Mita, and hence, total no. of girls can't be found out. Hence, II has no use.
65. (c) **From I:** $R - PQ$ (Hence, Q is immediate right of P .)
From II: PQT (Hence, Q is immediate right of P .)
66. (e) **From I:**
 $X \quad P-Z$
 $| \quad |$
 $Y \quad Y$
 (i) (ii)
 Combining (i) & (ii),
 $X \quad P-Z$
 $| \quad |$
 $P-Z \quad \text{or} \quad X$
 $| \quad |$
 $Y \quad Y$
 (South-East) (A) (North-East) (B)
From II:
 X
 $|$
 P
 Now, using I & II together, 'A' will be valid.
67. (c) **From I:**
 $P \leftrightarrow Q(+)$
 $|$
 $(\heartsuit)N-M(+)$ (P is mother of N)
From II: $Q \leftrightarrow P(-)$
 $|$
 $M(+)-N$ (P is mother of N)
68. (e) Here two data values are important; the speed of the boat (V_B) and that of waterflow (V_w). So, we must need two equations to find the value of any of them.
 So,
From I: $V_B - V_w = \frac{48}{6} = 8$ (i)
From II: $V_B + V_w = \frac{48}{4} = 12$ (ii)
 Solving (i) and (ii), V_B can be determined.

69. (d) The population of state A for a given year (1996) is not given in any of the statements.
70. (b) **From I:** This is possible only when one digit is zero. So, there are so many possible answers, e.g., 10, 20, 30. **From II:** This is possible only when one digit is 9 and another is zero (0). As the required no is a two-digit no., 90 is the only solution.
71. (e) $I \Rightarrow M = 5S \dots (1)$
 $II \Rightarrow M - 5 = 25(S - 5) \dots (2)$
 Solving the two equations, we get value of M . Thus, both statements are required.
72. (d) **From I:** Let there be n children in the class. Then the age of the teacher = n years. Also assume average age of children = x years.
From II: Using I, we get

$$\frac{nx + n}{n + 1} = x + 1$$

 Hence, no answer can be determined.
73. (c) **From I:** If there are sixteen students towards left of Sunil then Sunil is at $(16 + 1 =)$ 17th position from the left end and $(40 - 17 + 1 =)$ 24th position from the right end.
From II: If there are twenty-three students towards right of Sunil then Sunil is at $(23 + 1 =)$ 24th position from the right end and $(40 - 24 + 1 =)$ 17th position from the left end.
74. (e) **From I:** Varun's birthday may be 16th, 17th or 18th April.
From II: Varun's birthday may be 13th, 14th, 15th or 16th April. Now,
From I and II: Varun's birthday is on 16th April.
75. (d) We do not know whether the codes of the given words are in the same order as the order of the words. Therefore, statement I alone is not sufficient. Again, statement II does not consist of the word 'go'. Hence, statement II alone is not sufficient. Even statements I and II together give the code for 'may' only.
76. (e) **From I:** K and R are sisters of M .
From II: * (Father of K) - # (Mother of D)
-
- From I and II:**
- Thus, D is the cousin of M .
77. (d) **From I:** $J > R > T$ or K
From II: Atleast one person is heavier than J .
From I and II: We get
 $M > J > R > T$ or K
 Hence, both the statements I and II together are insufficient to answer who among T or K is the lightest.
78. (d) Both the information lack the requisite information, viz direction of Achalpur with respect to Durgapur.
79. (d) When were 12 years completed? If Y completed 12 years sometime in 2002, he will be entitled to promotion only after Dec 31, 2002.
80. (c) Both the statements are independently sufficient. Statement I gives the side of the square, since side of a square = perimeter $\div$ 4. Again, statement II gives information about the length of the side AB. If we have information about the length of the side of a square, we can easily find the area of the square by squaring the side.
81. (d) Neither statements talk about the sex of M .
82. (d) **From statement I:**
 Probable dates are: 8th or 9th May
From statement II:
 Probable dates are: 6th, 7th, 8th or 9th May.
From I and II together:
 Probable dates are: 8th or 9th May.
83. (d) Neither statements talk about the sex of A .
84. (a) Statement II gives information in terms of percentage. Hence, II is not sufficient. But I is certainly sufficient.
85. (d)
86. (c) Given: 'sin co bye' means 'He is good'
 From I: 'co mot det' means 'They are good'
 From II: 'sin mic bye' means 'He is Honest'
 After a comparison between the given information and statement I we get 'co' is the code for 'good'. Similarly, after a comparison between the given information and statement II we get 'sin' and 'bye' as the codes for 'He' and 'is'. Thus 'co' is the code for 'good'.
87. (b) **From I:** $(A + C) > B > (E + D)$ We can't answer the question on the basis of statement I. We need some more information.
From II: $C > A > (E + D)$ And 'C' has the second position in descending order of their salaries. Hence B is the highest salary earner.
88. (e) I alone is not sufficient because we do not know about the number of girls. Similarly, II alone is not sufficient because the given information merely gives the ratio of boys and girls (145 : 100). Now combining I and II, we get 90 = 45% of total girls.
 Obviously, total strength = 245% of total girls

$$= \frac{90}{45} \times 245 = 490$$

 Thus, both the statements are necessary.
89. (a) Suppose the digit at unit's place be x and the digit at unit's place by y .
 Then the number = $10y + x$
 From I: We get
 $x + y = 9$ (i)
 and $x - y = 9$ (ii)
 Obviously, the value of either x or y must be zero. But if we consider zero at ten's place then the value will be considered as a single-digit number. Hence, the number is 90.
 Statement II merely says $x > y$. With the help of this information we can't get the number.
90. (d) We know

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

 where P = Principal
 I = Interest
 t = Time for which amount is invested
 r = Rate of compound interest (annual)
From I: $t = 4$ years
From II: $I = ₹ 1491$
 Still we need the principal. Hence, both I and II even together are not sufficient.
91. (a) We know the sum of the three angles of a triangle is 180° .
From I: We get sum of the other two angles is 130° . Obviously, the third angle is $(180^\circ - 130^\circ =)$ 50° .
From II: We can't say about the proportion of the third angle if we have been given the sum of the second and the third angles.

92. (d) Suppose the distance through the boat route be D km. And the speed of the boat in still water be a km/h and the speed of the current be b km/h. Then

From I :

$$\frac{D}{a+b} + \frac{D}{a-b} = 4$$

From II :

$$a = 5 \text{ km/h}$$

Still we need ' b '. Hence, both the statements even together are not sufficient.

93. (c) We know volume of a cylindrical tank $= \pi r^2 h$ where r = radius of the base of the cylinder, and h = height of the cylinder. In the question part we have been given $h = 32m$

From I : Area of the base $(\pi r^2) = 154m^2$

From II : Diameter of the base $(2r) = 14m$. Obviously, both the informations independently can fulfil our need.

94. (c) In the question part we have been given: Age of Aparna = $2 \times$ age of Savita, ie the present ratio of Aparna and Savita = $2 : 1$

From I : Aparna Savita

$$\begin{array}{ccc} 2 & : & 1 \\ +5_1 & 9 & : & 5_2 \end{array}$$

Difference of Aparna's and Savita's ages

$$= \frac{5_1 \times (9 - 5_2)}{5_2 \times 2 - 9 \times 1} \times (2 - 1)$$

$$= \frac{5 \times 4 \times 1}{1}$$

$$= 20 \text{ years}$$

From II: Aparna Savita

$$\begin{array}{ccc} 2 & : & 1_1 \\ -10 & 3 & : & 1_2 \end{array}$$

Difference of Aparna's and Savita's ages

$$= \frac{10 \times (3 - 1_2)}{3 \times 1_1 - 2 \times 1_2} \times (2 - 1_1)$$

$$= \frac{10 \times 2 \times 1}{3 - 2} = 20 \text{ years}$$

95. (b) We know the length of a train = speed in m/sec $\times$ time (in seconds) taken by train to cross a pole.

Suppose the speed of the train be x m/sec and the length L_1 .

Therefore, $L_1 = 10x$

$$\text{From I : } \frac{L_1 + L_2}{x + 80 \times \frac{5}{18}} = 22$$

$$\therefore \frac{10x + L_2}{x + 80 \times \frac{5}{18}} = 22$$

Still we need the value of L_2 to find the value of ' x '. Hence, I alone is not sufficient.

$$\text{From II : } x = \frac{108 \times 5}{18} = 30 \text{ m/sec}$$

Obviously, $L_1 = 10 \times 30 = 300 \text{ m}$. Hence, only II alone is sufficient.

96. (e) We know
Area of a rectangle = Length $\times$ Breadth

Suppose the length and the breadth of the rectangle be x and y respectively.

From I : $x - y = 5$.

Hence, I alone is not sufficient.

From II : Diagonal of the rectangle $(\sqrt{x^2 + y^2}) = 10$

$$\text{ie } x^2 + y^2 = 100$$

Hence, II alone is not sufficient.

Now we know two unknowns can be obtained through two different equations.

Hence, both I and II together are sufficient.

97. (b) Any number, whether it is an odd or even integer, gives an even number when multiplied by an even number. Hence, I alone is not sufficient. But, II alone is sufficient because

(i) odd integer $\times$ odd number = odd number

(ii) even integer $\times$ odd number = even number

With the help of only statement II we can say 'yes' as our answer.

98. (d) **From I and II :** We get code for 'flower' is either *ho* or *pa*. Still, we need some more information to answer the question.

99. (b) Statement I alone is not sufficient because the statement mentions nothing about K. Now, from II we get.

$M - K$

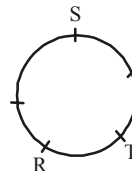
|

T

Thus, K is towards north-east of T.

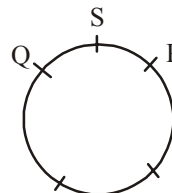
100. (e) Statement I alone is not sufficient because it mentions only M's position in the row. Whereas statement II hints only the position of P in the row, ie $(10 + 1 =) 11$. Thus from I and II, we get required number of children = $(15 - 1) - 3 = 11$

101. (b) **From I :** We get



Since position of P still not clear, statement I alone is not sufficient.

From II: We get



Obviously, Q is second to the right of P. Hence, statement II alone is sufficient.

102. (d) **From I and II:** We get

$D > B \dots (i)$

$K > W > M \dots (ii)$

Still, we lack some clue as to whether B or M is the youngest. Hence, both statements I and II even together are not sufficient.

103. (d) From I: Na Ni Nok Ne $\rightarrow$ I will tell you ... (i)

Ni Nok Ne Nam $\rightarrow$ he will tell you ... (ii)

From (i) & (ii) Na $\rightarrow$ I and Nam = he

- From II:** Ni Ne Mo Nam $\rightarrow$ will he call you ... (iii) Ne Mok Sac Ni $\rightarrow$ how will you go ... (iv)
Ne Ni is common in all the four statements. Exact transformation of Ne can't be determined.
104. (c) **From I:** $P > R, P > T, U > P, U > Q, U > S \rightarrow U$ is tallest. [Since U is taller than P, Q & S and P is taller than R and T]
From II: $R < U, P < Q \dots$ (i); $Q > P \dots$ (ii)
From (i) and (ii) $R < P < Q < U$
Hence U is tallest.
106. (b) **From I:** $Q(-) - N(+)$ — S
 $\downarrow$
 $P(+)$ — $L(-)$
 N is maternal uncle of P .
From II: $(+)M - (+)K - L(-)$
 $\downarrow$
 $G(-)$
 M is the paternal uncle of P
107. (c) **From I:** Ramesh = 17th
 $\therefore$ Shyam = $(17 + 6 =)$ 23th
 Sudin = $(23 + 7 =)$ 30th
From II: Savita = 17th
- $\begin{array}{ccccc} & & \downarrow & & \downarrow \\ \text{Suketu} & \rightarrow 25 & \rightarrow & \text{Sudin} & \rightarrow 5 & \rightarrow \text{Shyamala} \\ & \leftarrow 15 & \leftarrow & \text{Savita} & \leftarrow 15 & \leftarrow \end{array}$
109. (e) $SP = \frac{(3350 + 150) \times \frac{105}{100}}{50}$ per kg = ₹ 73.5 per kg
110. (b) Ratio of men : women : children = 5 : 4 : 2
113. (e) **From I:** Ratio of boys and girls = 3k : 4k
From II: No of girls — No of boys = 18
From I and II:
 $4k - 3k = 18 \quad \therefore k = 18$
 $\therefore 4k + 3k = 18 \times 7 = 126$
114. (a) Only I alone is sufficient.
115. (d) To find out the cost of laying carpet we need (i) cost of carpet per square metre and, (ii) Area of the floor to be carpeted.
 Both the information even together are not sufficient to fulfil our need.
116. (c) We know, if we have been given difference of CI and SI during two years, then this difference (D) is equal to $\frac{P \times r^2}{100^2}$ where P = Principal r = rate of interest
From I: We get the value of P and D . Hence, I alone is sufficient.
- Again we know $SI = \frac{P \times R \times T}{100}$
 where P = principal
 R = rate of interest
 T = time period
From II: We get value of $P = x$ (say).
 Then $SI = x$ and $T = 6\frac{2}{3}$ years
 Hence, using the above formula we can get rate of interest from II alone also.
117. (e) Suppose units place of number is occupied by y and tens place by x .
From I: $(10x + y) - (10y + x) = 63$
 $\Rightarrow 9x - 9y = 63$
 $\Rightarrow x - y = 7 \quad \dots(i)$
From II: $x + y = 11 \quad \dots(ii)$
 From eqns (i) and (ii), $x = 9, y = 2$
 Hence, required number = 92
118. (a) **From statement I,**
 Ratio of the costs of first, second and third necklace is 6 : 5 : 7. Hence, the price of second necklace can be calculated.
119. (e) **From Statement I,**
 Rate of an item = $\frac{4500}{x} \quad \dots(i)$
 Here x = total number of items
Combining statement II and (i), we have
 $\left(\frac{4500}{x} + 5\right)(x - 10) = 4500$
 or, $x^2 - 10x - 9000 = 0 \quad \therefore x = 100$
 Hence, both statements together are sufficient
121. (e) **Combining statements (I) and (II),**
 $1^2 + b^2 = 900$
 $\frac{25}{9} b^2 + b^2 = 900$
 $\therefore b \approx 15 \text{ m} \text{ \& } 1 = 25 \text{ m}$
 $\therefore \text{Area} = 375 \text{ m}^2$
122. (c) **From statement I,**
 $32\% + 1 = 36\% - 1 =$ Minimum pass marks
 $\therefore$ Minimum pass marks = 17
From statement II,
 Minimum pass marks = $30\% + 2$ and
 $(40 - 30)\% = 5 \quad \therefore 30\% = 15$
 $\therefore$ Minimum pass marks = $15 + 2 = 17$
 Hence, either A or B alone is sufficient.
123. (d) Total surface area of a right circular cone = $\pi r^2 + \pi r h$, h = height and r = radius of the base of the cone.
 I $\rightarrow \pi r^2 + \pi r h =$ area of a rectangle whose length = 33 cm
 II. $\pi r^2 = 154 \text{ sq cm}$. So, r can be obtained but as the breadth of the rectangle has not been given, so, even after combining the two statements, h can't be obtained.
124. (e) I $\rightarrow 3C + 5T = 18800$ II $\rightarrow 6C + 4T = 20,800$
 By combining the two statements clearly, C and T can be obtained. Hence, the answer is (e).
125. (d) I $\rightarrow$ speed of train A + speed of train $B = 160 \text{ kmph}$
 II $\rightarrow \frac{\text{length of train } B}{\text{speed of train } B} = 9 \text{ sec.}$
 As the length of train B has not been given, so the speed of train B and consequently the speed of train A cannot be obtained.
126. (b) Let, the two-digit no. be xy , i.e. $10x + y$.
 I $\rightarrow x + y = 8$;
 II $\rightarrow \frac{1}{5}(10x + y) = \frac{44}{2} - 15 = 22 - 15 = 7$
 $\therefore$ The no., $10x + y = 7 \times 5 = 35$ and so, the reqd difference = $5 - 3 = 2$.

127. (e) $I \rightarrow Q = R + 6000, R = P - 3000;$
 $II \rightarrow P + Q = 27000$
 $I + II \rightarrow (R + 3000) + (R + 6000) = 27000$
 $\therefore R = 9000$ and $Q = R + 6000 = 15000.$
128. (e) Even after using all the statements we cannot separate the combined profit of P and R.

129. (a) $I. R = (3 - 1) \times \frac{100}{20} = 10\%$

II. Here the sum is not given.
 Therefore, statement I alone is sufficient.

130. (e) From I, we can calculate the SI after 5 yrs. When we combine with II, we can get the value of the sum.
 i.e., $(P + 5000) = 2P$ or, $P = ₹ 5000$

131. (c) Let the length of the train be 'd' m.

$$\text{Speed of the train} = \frac{d}{X}$$

- I.** We know that when a train crosses a platform, it crosses not only its length but also the length of the platform.

$$\text{i.e., } \frac{d}{X} = \frac{d + 100}{Y} \text{ or, } d = \frac{100X}{Y - X}$$

II. Length of the train (d) = $80 \times \frac{5}{18} X = \frac{200X}{9}$

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

132. (c) **I.** Radius of circle = $\frac{308 \times 7}{2 \times 22} = 49$ m

$$\text{Area of circle} = \frac{22}{7} \times 49 \times 49 = 7546 \text{ m}^2$$

II. Area of circle = $\frac{22}{7} \times 28 \times 28 = 2464 \text{ m}^2$

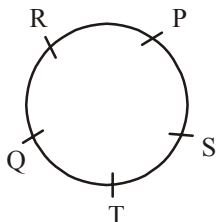
Hence, either I alone or II alone is sufficient for answering the question.

133. (d) **I.** $A + B$ is odd $\Rightarrow$ If A is an even no. then B will be an odd no. and vice versa.

- II.** $C + B$ is odd $\Rightarrow$ If B is an even no. then C will be an odd no. and vice versa.

So, even by combining the two statements together, we are not able to say that B is an even integer.

134. (e)



135. (d) The given statements do not give any clue to answer the question.

136. (e) **From I:** go over there $\Rightarrow na \text{ ho ja ...}$ (i)

From II: over and again $\Rightarrow pit \text{ tak na ...}$ (ii)

Only 'over' is common in both (i) and (ii). Thus code for 'over' is 'na'.

137. (c) In question part we have the following information:

K(-)

|

B(+)-F

We need to know only the sex of F to answer the question.

From I: K has one son (B) and one daughter. Implies that F is a female. Hence, F is the sister of B.

From II: B is the only son of M who has two children implies that F is a female. Hence, F is the sister of B.

138. (d) **From I:** B

|
R

|
M T

From II: R

|
M

|
T

From I and II:

B

|

R

|

M

|

T

But information regarding D is necessary to answer the question.

139. (d) From the statement I we will get the sum of length and breadth, but we need individual values of length and breadth.

140. (b) $I \rightarrow B \rightarrow G = 40$

$$II \rightarrow G = 80\% \text{ of } B \rightarrow B \times \frac{4}{5}$$

$$\therefore B : G = 5 : 4$$

141. (e) $I \rightarrow a = 60\% \text{ of } b$
 where a and b be the first and second numbers respectively.

$$a = \frac{6}{10} b \quad II \rightarrow (a + b) 50\% = 24$$

$$\therefore a + b = 48$$

After combining these two statements, we get the difference between two numbers as 12.

142. (e) Combining both the statements, we get the speed of

$$\text{train} = \frac{180 + 120}{4} \times \frac{18}{5} = 270 \text{ km/hr}$$

143. (e) $I \rightarrow R = 5\%$
 $II \rightarrow (CI - SI) \text{ for two years} = ₹ 20$
 Combining I and II and using the

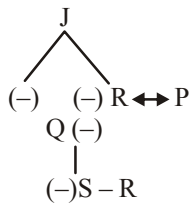
Method:

$$\text{Sum} = \frac{\text{Diff} \times 100 \times 100}{\text{Rate} \times \text{Rate}} = \frac{20 \times 100 \times 100}{25} = ₹ 8,000$$

$$\text{So, CI} = 8000 \left(1 + \frac{5}{100} \right)^3 - 8000 = ₹ 1261$$

144. (a) **From I :** D B C
A
Hence, village 'C' is North-East of village 'A'.
From II : A
K
P E

145. (d) No statements discuss about pension benefits.
146. (d) **From I :** $S > T > P, Q$
From II and using I : $S > T > P, Q > R$
Hence either P or Q ranks third in terms of salary.
147. (e) **From I :**
Hence P is the son-in-law of Q.
From II :



Using both I and II, we get,

$$\begin{array}{c} J (+) \leftrightarrow Q (-) \\ \swarrow \quad \searrow \\ (-) S \quad R (-) \leftrightarrow P (+) \end{array}$$

Hence P is the son-in-law of Q.

148. (d) **From I :** dem fu la pane = rose flower is beautiful... (i)
la quiz = beautiful tree(ii)
 $\therefore$ la = beautiful
From II : dem fu chin = red rose flower(iii)
pa chin = red tea(iv)
From (i) & (iii), dem fu = rose flower
But there we get stuck.
149. (d) I. $M + ph + ch = 165\%$
II. $Pr \rightarrow M + 10\%$ (average)
150. (b) I. CI in two years = ₹ 820
II. $Rate = \frac{250}{5000} \times 100 = 5\%$
151. (e) I. $x - y = \frac{1}{3}x$ or, $2x - 3y = 0$
II. $x + y = 30$
By combining I and II,
we get $y = 12$
152. (d) I. Area of right-angled triangle = $12 \times L$
II. $L = 18$ cm.
 $\therefore$ By combining I and II we can find the area of right-angled triangle, but the height cannot be determined in absence of the base of the triangle.
153. (c) I. $Speed = \frac{90}{9} \times \frac{18}{5} = 36$ km/hr
II. Length of train = $\frac{\text{length of platform}}{\text{difference in time}} \times \text{Time taken to cross a signal post}$
$$= \frac{180}{18} \times 9 = 90m$$

$$Speed = \frac{90}{9} \times \frac{18}{5} = 36$$
 km/hr.
154. (c) From I, P is easier than Q. From II, R is easier than S. But what about relationships like that between P and R?

155. (e) From I, we get BED as a sequence. Now, II tells us that B is at the extreme left. Clearly then, D is third from left, i.e. in the middle of the five.
156. (e) Taking Z as the reference point and using both the equations, we can get the distance between X and Y.
157. (c) **From I :** Sushma's husband is Nandini's brother (only son of mother) Sushma is Nandini's sister-in-law.
From II : Sushma's brother = cousin of Nandini's husband
 $\Rightarrow$ Sushma = cousin of Nandini's husband
= Nandini's cousin-in-law
158. (b) I is not sufficient. Average leads us nowhere when it comes to specifics.
From II : $A = C - 2 = B - 1$ and $A + B + C = 45$.
Solving these, we can get the value of A.
159. (c) **From I :** It means the sun is to the left of Shashidhar and since it is morning, the left of Shashidhar is East. Hence, Shashidhar is facing South.
From II : Sun is to the left of Shashidhar. Hence, he is facing South [Since it is morning].
160. (a) **From I :** A teaches History among A, B, C, D and E [The name of other four subjects is given in the statement and A teaches none of them.]
From II : Either B or D teaches History.
161. (d) **From I :** Ramakant ___ Chandrakant Suresh
Hence, cannot be determined.
From II : Ramakant ___ Suresh ___ Naresh
Hence, cannot be determined.
The combination of both statements is not possible.
162. (e) **From I :** $A, F > B > C, D, E$
Either A or F has secured maximum marks.
From II : $A > F > B$
From I and II, A secured the maximum marks.
163. (d) At 7.30 PM, the hour hand of the clock will be between 7 and 8. The alphabet code of 8 can not known from the given statements.
164. (c) From I, Mahesh's flat is on the 3rd floor.
From II also, his flat is on the 3rd floor.
165. (e) I gives us the no. of voters in the last election. Now, if we add 15%, from II, we get the answer.
166. (e) XK.....GY.....(I)
K___M; M_____Y... (II)
Combining I and II, we get XK___M___GY.
Thus, there are eight stations between X and Y.
167. (b) Desire to purchase a thing is not enough; it is money that matters.
168. (b) (I) gives no additional information; it may be calculated from the statement itself.
(II) leads us to an answer. Thursday is 1st day (given in the statement). So first Saturday will be the 3rd day. And 5th Saturday = $3 + 4 \times 7 = 31$ st day. Since, this is the last day, there were 31 days in the month.
169. (a) **From I :** $(17 - 12) = 5$ girl students are taller than Samir
From II : $(29 - 18) = 11$ girl students are shorter than Samir. But, from II alone it is not known how many girls are there in the class.
170. (e) **From I :** $A > N > S$ **From II :** $S > R > Sud$
From I and II, we get $A > N > S > R > Sud$
171. (b) From (I), $B > C > A$
D is not frosted here, so no conclusion.
isom (II),
 $B > C > D > A$
So, A is not likely to win.

173. (e) **From I:** S P T R **From II:** T R Q East
Combining I & II, we get, S P T R Q
Hence, Q is at extreme right
174. (e) With the help of any two statements, the value of length and breadth can be calculated. And combining this with the cost per square metre, we get the total cost of flooring the rectangular hall.
175. (e) **From I alone,**
Rate of interest = $\frac{(2-1) \times 100}{5} = 20\%$
From II and III,
Rate of interest = $\frac{2 \times \text{diff. in CI \& SI}}{\text{SI}}$
[For 2 years only]
 $= \frac{2 \times 400}{4000} \times 100 = 20\%$
Hence, either I alone or II and III together are sufficient.
176. (e) Let the two-digit no. be $10x + y$.
I $\Rightarrow |10x + y - 10y - x| = 27$ or, $|x - y| = 3$
II $\Rightarrow |x - y| = 3$
III $\Rightarrow x - y = 3$
Here, by taking any two, the values of x and y can't be determined. So, choice (e) is the correct answer.
177. (a) Let the present age of Subir and his father be S and F respectively.
I $S = \frac{F}{2}$
II $\frac{S+5}{F+5} = \frac{6}{11}$ or, $6F - 11S = 25$
III $B - S = 5$ [B = age of Subir's brother]
Now, with the help of I and II together, the value of S and F can be determined.
179. (c) By combining all the three statements together, Sudha's present salary is
 $= 10000 \left(1 + \frac{15}{100}\right)^5$
180. (e) None of the statements gives the amount of labelled price or SP. So, even by combining all the statements together, question can't be answered.
181. (d) Statements I and II give the percentage number of students studying in different disciplines. Combining this with (iii), the total number of students can be determined.
182. (b) Combining (ii) and (iii), total cost = $336 \times 550 = ₹184800$
183. (a) With the help of I and II, part of work done by A in 5 days
 $= \frac{5}{8}$ Remaining part will be $= \frac{3}{8}$
Therefore, B alone can do the work in $6 \times \frac{8}{3} = 16$ days

$$\therefore A + B = \frac{8 \times 16}{24} = \frac{16}{3} \text{ days}$$

Similarly, by combining any two of the three the required no. of days can be determined.

184. (e) To find the capacity of a cylindrical tank we need either radius of the tank or area of the base and height of the cylinder. Any two of the three fulfil our requirement.
187. (b) Note that with the help of II and III you can find only the two digits and not the two-digit number.
189. (d) Investment ratio or amount is not given, hence even all statements together are not sufficient.
190. (b) Let the base, height and hypotenuse of a right-angled triangle be b , p and h respectively.
From A, $b + p + h = 30$ (i)
From B, $b : p = 5 : 12$ (ii)
We know that $h^2 = p^2 + b^2 = 25x^2 + 144x^2 = 169x^2$
 $\therefore h = 13x$ (iii)
Combining equations (i), (ii) and (iii), we get
 $5x + 12x + 13x = 30$
 $\Rightarrow x = 1$

$$\therefore \text{Area of triangle} = \frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$$

Hence, only A and B together are sufficient.

191. (e) Let the bigger and smaller nos. be x and y respectively.
From A, $x - y = 6$ (i)
From B, 40% of $y = 30\%$ of x
or, $4y = 3x$ (ii)
From C, $\frac{x}{2} : \frac{y}{3} = 2 : 1$ or, $3x = 4y$ (iii)
We see that equations (ii) and (iii) are same. Hence, A and either B or C is require.
193. (e) From A, B & C
Let labelled price = ₹ x
 $\therefore$ C.P. = $x \times 85/100$
& S.P. = ₹ 3060

$$\therefore \text{Labelled price} = \frac{3,060 \times 100}{102} = ₹ 3000$$

$$\therefore \text{C.P.} = 85 \times 3000 / 100 = ₹ 2550$$

$$\text{Profit} = 3060 - 2550 = ₹ 510$$

$$\therefore \% \text{ profit} = \frac{510}{2550} \times 100 = 20\%$$

Hence, all statements are required.

194. (b) Let the length and breadth of rectangle be 'l' and 'b' respectively.
 $A \rightarrow l.b = 2400$ $B \rightarrow l^2 + b^2 = 2500$
 $C \rightarrow l = \frac{3}{2}b$
Solving any of the above two equations, we get the values of e and b .
195. (e) From C alone we can find out the rate per cent.