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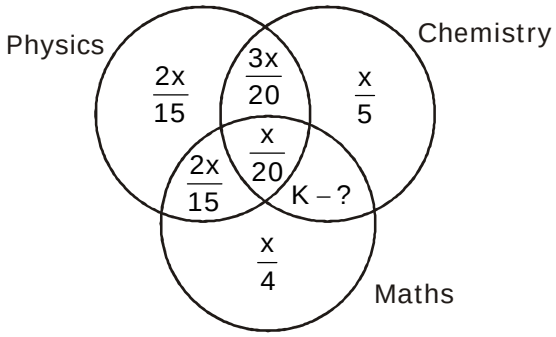
MATHEMATICAL PUZZLE -122

Directions (Q. 1 - 5): A total of x students appeared in a class test consisting of three papers, viz Physics, Chemistry and Maths. The following Venn diagram shows the number of students who passed these three papers. None of the students failed in all the three papers together. Answer the given questions based on this diagram.



1. How many students are there who passed in Chemistry and Maths but failed in Physics?

(1) $\frac{x}{6}$ (2) $\frac{x}{12}$ (3) $\frac{x}{20}$ (4) $\frac{x}{5}$ (5) None of these

2. What is the difference between the number of students who passed in Chemistry and the number of students who passed in Physics? (The number of students who passed in all the three papers is 15.)

(1) 5 (2) 10 (3) 15 (4) 20 (5) None of these

3. How many students are there who passed in exactly one paper, if the number of students who passed in exactly two papers is 110.

(1) 160 (2) 165 (3) 170 (4) 175 (5) 180

4. The number of students who passed in at least two papers is what percentage of the total number of students?

(1) $33\frac{1}{2}\%$ (2) $41\frac{2}{3}\%$ (3) 44% (4) $47\frac{1}{2}\%$ (5) None of these

5. The number of students who passed in only Maths is what percentage more than the number of students who passed in all the three papers?

(1) 20% (2) 80% (3) 120% (4) 200% (5) 400%

Q.6-10. (Study the following information carefully to answer the questions that follow.:)

There are two Trains, Train-A and Train-B. Both trains have four different types of Coaches viz. General Coaches. 'Sleeper Coaches, First Class Coaches and AC Coaches. In Train A there are total 700 passengers. Train B has thirty percent more passengers than Train A. Twenty percent of the passengers of Train A are in "General Coaches. One-fourth of the total number of passengers of Train A are in AC coaches. Twenty three percent of the passengers of Train A are in Sleeper Class Coaches. Remaining passengers of Train-A are in first class coaches. Total number of passengers in AC coaches in both the trains together is 480. Thirty percent of the number of passengers of Train B is in Sleeper Class Coaches. Ten percent of the total passengers of Train B are in first class coaches. Remaining passengers of Train-B are in general class coaches.

6. What is the respective ratio between the number of passengers in first class Coaches of Train A to the number of passengers in Sleeper Class coaches of Train B ?

(1) 13 : 7 (2) 7:13 (3) 32:39 (4) Data Inadequate (5) None of these

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7. What is the total number of passengers in the General Coach of Train A and the AC Coach of Train B together?
(1) 449 (2) 459 (3) 435 (4) 445 (5) None of these

8. What is the difference between the number of passengers in the AC Coach of Train A and the total number of passengers in Sleeper class coaches and First class coaches together of Train B ?
(1) 199 (2) 178 (3) 187 (4) 179 (5) None of these

9. Total number of passengers in General Class Coaches in both the Trains together is approximately what percentage of total number of passengers in Train-B ?
(1) 35 (2) 42 (3) 46 (4) 38 (5) 31

10. If cost of per ticket of First class coach Rs 450/-. What will be the total amount generated from First class coaches of Train-A?
(1) Rs 1,00,080/- (2) Rs 1,08,000/- (3) Rs 1,00,800/- (4) Rs 10,800/- (5) None of these

Directions (Q. 11-15): Read the following information carefully and answer the questions.

From a class a total of 200 students appeared in an examination consisting three papers P_1, P_2 and P_3. 56% of students passed in paper P_1, 63% passed in P_2 and 56.5% passed in P_3. 11% students passed only in paper P_1 and P_2, 8% passed only in paper P_1 and P_3, and 22% students passed in all three papers.

No student failed in all three papers.

11. How many students passed in paper P_2 and P_3 but failed in P_1?
(1) 22 (2) 24 (3) 25 (4) 28 (5) 32

12. What is the ratio of the number of students who passed only in paper P_2 to the number of students who passed in P_3 only?
(1) 3:2 (2) 4:3 (3) 5:4 (4) 6:5 (5) 7:6

13. The number of students who passed in paper P_1 only is what percentage of the number of students who passed in paper P_1 and P_3 but failed in paper P_2?
(1) 187.5% (2) 157.5% (3) 112.5% (4) 97.5% (5) 53.33%

14. The number of students who passed in at most one paper is what percentage of the total number of students in the class?
(1) 43.5% (2) 44.5% (3) 45.5% (4) 46.5% (5) 47.5%.

15. What is the difference between the number of students who passed in paper P_3 and the number of students who passed only in paper P_3?
(1) 81 (2) 83 (3) 85 (4) 87 (5) 89

Directions (Q. 16-20): Study the following information carefully and answer the given questions.

Among 400 cricket players, 45% played in IPL 1 and 6.25% played only in IPL 1. Again, 57.5% players played in IPL 2 and 11.25% players played only in IPL 2. Again, 72.5% players played in IPL 3 and 27.5% players played only in IPL 3. Twenty per cent players played in all three IPL tournaments..

16. How many players are there who played in IPL 1 and IPL 2 but not in IPL 3?
(1) 30 (2) 35 (3) 40 (4) 65 (5) 45

17. What is the percentage of players who played in IPL 2 and IPL 3 but not in IPL 1?
(1) 12.5% (2) 16.25% (3) 22.75% (4) 24% (5) None of these

18. What is the percentage of the players who played in at least two IPL tournaments?
(1) 30% (2) 35% (3) 45% (4) 50% (5) 55%

19. The number of players who played only in either IPL 1 or IPL 2 is what percentage of the players who played in all three IPL?
(1) 72% (2) 75% (3) 82.5% (4) 85% (5) None of these

20. The number of players who played in at most one IPL tournament is what percentage more/less than the number of players who played in at least one IPL?
(1) 55% more (2) 55% less (3) 40% more (4) 40% less (5) None of these

Directions (Q. 21-25): Study the following information carefully and answer the given questions.

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From a group of x sportsmen 50% participated in Olympic games, 53% participated in Asiad and 42% participated in Commonwealth Games (CWG). Ten percent participated in Olympics and Asiad but not in CWG, 14% participated in Olympics CWG but not in Asiad, and 5% participated in Asiad and CWG but not in Olympic games. Based on the information given, answer the following questions.

21. If x is equal to 3 00, how many sportsmen participated in all three events?
(1) 20 (2) 24 (3) 30 (4) 36 (5) 40

22. If the number of persons who participated in only Olympic games is 81, what is the total number of sportsmen?
(1) 360 (2) 420 (3) 450 (4) 480 (5) 510

23. If the number of sportsmen who participated in all three events is 48, what is the number of sportsmen, who participated in Asiad?
(1) 272 (2) 296 (3) 310 (4) 318 (5) 330

24. If the number of sportsmen who participated in exactly two events is 58, what is the number of persons who participated in all three events?
(1) 16 (2) 20 (3) 24 (4) 12 (5) 28

25. If x is equal to 300, what is the ratio of the number of sportsmen who participated only in Olympic games to the number of persons who participated only in CWG?
1) 3 : 2 (2) 4 : 3 (3) 5 : 4 (4) 6 : 5 (5) 7 : 6

Directions (Q. 26-30): Study the following information carefully and answer the given questions.

Three companies — A, B, and C produce a particular item in two different types —I and II. Total number of items of both types produced by all three companies is 62000 and total items I and II produced by company A is 15200. The ratio of the numbers of type I to type II items produced by A is 9 : 10. Type I items produced by Company B is 175% of type 1 items produced by A. Total items (both I and II) produced by B is 150% of total items produced by A. The number of type I items produced by C is 20% more than the number of type II items produced by A.

26. What is the number of type II items produced by B?
(1) 9600 (2) 10200 (3) 14400 (4) 12600 (5) None

27. What is the ratio of the number of type I items to the number of type II items produced by Company C?
(1) 2:3 (2) 3:4 (3) 4:5 (4) 5:6 (5) None of these

28. What is the average number of type I items produced by all three companies?
(1) 9650 (2) 9800 (3) 9960 (4) 10200 (5) .None of these

29. The number of type II items produced by C is what percentage of the total number of items produced by C?
(1) 80% (2) 75% (3) 60% (4) 50% (5) 40%

30. What is the difference between the total number of type II items and the total number of type I items produced by all three companies together?
(1) 2750 (2) 2800 (3) 3000 (4) 3150 (5) None of these

Directions (Q. 31-35): Following Venn-diagram shows the result of a survey conducted on people about their interest in different sports. Answer the following questions based on this diagram.

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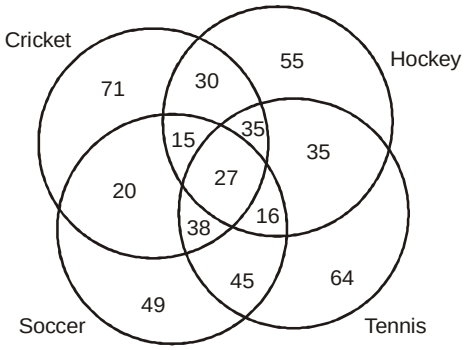

Total number of people = 500

31. How many people are there who like exactly three types of sports out of the given four?
(1) 98 (2) 104 (3) 108 (4) 112 (5) 115

32. The number of people who like exactly two types of sports is what percentage of the total number of people surveyed?
(1) 40% (2) 32% (3) 30% (4) 26% (5) 24%

33. What is the difference between the number of people who like either only Cricket or only Soccer and the number of people who like either only Hockey or only Tennis?
(1) 1 (2) 3 (3) 5 (4) 7 (5) 9

34. What is the ratio of the number of people who like Cricket to the number of people who like only Tennis?
(1) 40:13 (2) 59:16 (3) 63:23 (4) 64:25 (5) 70:29

35. The number of people who like exactly one type of sports is what percentage of the total number of people surveyed?
(1) 42.5% (2) 45.4% (3) 45.8% (4) 51.1% (5) 54%

Q.36-40. (Study the following information and answer the questions that follow :)

The premises of a bank are to be renovated. The renovation is in terms of flooring. Certain areas are to be floored either with marble or wood. All rooms/halls and pantry are rectangular. The area to be renovated comprises of a hall for customer transaction measuring 23 m by 29 m, branch manager's room measuring 13 m by 17 m, a pantry measuring 14 m by 13 m, a record keeping cum server room measuring 21m by 13 m and locker area measuring 29 m by 21 m. The total area of the bank is 2000 square meters. The cost of wooden flooring is Rs 170/- per square meter and the cost of marble flooring is Rs 190/- per square meter. The locker area, record keeping cum server room and pantry are to be floored with marble. The branch manager's room and the hall for customer transaction are to be floored with wood. No other area is to be renovated in terms of flooring.

36. What is the respective ratio of the total cost of wooden flooring to the total cost of marble flooring ?
(1) 1879 : 2527 (2) 1887 : 2386 (3) 1887 : 2527 (4) 1829 : 2527 (5) 1887 : 2351

37. If the four walls and ceiling of the branch managers room (the height of the room is 12 meters) are to be painted at the cost of Rs 190/- per square meter, how much will be the total cost of renovation of the branch manager's room including the cost of flooring ?
(1) Rs 1,36,800/- (2) Rs 2,16,660- (3) Rs 1,78,790/- (4) Rs 2,11,940- (5) None of these

38. If the remaining area of the bank is to be carpeted at the rate of Rs 110/- per square meter, how much will be the increment in the total cost of renovation of bank premises ?
(1) Rs 5,820/- (2) Rs 4,848/- (3) Rs 3,689/- (4) Rs 6690/- (5) None of these

39. What is the percentage area of the bank that is not to be renovated ?
(1) 2.2% (2) 2.4% (3) 4.2% (4) 4.4% (5) None of these

40. What is the total cost of renovation of the hall for customer transaction and the locker area ?
(1) Rs 2,29,100/- (2) Rs 2,30,206/- (3) Rs 2,16,920/- (4) Rs 2,42,440/- (5) None of these

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Directions (Q. 41-45) : In a society, there are total 200 families. Out of that 47.5% people have taken subscription of AXN channel, 53.5% have taken HBO and 54% Star Movies channel. 6% of them have taken subscription of AXN and HBO but not Star Movies. 10% of the people have taken Star Movies and HBO but not AXN and 15% people have taken the subscription of all the three channels.

Answer the following questions based on the given information.

41. How many families are there who have taken the subscription of Star Movies and AXN but not HBO?
(1) 12 (2) 20 (3) 18 (4) 30 (5) 48

42. How many families are there who have taken the subscription of either only AXN or only HBO?
(1) 75 (2) 80 (3) 90 (4) 85 (5) None of these

43. What percentage of families have taken the subscription of Star Movies only?
(1) 15% (2) 54% (3) 39% (4) 20% (5) 22.5%

44. How many families are there who have taken the subscription of exactly two channels out of the given three?
(1) 50 (2) 80 (3) 120 (4) 30 (5) None of these

45. The number of families who have taken the subscription of at least two channels from the given three options is what percentage of the number of families who have taken the subscription of exactly one channel from the given three options?
(1) 45% (2) 60% (3) 72% (4) 75% (5) None of these

Directions (Q. 46-50) ; Study the following information carefully and answer the given questions.

In a class test, total 250 students appeared. Out of that 16% students passed only in Physics in which B : G is 3 : 2. Again, 24% passed only in Chemistry paper in which B: G is 7 : 5. Also, 30% students passed only in Maths and B : G is 7 : 8. Besides 8% students passed in Physics and Chemistry but failed in Maths and among them B : G is 2 :3. Again, 6% students passed in all the three papers and among them B : G = 2 : 3. Also, 9.6% students passed in Physics and Maths but failed in Chemistry and among them B : G is 3 : 1. None of them failed in all the three subjects and the difference between the total number of boys and the total number of girls who appeared in the exam is 14.

Answer the following questions based on the above information. (B : G is the ratio of the number of boys to the number of girls.)

46. What is the ratio of the number of boys to the number of girls who passed in Chemistry and Math but failed in Physics?
(1) 3:5 (2) 4:5 (3) 4:7 (4) 5:7 (5) 5:8

47. How many girls are there who passed exactly in one subject?
(1) 72 (2) 75 (3) 78 (4) 81 (5) 85

48. What is the total number of boys who passed exactly in two subjects?
(1) 28 (2) 32 (3) 36 (4) 40 (5) 42

49. The number of girls who passed in Physics and Chemistry but failed in Maths is what percentage of the number of girls who passed in Chemistry and Maths but failed in Physics?
(1) 75% (2) 80% (3) 120% (4) 150% (5) 200%

50. The number of boys who passed only in Chemistry is what percentage of the number of girls who passed either only in Maths or only in Physics?
(1) 72.5% (2) 65% (3) 62.5% (4) 60% (5) 47.5%

Directions (Q. 51-55) : In a company total 500 persons work there. Out of that, 53.6% employees have bank Account in SBI, 44% in ICICI and 34% in HDFC. 5% of total employees have account in SBI and HDFC but not in ICICI, and 180% of this number have account in SBI and ICICI but not in HDFC. 3.6% employees have account in all three banks and 10.4% employees have account in ICICI and HDFC but not in SBI.

Answer the following questions based on these information.

51. How many employees are there who have account in ICICI Bank only?
(1) 75 (2) 105 (3) 180 (4) 220 (5) None of these

52. What percentage of employees hold account in HDFC only?

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(1) 9% (2) 12% (3) 15% (4) 24% (5) 36%

53. How many people hold account in exactly one bank?
(1) 270 (2) 320 (3) 350 (4) 360 (5) 370

54. The number of employees who hold account in all three banks is what percentage of the number of employees who have account in SBI only?
(1) 6% (2) 8% (3) 10% (4) 12% (5) 18%

55. The number of employees who hold account in at least two banks is what percentage of the number of employees who hold account in almost two banks?
(Answer in approximation.)
(1) 24% (2) 29% (3) 34% (4) 39% (5) 45%

Directions (Q. 56-60) :Study the information carefully to answer the questions that follow.

A company produced five different products, viz mobile phone, pen drive, calculator, television and washing machine; The total number of all the five products is 1650.24% of the total number of products is mobile phones. One-sixth of the total number of products is pen drives. 14% of the total number of products is calculators. Remaining products are either television or washing machine. The number of washing machines is 50 more than the number of televisions produced.

56. What is the ratio of the number of washing machines to the number of calculators produced by the company?
(1) 17 : 11 (2) 19 : 11 (3) 11 : 17 (4) 19 : 13 (5) None of these

57. If 24 per cent of the pen drives are defective, what is the number of pen drives which are not defective?
(1) 209 (2) 215 (3) 219 (4) 225 (5) None of these

58. The number of televisions produced is approximately what per cent of the total number of calculators and washing machines produced together?
(1) 63 (2) 55 (3) 59 (4) 51 (5) 67

59. What is the difference between the total number of televisions and mobile phones together and the number of calculators produced?
(1) 534 (2) 524 (3) 511 (4) 523 (5) None of these

60. What is the total number of pen drives, calculators and washing machines produced by the company?
(1) 907 (2) 917 (3) 925 (4) 905 (5) None of these

Directions (Q. 61-65) : Study the following information carefully and answer the questions given below

In a survey three questions (Q_1, Q_2 and Q_3) were asked from 600 people. 20% of them answered only question Q_1 and double of them answered question Q_3. $\frac{1}{4}$ of the total people surveyed answered only Question Q_2. $\frac{1}{24}$ of the total people surveyed answered all three questions and this number is 20 less than the number of people who answered question Q_1 and Q_3 but not Q_2. The number of people who answered question Q_2 and Q_3 but not question Q_1 is 25% of the number of people who answered question Q_1 and Q_2 but didn't answer question Q_3. The number of people who didn't answer any of the three questions is 10.

61. How many people are there who answered question Q_2 and Q_3 but didn't answer question Q_1?
(1) 20 (2) 40 (3) 80 (4) 25 (5) None of these

62. What is the number of people who answered exactly one question from the given three questions?
(1) 400 (2) 420 (3) 440 (4) 460 (5) 480

63. The number of people who answered question Q_1 is what percentage of the total number of people surveyed?
(1) 32% (2) 35% (3) 40% (4) 45% (5) 48%

64. What is the difference between the number of people who answered at least one question and the number of people who answered at most one question?

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(1) 120 (2) 160 (3) 430 (4) 210 (5) 80

65. What is the ratio of the number of people who answered question Q_1 to the number of people who answered only question Q_3?
(1) 7 : 5 (2) 9 : 5 (3) 7 : 3 (4) 7 : 4 (5) 9 : 4

Directions (Q. 66-70) : Study the following information carefully answer the questions given below:

In an examination (consisting of two papers Physics and Chemistry) total 300 students appeared. Out of that the ratio of boys to girls is 3 : 2. The number of boys who passed only in Physics is 25% of the total number of boys and this number is $\frac{3}{2}$ of the number of girls who passed only in Chemistry. The number of girls who passed in both the papers is $13\frac{1}{3}\%$ of the total number of students and the number of boys who passed in both the papers is 180% of the number of girls who passed in both the papers. None of the candidate failed in both the papers.

66. How many girls are there who passed only in Physics paper?
(1) 35 (2) 40 (3) 45 (4) 50 (5) 60 .

67 The number of boys who passed only in Chemistry is what percentage of the total number of students who appeared in the examination?
(1) 21% (2) 36% (3) 48% (4) 72% (5) 84%

68. How many students passed in Physics?
(1) 192 (2) 197 (3) 201 (4) 203 (5) 207

69. What is the ratio of the number of boys who passed in Chemistry to the number of girls who passed only in Physics?
(1) 23 : 8 (2) 25 : 11 (3) 27 : 10 (4) 29 : 15 (5) 31 : 16

70. How many students are there who passed at most in one subject?
(1) 172 (2) 178 (3) 181 (4) 188 (5) 192

Directions (Q. 71-75) : Study the information carefully to answer the questions that follow.

In a school there are total 120 staff members and 800 students. 65 per cent of the number of staff members are teachers and the remaining staff members are administrative officials. Out of the total number of students 45 per cent are girls. Twenty per cent of the number of girls can speak only Hindi. The remaining girls can speak both Hindi and English. Three-fourths of the number of boys can speak only Hindi. The remaining boys can speak both Hindi and English. Two-thirds of the number of teachers are males. Five-fourteenths of the number of administrative officials are females.

71. What is the difference between the number of boys (student) who can speak both Hindi and English and the number of girls (student) who can speak both Hindi and English?
(1) 164 (2) 178 (3) 188 (4) 174 (5) None of these

72. The total number of girls (student) is what percentage of the total number of staff members in the school?
(1) 350 (2) 300 (3) 400 (4) 450 (5) None of these

73. What is the difference between the total number of female administrative officials, female teachers and the number of male administrative officials?
(1) 16 (2) 12 (3) 18 (4) 14 (5) None of these

74. What is the ratio of the total number of teachers to the number of boys (student) who can speak Hindi only?
(1) 11 : 56 (2) 13 : 54 (3) 13 : 56 (4) 11 : 54 (5) None of these

75. What is the total number of male administrative officials, female teachers and girls (student) who can speak Hindi only?
(1) 125 (2) 115 (3) 127 (4) 117 (5) None of these

Directions (Q. 76-80) : Study the following information carefully and answer the questions given below

From a school 500 students appeared in all in an examination consisting of three papers P_1, P_2 and P_3. 52.6% students passed in P_1, 57% in P_2 and 50.4% in P_3. 18% of students passed only in P_1 and P_2,

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10.2% passed only in P_1 and P_3 and 8.4% passed in all three papers. The number of girls passed in Paper P_1 only is 60% of the number of boys who passed only in Paper P_1. The ratio of the number of boys to the number of girls who passed only in Paper P_2 is 7 : 6. The number of girls who passed in Paper P_3 only is 6% of the total number of students who appeared in the examination.

Answer the following questions based on the above information.

76. How many students are there who passed in Paper P_2 and P_3, but failed in P_1?
(1) 60 (2) 75 (3) 80 (4) 90 (5) 120

77. What is the difference between the number of boys and the number of girls who passed in Paper P_1 only?
(1) 10 (2) 20 (3) 30 (4) 40 (5) 50

78. What percentage of students passed only in Paper P_2?
(1) 14.2% (2) 15% (3) 15.6% (4) 16% (5) 16.4%

79. What is the ratio of the number of students who passed only in Paper P_1 and P_2 to the number of boys who passed only in Paper P_3?
(1) 5:4 (2) 7:4 (3) 5:3 (4) 9:5 (5) 8:5

80. What is the percentage of students who failed in any two papers?
(1) 48.4% (2) 52.6% (3) 54% (4) 57.5% (5) 60%

Directions (Q. 81-85): Study the following information carefully to give answer to the following questions.

In a school there are total 800 students. Among them, 55.625% like Cricket, 32.5% like Football and 43.125% like Hockey. 5% students like all three games. 9.375% students like only Cricket and Football, and 5.625% students like only Football and Hockey. Answer the following questions based on this information.

81. What percentage of students like only Cricket?
(1) 12.5% (2) 23.125% (3) 30% (4) 32.5% (5) 35%

82. How many students are there who like Cricket and Hockey but do not like Football?
(1) 40 (2) 50 (3) 60 (4) 70 (5) 75

83. The number of students who like only Football is approximately, what per cent of the number of students who like Football?
(1) 32% (2) 34% (3) 36% (4) 38% (5) 42%

84. The number of students who like only Hockey is approximately what per cent of the number of students who like all three games?
(1) 425% (2) 450% (3) 475% (4) 500% (5) 525%

85. What is the percentage of students who like at least two games among the given three types of games?
(1) 22.25% (2) 24.25% (3) 26.25% (4) 28.25% (5) 32.5%

Directions (Q. 86-90): Study the information carefully and answer the questions given below.

There are 500 students in a class who appeared in an exam comprising Paper P_1 and P_2. The ratio of the number of boys to girls is 7 : 3. Out of the total boys, 44% passed in Paper P_2 only, which is 82 more than the total number of girls who passed in Paper P_2 only. 28% of girls passed in Paper P_1 only, which is one-third of the total number of boys who passed in both the papers. No one failed in both the papers.

Answer the following questions based on this information.

86. The total number of boys who passed in Paper P_1 only is what per cent of the total number of students who appeared in the exam?
(1) 12% (2) 14% (3) 16% (4) 18% (5) 20%

87. What percentage of girls passed in both the papers?
(1) 16% (2) 20% (3) 24% (4) 28% (5) 32%

88. What is the difference between the total number of boys who passed in Paper P_1 and the total number of girls who passed in Paper P_2?

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(1) 82 (2) 84 (3) 86 (4) 88 (5) 90

89. What percentage of the students passed in both the papers?

(1) 32.4% (2) 34.6% (3) 36.8% (4) 38.2% (5) 40%

90. The total number of boys who passed in Paper P_2 is what percentage of the total number of students who appeared in the exam?

(1) 36% (2) 40% (3) 48% (4) 51% (5) 56%

Direction (Q. 91-95) : Study the following information carefully and answer the questions given below:

An organisation consists of 1500 employees. The ratio of males to females is 17 : 13. All the employees work at five different levels I, II, III, IV and V. 28% females are at level I. 18% males work at level II. 20% males work at level V. The ratio of females to males at level II is 2 : 3. 25% of the total number of employees are at level III. Females working at level V are 60% of the males working at level 1.18% of the females are at level IV. The remaining females are at level III. 20% of the males work at level I, and the remaining males work at level IV.

91. What is the total number of males who work at level I and III together?

(1) 495 (2) 498 (3) 447 (4) 398 (5) None of these

92. The number of females working at the level II is approximately what per cent of the total number of employees in the organisation?

(1) 12% (2) 11% (3) 15% (4) 7% (5) 21%

93. What is the number of females who work at level V?

(1) 115 (2) 105 (3) 125 (4) 315 (5) 102

94. What is the total number of females who work at level I and V together?

(1) 384 (2) 184 (3) 484 (4) 284 (5) 584

95. Find the ratio of the number of males working at level I to the number of females working at level III.

(1) 107:174 (2) 147:710 (3) 170:147 (4) 129:117 (5) None of these

Directions (Q. 96-100) : Study the following information carefully to answer these questions.

An institute having 450 employees has sent all its employees for training in one or more areas of HR, Computer skills and Financial skills. The employees are classified into two categories - officers and clerks, who are in the ratio of 4 : 5.10% of the officers take training only in Computer skills, 16% of the clerks take training only in HR and this is equal to the number of officers taking training only in Financial skills and equal to 50% of the number of officers taking training in HR and Financial skills both. 6% of the total employees take training in all the three, of which $\frac{2}{3}$ are officers. 10% of the total employees take training in HR and Computer skills both, which is five times the number of clerks taking training in Computer skills and Financial skills. 10% of the clerks take training in HR and Computer skills both. The number of officers taking training only in HR is 25% of the number of clerks taking training only in HR. 20% of the total number of employees take training only in Computer skills. The number of clerks taking training in HR and Financial skills both is 20% of the total number of clerks.

96. How many employees take training in Financial skills but not in HR?

(1) 174 (2) 172 (3) 134 (4) 162 (5) None of these

97. How many officers take training in Computer skills?

(1) 78 (2) 68 (3) 98 (4) 88 (5) 91

98. How many clerks take training in HR but not in Computer skills?

(1) 51 (2) 4 (3) 63 (4) 81 (5) 91

99. How many employees take training in Computer and HR skills both only?

(1) 10 (2) 25 (3) 18 (4) 16 (5) None of these

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100. How many clerks take training in HR, Computer and Financial skills only?
(1) 6 (2) 9 (3) 11 (4) 74 (5) None of these

Directions (Q. 101-105): Study the following information and answer the questions that follow.

The premises of an institute are to be renovated. Only the floor is to be renovated either with marble or with wood. All rooms, halls and pantry are rectangular. The area to be renovated comprises a hall measuring 33m by 39m. The director's room measures 13m by 12m and the pantry measures 14m by 12m. A record keeping-cum-server room measures 23m by 13m and the accounts room measures 12m by 23m. The total area of the institute is 2500 square metres. The cost of wooden flooring is ` 170 per square metre and the cost of marble flooring is ` 190 per square metre. The accounts room, the record keeping-cum-server room, and the pantry are to be floored with marble. The director's room and the hall are to be floored with wood.

101. What is the ratio of the total cost of wooden flooring to the total cost of marble flooring?
(1) 1443 : 735 (2) 8177 : 4655 (3) 1443 : 4655 (4) 24531 : 14117 (5) 9177 : 4655

102. If four walls and ceiling of the room (the height of the room is 15 metres) are to be painted at the cost of `190 per square metre, how much will be the total cost of renovation of the director's room, including the cost of flooring?
(1) `198660 (2) ` 178680 (3) ` 198880 (4) ` 22876 (5) ` 188680

103. If the remaining area of the institute is to be carpeted at the rate of ` 210 per square metre, by how much will the cost of renovation of institute premises increase?
(1) ` 75000 (2) ` 72840 (3) ` 65940 (4) ` 75940 (5) ` 64940

104. What is the percentage area of the institute that is not to be renovated?
(1) 16.44% (2) 13.56% (3) 14.55% (4) 12.56% (5) 11.44%

105. What is the total cost of renovation of the hall and the accounts room?
(1) ` 287700 (2) ` 277230 (3) ` 266600 (4) ` 298870 (5) ` 271230

Directions (Q. 106-108) : Study the information carefully to answer these questions.

In a team there are 240 members (males and females). Two-thirds of them are males. Fifteen per cent of males are graduates. Remaining males are non-graduates. Three-fourths of the females are graduates. Remaining females are non-graduates.

106. What is the difference between the number of females who are non-graduates and the number of males who are graduates?
(1) 2 (2) 24 (3) 4 (4) 116 (5) 36

107. What is the sum of the number of females who are graduates and the number of males who are non-graduates?
(1) 184 (2) 96 (3) 156 (4) 84 (5) 196

108. What is the ratio of the total number of males to the number of females who are non-graduates?
(1) 6:1 (2) 8:1 (3) 8:3 (4) 5:2 (5) 7:2

Directions (Q. 109-112): Study the table carefully to answer the questions that follow:

A candidate is contesting an election from a constituency which has seven electoral zones -A, B, C, D, E, F and G. The following table shows the voter population, the estimated voter turnout per 1000 persons and the time required to campaign in each zone.

	A	B	C	D	E	F	G
Voter population	20000	24000	35000	42000	30000	21000	28000
Estimated voter turnout per 1000 persons	875	725	800	700	600	500	650
Number of days required for campaigning	2	3	4	5	3	3	3

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Also note that:

(1) if the candidate starts campaigning in a zone, he has to meet the entire voter population in that zone.

(2) on any day, the candidate is allowed to campaign in only one electoral zone.

(3) if the candidate has a limited time to campaign, the candidate campaigns according to the given estimation in such a way that he maximises the voter turnout.

109. What is the maximum possible voter population that the candidate can meet over a total campaigning period of 20 days?

(1) 176000 (2) 179000 (3) 189500 (4) 200000 (5) None of these

110. If the candidate can campaign for only 15 days, in which of the following electoral zones would he not campaign?

(1) A, B and F (2) B, F and E (3) C and F (4) D and F (5) None of these

111. If the candidate has a permission to campaign only in four zones, which zone would he select?

(1) A, B, C, D (2) C, D, E, G (3) B, C, D, E (4) A, B, E, F (5) None of these

112. Which of the following statements is/are not true?

I. Maximum voter turnout (estimated) is from Zone C.

II. The voter turnout is more than 60% in five zones.

III. The voter turnout in Zone G is 60% less than that in Zone C

(1) I and II (2) Only II (3) I and III (4) I, II and III (5) None of these

Directions (Q. 113-117): Study the following information carefully and answer the questions that follow:

There are two universities - University U_1 and University U_2. Both universities have four different departments, viz Mathematics Department, Geography Department, Physics Department and Chemistry Department. In University U_1 there are total 1400 staff. University U_2 has forty per cent more staff than University U_1 Twentyfive per cent of the staff of University U_1 are in Mathematics Department. One-fifth of the total number of staff of University U_1 are in Chemistry Department. Thirtyfive per cent of the staff of University U_1 are in Geography Department, Remaining staff of University U_1 are in Physics Department, The total number of staff in Geography Department is 686. Fortyfive per cent of the staff of University U_2 are in Chemistry Department. Fifteen per cent of the total staff of University U_2 are in Mathematics Department. The remaining staff of University U_2 are in Physics Department.

113. If the monthly salary of a staff member in Mathematics Department is ` 9500, what will be the total amount paid by University U_2,to the entire staff in Mathematics Department?

(1) ` 27.93 lakh (2) ` 2.793 lakh (3) ` 20.7 lakh (4) ` 27.05 lakh (5) ` 33.25 lakh

114. The total number of staff in Geography Departments of both the universities together is what per cent of the total number of staff in University U_1?

(1) 39% (2) 49% (3) 65% (4) 35% (5) 51%

115. What is the difference between the total number of staff in Chemistry Department of University U_2 and the total number of staff in Physics and Chemistry Departments together of University U_1?

(1) 222 (2) 252 (3) 322 (4) 232 (5) 482

116. What is the ratio of the number of staff in Geography Department of University U_2 to the total number of staff in Mathematics Department of University U_1?

(1) 25:14 (2) 4:35 (3) 7:5 (4) 7:6 (5) 14:25

117. The total number of staff in Chemistry Department of University U_1 is approximately what per cent of the total number of staff of University U_2?

(1) 14% (2) 18% (3) 15% (4) 28% (5) None of these

Directions (Q. 118-122): Study the following information carefully to answer that follow.

A bank has five different types of accounts, viz Savings Account, Recurring Account, NRI Account, Current Account and Senior Citizenship Account. The total number of account holders is 2050. 24% of the total accounts are Savings Accounts. One-fifth of the total number of accounts is Current Account.

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16% of the total accounts are NRI Accounts. Remaining accounts are either Senior Citizenship Accounts or Recurring Accounts. The number of Recurring Accounts is 182 more than the number of Senior Citizenship Accounts.

118. What is the ratio of the total number of Current Accounts to the total number of Senior Citizenship and Recurring Accounts together?
(1) 2 : 1 (2) 1 : 2 (3) 3 : 4 (4) 7 : 6 (5) None of these

119. If 20% of Current Accounts are non-operative, what is the number of Current Accounts which are operative?
(1) 382 (2) 164 (3) 328 (4) 428 (5) 82

120. The number of NRI accounts is approximately what per cent of the total number of Savings Accounts and Current Accounts together?
(1) 63% (2) 26% (3) 46% (4) 56% (5) 36%

121. What is the total number of Senior Citizenship, NRI and Current Accounts together?
(1) 1027 (2) 1157- (3) 1057 (4) 957 (5) 1257

122. What is the difference between the total number of Senior Citizenship and Savings Accounts together and the number of Recurring Accounts?
(1) 310 (2) 410 (3) 210 (4) 390 (5) 610

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SHORT ANSWER

1. (2)	2. (1)	3. (4)	4. (2)	5. (5)	6. (3)	7. (4)	8. (5)
9. (2)	10. (3)	11. (3)	12. (3)	13. (1)	14. (4)	15. (3)	16. (3)
17. (2)	18. (5)	19. (5)	20. (2)	21. (2)	22. (3)	23. (4)	24. (1)
25. (4)	26. (2)	27. (1)	28. (2)	29. (3)	30. (5)	31. (2)	32. (4)
33. (1)	34. (2)	35. (3)	36. (3)	37. (5)	38. (5)	39. (2)	40. (1)
41. (3)	42. (2)	43. (4)	44. (1)	45. (5)	46. (1)	47. (4)	48. (2)
49. (3)	50. (3)	51. (2)	52. (3)	53. (4)	54. (3)	55. (2)	56. (2)
57. (1)	58. (2)	59. (5)	60. (4)	61. (1)	62. (2)	63. (4)	64. (2)
65. (2)	66. (4)	67. (1)	68. (5)	69. (3)	70. (4)	71. (2)	72. (2)
73. (4)	74. (5)	75. (1)	76. (2)	77. (2)	78. (3)	79. (3)	80. (1)
81. (5)	82. (2)	83. (4)	84. (5)	85. (3)	86. (2)	87. (3)	88. (4)
89. (1)	90. (5)	91. (4)	92. (4)	93. (5)	94. (4)	95. (3)	96. (4)
97. (4)	98. (4)	99. (3)	100. (2)	101. (4)	102. (1)	103. (3)	104. (4)
105. (5)	106. (3)	107. (5)	108. (2)	109. (2)	110. (4)	111. (2)	112. (3)
113. (1)	114. (2)	115. (3)	116. (5)	117. (1)	118. (2)	119. (3)	120. (5)
121. (3)	122. (1)						

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DETAIL - EXPLANATIONS

1. 2; $\frac{2x}{15}+\frac{3x}{20}+\frac{x}{5}+\frac{2x}{15}+\frac{x}{20}+\frac{x}{4}+K=x$

$\therefore \frac{55x}{60}+K=x,$

$\therefore K=x-\frac{55x}{60}=\frac{5x}{60}=\frac{x}{12}$

2. 1; Chemistry $=\frac{x}{5}+\frac{3x}{20}+\frac{x}{20}+\frac{x}{12}=\frac{29x}{60}$

Physics $=\frac{2x}{15}+\frac{3x}{20}+\frac{x}{20}+\frac{2x}{15}=\frac{7x}{15}$

$\therefore$ Diff $=\frac{29x}{60}-\frac{7x}{15}=\frac{29x-28x}{60}=\frac{x}{60}$

$\because \frac{x}{20}=15 \qquad \therefore x=300$

So'diff $=\frac{x}{60}=\frac{300}{60}=5$

3. 4; Students who passed in exactly one paper

$=\frac{2x}{15}+\frac{x}{5}+\frac{x}{4}=\frac{7x}{12}$

Students who passed in exactly two papers

$=\frac{3x}{20}+\frac{2x}{15}+\frac{x}{12}=\frac{11x}{30}$

$\because \frac{11x}{30}=110 \qquad \therefore x=300$

So, $\frac{7x}{12}=175$

4. 2; Students who passed in at least two papers

$=\frac{3x}{20}+\frac{2x}{15}+\frac{x}{12}+\frac{x}{20}=\frac{5x}{12}$

Total number of students = x

$\therefore$ Reqd% $=\frac{5x/12}{x}\times 100=\frac{125}{3}=41\frac{2}{3}\%$

5. 5; Students who passed in only Maths $=\frac{x}{4}$.

Students who passed in all three papers

$=\frac{x}{20}$

$\therefore$ Reqd % $=\frac{\left(\frac{x}{4}-\frac{x}{20}\right)}{\frac{x}{20}}\times 100=\frac{4x}{20}\times\frac{20}{x}\times 100$

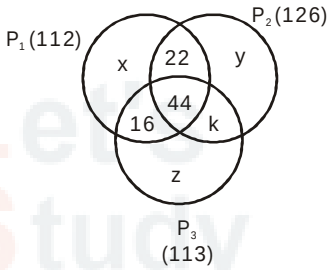
$=400\%$

(6 - 10):

	Train A (700)	Train B (910)
General coaches	140	241
Sleeper coaches	161	273
First class	224	91
AC coaches	175	205

6. 3 7. 4 8. 5 9. 2 10. 3

(11 - 15):



P_1 = 56% of 200 = 112
P_2 = 63% of 200 = 126
P_3 = 56.5% of 200 = 113
$P_1 + P_2$ = 11% of 200 = 22
$P_1 + P_3$ = 8% of 200 = 16
$P_I + P_2 + P_3$ = 22% of 200 = 44
x + 22 + 16 + 44 = 112
or, x = 112 - 82 = 30
22 + 44 + y + k = 126
or, y + k = 60 ... (1)
z + k + 16 + 44 = 113
or, z + k = 53 ... (2)
30 + 22 + y + 16 + 44 + k + z = 200
or, y + z + k = 88 ... (3)
From eqn (1), (2) and (3),
k = 25, y = 35, z = 28

11. 3
12. 3; Only P_2 = 35 and only P_3 = 28

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$\therefore$ Ratio $= \frac{35}{28} = \frac{5}{4}$

13. 1; Only $P_1 = 30$ Only $P_1 + P_3 = 16$

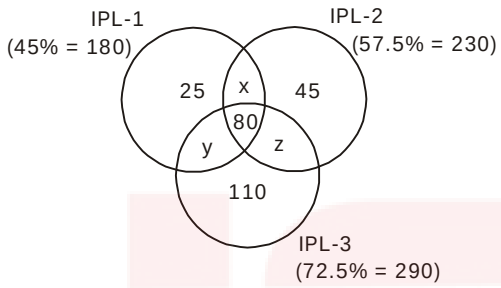
$\therefore$ Reqd % $= \frac{30}{16} \times 100 = 187.5\%$

14. 4; At most one paper = 30 + 35 + 28 = 93

$\therefore$ Reqd % $= \frac{93}{200} \times 100 = 46.5\%$

15. 3; $P_3 = 16 + 44 + 25 + 28$
$= 113$
Only $P_3 = 28$
$\therefore$ Difference = 113 - 28 = 85

(16 - 20):



$x + y + 80 + 25 = 180$
or $x + y = 75$ ... (I)
$y + z + 80 + 110 = 290$
or $y + z = 100$ ... (II)
$x + z + 80 + 45 = 230$
or $x + z = 105$ ... (III)
From eqn (I), (II) and (III),
$x = 40, y = 35, z = 65$

16. 3; 40

17. 2; Reqd percentage $= \frac{65}{400} \times 100 = 16.25\%$

18. 5; At least two IPL = 40 + 35 + 65 + 80 = 220

Reqd % $= \frac{220}{400} \times 100 = 55\%$

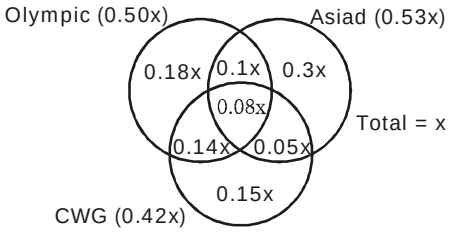
19. 5; Only IPL 1 = 25, Only IPL 2 = 45
$\therefore$ Total = 70

Reqd % $= \frac{70}{80} \times 100 = 87.5\%$

20. 2; At least on IPL = 400
At most one IPL = 25 + 45 + 110 = 180

$\therefore$ Reqd % $= \frac{400-180}{400} \times 100 = \frac{22000}{400} = 55\%$

(21-25):



21. 2 22. 3 23. 4 24. 1 25. 4

26. 2;

27. 1; Ratio $= \frac{9600}{14400} = \frac{2}{3}$ ie 2 : 3

28. 2; Average number of type I items produced

$= \frac{7200 + 12600 + 9600}{3}$

$= \frac{29400}{3} = 9800$

29. 3; Type II produced by C = 14400
$Total_c = 24000$

Reqd % $= \frac{14400}{24000} \times 100 = 60\%$ of no. of items by C

30. 5; Type I = 7200 +12600 + 9600 = 29400
Type II = 8000 + 10200 + 14400 = 32600
$\therefore$ Diff = 32600 - 29400 = 3200

31. 2; 15 + 35 + 38 + 16 = 104

32. 4; People who like exactly two types of sports
= 30 + 20 + 45 + 35 = 130
Total number of people surveyed = 500

$\therefore$ % $= \frac{130}{500} \times 100 = 26\%$

33. 1; Difference = (71 + 49) - (55 + 64)
= 120 - 119 = 1

34. 2; Reqd ratio $= \frac{236}{64} = \frac{59}{64}$ ie 59 : 16

35. 3; People who like exactly one sports
= 71 + 55 + 49 + 64 = 239
Total number of people = 500

$\therefore$ % $= \frac{239}{500} \times 100 = 47.8\%$

(36-40):

Area of hall $23 \times 29 = 667\ m^2$
Area of branch manager room

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$\rightarrow 13 \times 17 = 221m^2$

Area of pantry = $14 \times 13 = 182m^2$

Area of record keeping $\Rightarrow 21 \times 13 = 273m^2$

Area of locker = $29 \times 21 = 609m^2$

Area of flooring area = $1952\ m^2$

Cost of wooden flooring = Rs 170 per sq. m

Cost of marble flooring = Rs. 190 per sq. m

36. 3; Total flooring area with marble
= locker area + record keeping + pantry
= 182 + 273 + 609 - 1064 sqm
Cost of flooring = 1064 × 190
Total flooring area with wooden
= Branch Manager room + Hall
= 221 + 667 = 888 sqm
Cost of flooring = 888 × 170
Ratio = 888 × 170 : 1064 × 190
= 888 × 17 : 1064 × 19
= 15096 : 20216
= 1887 : 2527

37. 5; Cost of flooring of branch manager room = 221 × 170 = Rs 37570
Cost Of pamting = [2(17 × 12 + 13 × 12) + 13 × 17} × 190
= [2(204 + 156) + 221] × 190 = (2 × 360 + 221) × 190
= (720 + 221) × 190 = 941 × 190 = Rs 178790
Total cost = 178790 + 37570 = Rs 216360

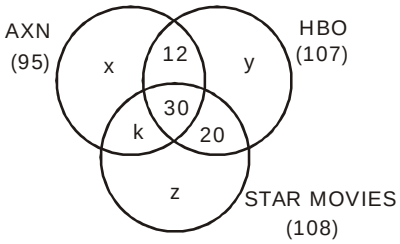
38. 5; total area of bank = 2000 sq m
Total flooring area = 1952 sq fn
Remaining area = 2000 - 1952 = 48 sq m
∴ Cost of carpeting = 48 × 110 = Rs 5280

39. 2; Area not to be renovated = 48 sq m

$$\therefore \text{Reqd\%} = \frac{48}{2000} \times 100 = 2.4\%$$

40. 1; Cost of renovation of hall + locker area
= 667 × 170 + 609 × 190
= 113390 + 115710 = Rs 229100

(41-45)



y = 107 - 12 - 30 - 20 = 45
x + k + 12 + 30 = 95
∴ x + k = 53 ...(I)
z + k + 30 + 20 = 108
z + k = 58 ...(II)
x+12 + y + k + 30 + 20 + z = 200
∴ x + z + k = 93 ...(III)
From eqn (I), (II) and (III)
x = 35, z = 40, k = 18

41. 3

42. 2; Only AXN = 35
Only HBO = 45
∴ Sum = 80

43. 4; Only Star Movies = 40

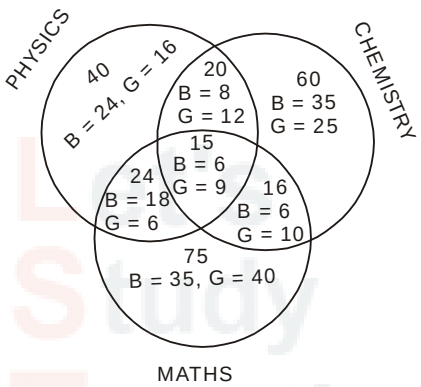
$$\therefore \text{Reqd\%} = \frac{40}{200} \times 100 = 20\%$$

44. 1

45. 5; At least two channels = 80
Exactly one channel = 120

$$\therefore \text{Reqd\%} = \frac{80}{120} \times 100 = \frac{200}{3} = 66\frac{2}{3}\%$$

(46-50) :



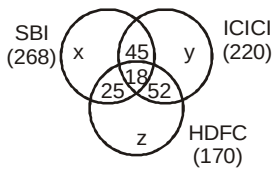
Total = 250
B = 32, G = 118

46. 1 47. 4 48. 2 49. 3

50. 3; Boys who passed only in Chemistry = 35
Girls who passed only in Maths = 40 And girls who passed only in Physics =16

$$\therefore \text{Reqd \%} = \frac{35}{56} \times 100 = 62.5\%$$

(51-55) :



Total number of persons = 500
Number of persons having account in SBI

$$= 53.6 \times \frac{500}{100} = 268$$

Number of persons having account in ICICI

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$= 44 \times \frac{500}{100} = 220$

Number of persons having account in

HDFC = $34 \times \frac{500}{100} = 170$

∴ Persons having account in SBI and HDFC

$= 5 \times \frac{500}{100} = 25$

∴ Persons having account in SBI and ICICI

$= 180 \times \frac{25}{100} = 45$

∴ Persons having account in all the three banks

$= 3.6 \times \frac{500}{100} = 18$

∴ Persons having account in HDFC and ICICI

$= 10.4 \times \frac{500}{100} = 52$

x + y + z = 500 - (45 + 18 + 25 + 52)
= 500 - 140 = 360
x = 268 - (45 + 25 + 18) = 180
y = 220-(45 + 18 + 52) = 105
z = 170 - (25 +18 + 52) = 75

51. 2 52. 3 53. 4 54. 3

55. 2; No. of employees having account in at least two banks = 45 + 25 + 18 + 52 = 140
No. of employees having account in atmost two banks = 500 - 18 = 482

∴ Reqd % = $\frac{140}{482} \times 100 = 29\%$

(56-60) :

No of Mobile phones $\Rightarrow \frac{1650 \times 24}{100} = 396$

No of pen drives = $1650 \times \frac{1}{6} = 275$

No of calculators = $1650 \times \frac{14}{100} = 231$

No of Televisions + washing machines = 748
No of washing machines = T + 50
T + W = 748
T + T + W = 748
2T = 748 – 50 = 698

∴ $T = \frac{698}{2} = 349$

washing machines 349 + 50 = 399

56. 2; Ratio = $\frac{399}{231} = \frac{133}{77} = \frac{19}{11}$ = 19 : 11

57. 1; Number of pen drives which are not defective

$= 275 - 275 \times \frac{24}{100} = 275 - 66 = 209$

58. 2; Required %

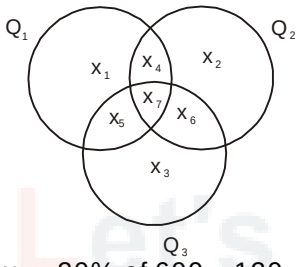
$= \frac{349}{231 + 399} \times 100 = \frac{349}{640} \times 100$

= 54.53 = 55%

59. 5; Difference = 349 + 396 - 231
= 745 - 231 = 514

60. 4; Total number of pen drives, calculators and washing machines
= 275 + 231 + 399 = 905

(61-65) :



x_1 = 20% of 600 = 120

$x_2 = \frac{1}{4} \times 600 = 150$

$x_7 = \frac{1}{24} \times 600 = 25$

x_5 = 25 + 20 = 45

x_6 = 25% of x4 = $\frac{x_4}{4}$

or $x_3 + x_5 + x_6 + x_7 = 2 \times x_1 = 240$
or $x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 = 600 - 10 = 590$
or $510 - x_6 + x_4 + x_6 = 590$
∴ $x_4 = 590 - 510 = 80$

$x_6 = \frac{80}{4} = 20$ and $x_3 = 240 - (45 + 25 + 20) = 150$

61. 1
62. 2
63. 4; Total number of people who answered Q_1 = 270

∴ Reqd % = $\frac{270}{600} \times 100 = 45\%$

64. 2; Number of people who answered at most one question
= 600 - 10 = 590
Number of people who most one question
= 120 + 150 + 150 + 10 = 430

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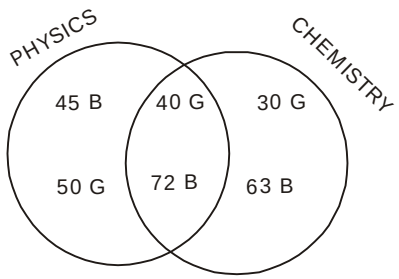
Difference = 590 - 430 = 160

65. 2; Ratio = $\frac{270}{150} = \frac{9}{5} = 9:5$

(66-70) :



Total = 300
Bays : Girls = 3 : 2
Boys = 180, Girls = 120

66. 4

67. 1; Reqd % = $\frac{63}{300} \times 100 = 21\%$

68. 5; Total students who passed in Physics = 45 + 50 + 40 + 72 = 207

69. 3; Ratio = $\frac{72+63}{50} = \frac{135}{50} = \frac{27}{10} = 27:10$

70. 4; Students who passed at most in one subject = 45 + 50 + 30 + 63 = 188

(71-75) :

Staff member = 120, students = 800

Number of teacher = $\frac{120 \times 65}{100} = 78$

Administrative officer = 120 – 78 = 42

Number of girl students = $\frac{800 \times 45}{100} = 360$

Number of boy students = 440
Number of girls who speak Hindi

$= \frac{360 \times 20}{100} = 72$

Number of girls who speak both Hindi and English = 360 – 72 = 288
Number of boys who speak only Hindi

$\Rightarrow 440 \times \frac{3}{4} = 330$

∴ Number of boys who speak Hindi and English = 440 – 330 = 110

∴ Number of male teachers = $78 \times \frac{2}{3} = 52$

71. 2; Difference = 288 - 110 = 178

72. 2; Required percentage

$= \frac{360}{120} \times 100 = 300\%$

73. 4; Female administrative officers

$= \frac{5}{14} \times 42 = 15$

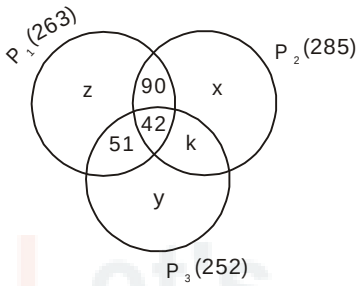
Male teachers = $= \frac{2}{3} \times 78 = 52$

Female teachers = 78 - 52 = 26
Male administrative officers
= 42 - 15 = 27
∴ Difference = 26 + 15 - 27 = 14

74. 5; Ratio = 78 : 330
= 39 : 165 = 13 : 55

75. 1; 27 + 26 + 72 = 125

(76-80) :



z = 263 – (90 + 51 + 42)
263 – 183 = 80
x + k = 285 – (90 + 42) = 153 .....(i)
y + k = 252 – (51 + 42) = 159 .....(ii)
x + y + k = 500 – (90 + 42 + 51 + 80) = 273 ...(iii)
Solving (i), (ii) and (iii)
x = 78, y = 84, k = 75
Let the number of boys who passed in p_1 only be B The number of girls who passed in p_1 only will be $\frac{3B}{5}$

∴ $B + \frac{3B}{5} = 80$

∴ B = 50

50 number of girls = $\frac{3B}{5} = 30$

The number of students who passed only in pz is 78 where B : G = 7 : 6 i.e
B + G = 78 ...(i)
And 6B = 79 solving these two egrs, B = 42
G = 36
Number of girls who passed only in

p_3 = 6% of 500 $\Rightarrow \frac{6}{100} \times 500 = 30$

So the number of boys who passed only in p_3 is 84 – 30 = 54

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76. 2 .

77. 2; The number of boys who passed in Paper P_1 = 50
Number of girls who passed in Paper P_2 = 30
∴ Difference = 50 - 30 = 20

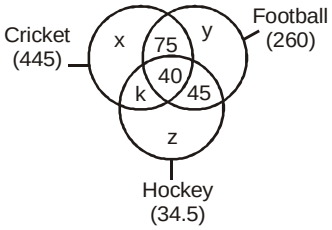
78. 3; $\text{Reqd\%} = \frac{78}{500} \times 100 = 15.6\%$

79. 3; Ratio = $\frac{90}{54} = \frac{5}{3} = 5 : 3$

80. 1; Required number = 80 + 78 + 84 = 242

$\text{Reqd\%} = \frac{242}{500} \times 100 = 48.4\%$

(81-85):



Cricket = 55.625% of 800 = 445
Football = 32.5% of 800 = 260
Hockey = 43.125% of 800 = 345
All three games = 5% of 800 = 40
Cricket + Football = 9.375% of 800 = 75
Football + Hockey = 5.625% of 800 = 45
y = 260 - (75 + 40 + 45) = 100
x + k = 445 - (75 + 40) = 330 ... (i)
z + k = 345 - (40 + 45) = 260 ... (ii)
x + z + k = 800 - (75 + 40 + 45 + 100) = 540 ... (iii)
eqn (i) + (ii) - eqn (iii)
(x + z + 2k) - (x + z + k) = (330 + 260) - 540
Solving this, k = 590 - 540 = 50
x = 330 - 50 = 280
z = 260 - 50 = 210

81. 5; Reqd % = $\frac{280}{800} \times 100 = 35\%$

82. 2

83. 4; Only Football = 100, Football = 260,

Reqd % = $\frac{100}{260} \times 100 = 38.46 \approx 38\%$

84. 5; Only Hockey = 210, all three = 40

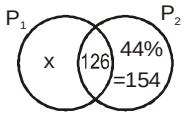
Reqd % = $\frac{210}{40} \times 100 = 525\%$

85. 3; The number of students who like at least two games = 75 + 50 + 45 + 40 = 210

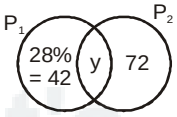
Reqd % = $\frac{210}{800} \times 100 = 26.25\%$

(86-90):

Ratio of Boys to Girls = 7 : 3
Boys = 350
Girls = 150



Boys = 350
∴ x + 126 + 154 = 350
∴ x = 350 – 280 = 70



Girls = 150
∴ y + 72 + 42 = 150
or, y = 150 – 114 = 36

86. 2; Reqd % = $\frac{70}{500} \times 100 = 14\%$

87. 3; Reqd % = $\frac{36}{150} \times 100 = 24\%$

88. 4; Difference = 196 - 108 = 88

89. 1; Total number of students passed in both the papers = 126 + 36 =162

∴ Reqd % = $\frac{162}{500} \times 100 = 32.4\%$

90. 5; Reqd % = $\frac{280}{500} \times 100 = 56\%$

(91-95):

Level	I	II	III	IV	V	Total
Male	170	153	228	129	170	850
Female	182	102	147	117	102	650

91. 4; Total number of males working at level I and III together = 170 + 228 = 398

92. 4; Reqd % = $\frac{102}{1500} \times 100 = 6.8\% \approx 7\%$

93. 5

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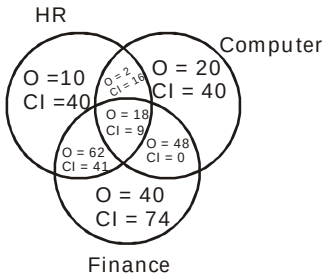
94. 4; Total number of females working a level I and V together = 182 + 102 = 284

95. 3; Reqd ratio = $\frac{170}{147}$ = 170 : 147

(96 - 100):



Total employees = 450
Number of officers = 200
Number of clerks = 250

96. 4; Required number of employees = 74 + 40 + 48 = 162

97. 4; Required number of officers = 20 + 48 + 2+ 18 = 88

98. 4; Required number of clerks = 40 + 41 = 81

99. 3; Required number = 16 + 2 = 18

100. 2; Required number = 9

(101-105):

Area of hall = 33 × 39 = 1287m²
Area of Director's room = 13 × 12 = 156m²
Area of record keeping-cum-server room = 23 × 13
= 299m²
Area of pantry = 14 × 12 = 168 m²
Area of accounts room = 12 × 23 = 276m²
∴ Total area to be floored = 2186m²
Cost of wooden flooring = `170 per sq m
Cost of marble flooring = `190 per sq m

101. 4; Total flooring area with wood = 1287 + 156 = 1443 sqm
Cost of flooring area with wood
= 1443 × 170
= `245310
Total flooring area with marble = accounts room + record keeping cum-server room + pantry
Cost of flooring area with marble = 743 × 190 = `141170

Reqd ratio = $\frac{245310}{141170} = \frac{24531}{14117}$
= 24531 : 14117

102. 1; Area of wall = 2(15 × 13 + 15 × 12) = 750
Area of director's room = 13 × 12 = 156
Cost of painting = 190 × (750 + 156) = `172140
Cost of flooring = 170 × 156 = ` 26520
∴ Total cost = 172410 + 26520 = ` 198660

103. 3; Total area of the institute = 2500 sq m
∴ Remaining area = 2500 - 2186 = 314 sq m
Cost of renovation of the remaining area
= 314 × 210 = ` 65940

104. 4; Area not to be renovated = 314 sq m

∴ Reqd % = $\frac{3.14}{2500} \times 100 = 12.56$

105. 5; Cost of renovation of the hall = 1287 × 170 = 21879.0
Cost of renovating the accounts room
= 276 × 190 = 52440
Total cost = 218790 + 52440 = ` 271230

(106-108):

Total number of members (males + females) = 240

Number of males = 240 × $\frac{2}{3}$ = 160

Number of males who are graduates

= 160 × $\frac{15}{100}$ = 240

Number of males who are non graduates
= 160 – 24 = 136
Number of females = 240 – 160 = 80
Now the number of females who are

graduates = 80 × $\frac{3}{4}$ = 60

Number of females who are non graduates
= 80 – 60 = 20

106.3; ∴ Difference = 24 - 20 = 4

107.5; Reqd sum = 60 + 136 = 196

108. 2; Reqd ratio = $\frac{160}{20}$ = 8 : 1

(109-112):

In Zone A, the estimated voter turnout is 17500 and the minimum number of days required is 2.
In Zone B, the estimated voter turnout is

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17400 and the minimum number of days required for campaigning is 3.

In Zone C, estimated voter turnout is 28000 and the minimum number of days required for it campaigning 4.

In Zone D, the estimated voter turn out is 29400 and the minimum number of days required for campaigning is 5.

In Zone E, the estimated voter turn out is 18000 and the minimum number of days for campaigning is 3.

In Zone F, the estimated voter turnout is 10500 and the minimum number of days required is 3.

In Zone G, the estimated voter turn out 18200 and the minimum number of days campaigning is 3.

109. 2; Total number of days required for campaigning in all the zones = 2 + 3 + 4+ 5 + 3 + 3 + 3 = 23. In 20 days the candiate can campaign in at most 6 zones. The zone in which he would not campaign is zone F, which requires 3 days to campaign and has the least estimated voter turnout'.

∴ The maximum number of voter population that the candidate can meet in 20 days

= 20000 + 24000 + 35000 + 42000 + 30000 + 28000 = 179000

110. 4; Since the candidate has to ensure that the total voter turnout is the maximum, he will not campaign in Zone D and F. Here the estimated voter turnout is less and the time taken to campaign is more for both the zones.

111. 2; He would choose only those zones in which the voter turnout is the maximum. From the above table, the sum of the voter turnout in the zones C, D, E, and G is the maximum

112. 3; From the above table, only statement II is true.

(113 - 117):

	University U_1 (1400)	University U_2 (1960)
Physics	280	588
Chemistry	280	882
Mathematics	350	294
Geography	490	196

113. 1; Total amount paid by University U_2 to the staff of Mathematics Department

= 294 × 9500 = 2793000 = ` 27.93 lakh

114. 2; Total number of staff in Geography Deptt in University U_1 and U_2 together = 686

$\therefore$ Reqd% $= \frac{686}{1400} \times 100 = 49\%$

115. 3; Total number of staff in Chemistry Department of University U_2 = 882

Total number of staff in Physics and Chemistry Departments in University U_1 and U_2 together = 280 + 280 = 560

∴ Difference = 882 - 560 = 322

116. 5; Reqd ratio = $\frac{196}{350} = \frac{14}{25} = 14 : 25$

117. 1; Reqd % $= \frac{280}{1960} \times 100 = 14.28 \approx 14\%$

(118-122):

Number of Savings Aecounts

$= \frac{24 \times 2050}{100} = 492$

Number of Current Accounts = 2050 x $\frac{1}{5}$

= 410

Number of NRI Accounts = $\frac{16 \times 2050}{100} = 328$

Number of Senior Citizenship and Recurring Accounts = 820.

Number of Recurring Accounts = No. of Senior Citizenship Aecounts + 182

Senior Citizenship + Recurring Accounts = 820

or Senior Citizenship + Senior Citizenship + 182 = 820

or, 2 Senior Citizenship = 820 - 182 = 638

∴ Senior Citizenship = $\frac{638}{2}$ = 319

∴ Recurring Account = 319 + 182 = 501

118. 2; Reqd ratio = $\frac{410}{820} = 1 : 2$

119. 3; Number of non - operative accounts

$= \frac{410 \times 20}{100} = 82$

∴ Number of accounts which are operative = 410 - 82 = 328

120. 5; Reqd % = $\frac{328}{902} \times 100 = 36.36 \approx 36\%$

121. 3; Total number of Senior Citizenship, NRI and Current Accounts = 328 + 319 + 410 = 1057

122. 1; Difference = 319 + 492 - 501

= 811 - 501 = 310

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