# <u>VENN DIAGRAM - III</u>

#### Directions:(Q.1 -4):-

1000 patients currently suffering from a disease were selected to study the effectiveness of treatment of four types of medicines — A, B, C and D. These patients were first randomly assigned into two groups of equal size, called treatment group and control group. The patients in the control group were not treated with any of these medicines; instead they were given a dummy medicine, called placebo, containing only sugar and starch. The following information is known about the patients in the treatment group.

CAT 2020 [Slot 1]

- I. A total of 250 patients were treated with type A medicine and a total of 210 patients were treated with type C medicine.
- II. 25 patients were treated with type A medicine only.
  20 patients were treated with type C medicine only.
   10 patients were treated with type D medicine only.
- III. 35 patients were treated with type A and type D medicines only. 20 patients were treated with type A and type B medicines only. 30 patients were treated with type A and type C medicines only. 20 patients were treated with type C and type D medicines only.
- IV. 100 patients were treated with exactly three types of medicines.
- V. 40 patients were treated with medicines of types A, B and C, but not with medicines of type D. 20 patients were treated with medicines of types A, C and D, but not with medicines of type B.
- VI. 50 patients were given all the four types of medicines. 75 patients were treated with exactly one type of medicine
- Q1. How many patients were treated with medicine type B?
- Q2. The number of patients who were treated with medicine types B, C and D, but not type A was:
- Q3. How many patients were treated with medicine types B and D only?
- Q4. The number of patients who were treated with medicine type D was:

#### Directions:(Q.5 -8):-

A survey of 600 schools in India was conducted to gather information about their online teaching learning processes (OTLP). The following four facilities were studied. CAT 2020 [Slot 3]

F1: Own software for OTLP

- F2: Trained teachers for OTLP
- F3: Training materials for OTLP
- F4: All students having Laptops

# The following observations were summarized from the survey.

i. 80 schools did not have any of the four facilities – F1, F2, F3, F4.

- ii. 40 schools had all four facilities.
- iii. The number of schools with only F1, only F2, only F3, and only F4 was 25, 30, 26 and 20 respectively.
- iv. The number of schools with exactly three of the facilities was the same irrespective of which three were considered.
- v. 313 schools had F2.
- vi. 26 schools had only F2 and F3 (but neither F1 nor F4).
- vii. Among the schools having F4, 24 had only F3, and 45 had only F2.
- viii. 162 schools had both F1 and F2.
- ix. The number of schools having F1 was the same as the number of schools having F4.
- Q5. What was the total number of schools having exactly three of the four facilities? a) 200 b) 50 c) 80 d) 64
- Q6. What was the number of schools having facilities F2 and F4? a) 185 b) 45 c) 95 d) 85
- Q7. What was the number of schools having only facilities F1 and F3?
- Q8. What was the number of schools having only facilities F1 and F4?

## Directions:(Q.9 -12):-

Fun Sports (FS) provides training in three sports – Gilli-danda (G), Kho-Kho (K), and Ludo (L). Currently it has an enrollment of 39 students each of whom is enrolled in at least one of the three sports. The following details are known:

- I. The number of students enrolled only in L is double the number of students enrolled in all the
- II. three sports.
- III. There are a total of 17 students enrolled in G.
- IV. The number of students enrolled only in G is one less than the number of students enrolledV. only in L.
- VI. The number of students enrolled only in K is equal to the number of students who are enrolled
- VII. in both K and L.
- VIII. The maximum student enrollment is in L.
- IX. Ten students enrolled in G are also enrolled in at least one more sport.

Q 9: What is the minimum number of students enrolled in both G and L but not in K?

Q 10: If the numbers of students enrolled in K and L are in the ratio 19:22, then what is the number of students enrolled in L?

Q 11: Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and K?

Q 12: Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and L?

1.6

2.7

- 3.5
- 4.8

4. 8

Q 13 Out of a total 100 people surveyed, 73 like coffee, 80 like tea, 52 like lemonade. find the difference between the minimum and maximum number of people who like all 3 drink? (CAT 2022)

52

47

48

53

## Directions:(Q.14 -15):-

New Age Consultants have three consultants Gyani, Medha and Buddhi. The sum of the number of projects handled by Gyani and Buddhi individually is equal to the number of projects in which Medha is involved. All three consultants are involved together in 6 projects. Gyani works with Medha in 14 projects. Buddhi has 2 projects with Medha but without Gyani, and 3 projects with Gyani but without Medha. The total number of projects for New Age Consultants is one less than twice the number of projects in which more than one consultant is involved.

Q.14. What is the number of projects in which Medha alone is involved ? (CAT 2003)

A. Uniquely equal to zero

B. Uniquely equal to 1

C. Uniquely equal to 4

D. Cannot be determined uniquely

Q.15. What is the number of projects in which Gyani alone is involved ?

## (CAT 2003)

A. Uniquely equal to zero

B. Uniquely equal to 1

C. Uniquely equal to 4

D. Cannot be determined uniquely

### Directions:(Q.16 -19):-

# Refer to the data below and answer the questions that follow.

Polyglot Foreign Language Academy offers training in German, French and Spanish languages. Currently, there are 400 students enrolled in the academy, who learn at least one of the three languages. The numbers of students who study German, French, and Spanish are 100, 200 and 300 respectively.

What can be the maximum number of students who study all the three languages?

Q.16. Enter your response (as an integer) using the virtual keyboard in the box provided below.

Q.17. What can be the maximum number of students who study two languages?

#### Additional information for Q.3 and Q.4

The following table shows the break-up of the number of students who study exactly two languages:

German and French	10
German and Spanish	20
French and Spanish	30

Q.18. How many students study all three languages? a) 60 b) 65 c) 70 d) Cannot be determined

- Q.19. How many students study only one language? a) Less than 150
  - b) Between 150 and 199 (both included)
  - c) Between 200 and 249 (both included)
  - d) More than 250

#### Answer Key...

1. 340	2. 10	3. 150	4. 325	5. A	6. A	7. 42	8. 20
9.4	10. C	11. 2	12. A	13. B	14. B	15. D	16.
17.	18.	19.					