REASONING *(Answers on pages 2 - 3)*

MATHEMATICAL VENN DIAGRAMS - 1

Questions 1 – 4:
In a batch of 160 management students, 120 passed in Marketing Management (MM) and 70 passed in Quantitative Techniques (QT). 10 failed in both the subjects.

1) How many students passed only in QT?
a) 70 b) 10 c) 50 d) 30

2) How many students failed in MM?
a) 40 b) 100 c) 60 d) 80

3) How many students failed in exactly one subject?
a) 20 b) 50 c) 110 d) 70

4) After a re-test, 7 students from the group of students failed in both subjects passed only in Marketing Management. Then, how many students passed in at least one subject?
a) 143 b) 157 c) 113 d) 117

Questions 5 – 8:
35 students skipped the Exchange Programme (EP), but they have participated in Industrial Visit (IV) along with another 15 students from their batch. From this batch of total 65 students, 5 students did not participate in any of these programmes.

5) How many did not go for Industrial Visit?
a) 15 b) 35 c) 10 d) None of these

6) How many students did not participate in at least one programmes?
a) 35 b) 10 c) 50 d) 15

7) How many students participated in Exchange Programme?
a) 60 b) 75 c) 40 d) 25

8) How many students participated in Exchange Programme or Industrial Visit?
a) 45 b) 60 c) 30 d) None of these

Questions 9 – 12:
Survey among 280 executives about their preference on work cloth reveals the following data. 130 use Cotton, 105 use Linen and 120 use Polyester. 45 use Cotton and Linen; 65 use Linen and Polyester; 75 use Cotton and Polyester; and 20 use none of the three types of clothes.

9) How many uses at least one of the given type of clothes?
a) 375 b) 225 c) 260 d) 280

10) How many executives do not use cotton?
a) 120 b) 150 c) 150 d) None of these

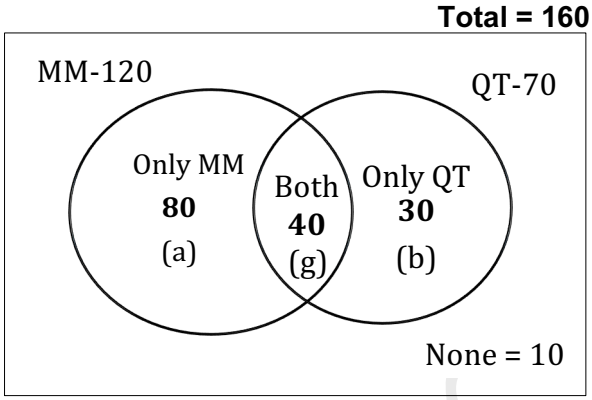
11) If 40 use only polyester, then how many uses cotton as well as linen?
a) 265 b) 135 c) 180 d) 220

12) If 60 use cotton and polyester, then how many use cotton but not polyester?
a) 70 b) 45 c) 10 d) 75

Answers:

Questions 1 - 3:

120 passed in Marketing Management (MM) and 70 passed in Quantitative Techniques (QT) and 10 passed in none of the subjects. It is the Venn Diagram of passed students.



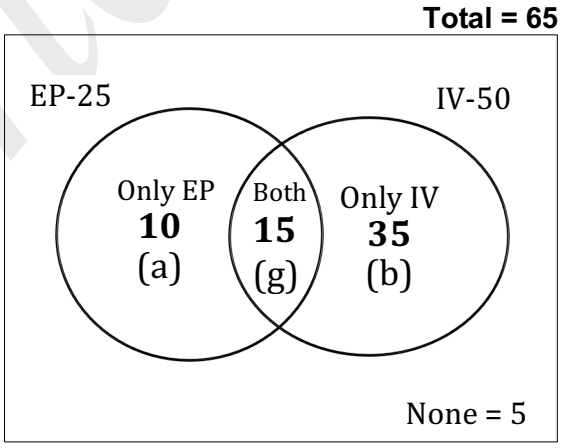
Step1:
Given information:
120 passed in MM means, a + g = 120 (Refer to the above diagram)
70 passed in QT means, b + g = 70
10 failed in both means, n = 10

In a Venn Diagram, a + b + g + n = Total (160)
n = 10, implies a + b + g = 150 and (a + g) + (b + g) = a + b + 2g = 190
Therefore, g = 40

1) d (30)
2) a (40)
3) c (110)
4) b (157)

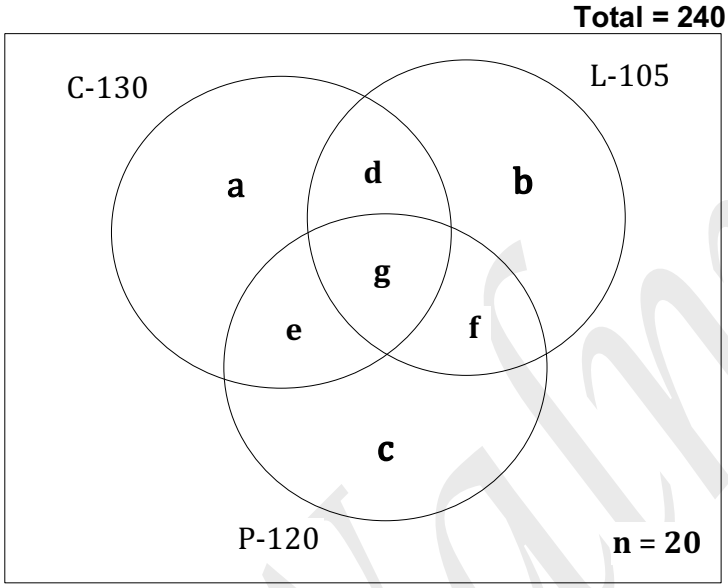
ANSWERS 5 – 8:

35 students skipped the Exchange Programme (EP), but they have participated in Industrial Visit (IV) along with another 15 students from their batch, MEANS 35 + 15 = 50 students participated in IV. The following Diagram shows the number of students participated in these programmes.



5) a (15)
6) c (50)
7) d (25)
8) b (60)

ANSWERS 9 – 12:



a - Only Cotton
b - Only Linen
c - Only Polyester
d - Only Cotton and Linen (Exactly Cotton and Linen)
e - Only Cotton and Polyester (Exactly Cotton and Polyester)
f - Only Linen and Polyester (Exactly Linen and Polyester)
g - Cotton, Linen and Polyester (All the three or exact three)
n – People use none of the three types of clothes

9) c (260) (a+b+c+d+e+f+g = 260)

10) b (150) (Executive use cotton is 130, therefore do not use cotton = Total – 130 = 150)

11) d (220) (Given c = 40, then the answer is Total – (c+n) = 220)

12) a (70) (Given e+g = 60, then answer (a+d) = 130 – (e+g) = 70