

LOGICAL DIAGRAMS

2

CHAPTER

- An object is called a subset of another object, if former is a part of latter and such relation is shown by two concentric circles.

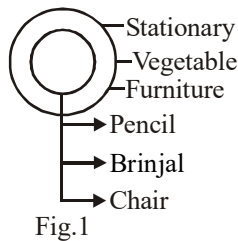


Fig.1

- (i) Pencil, Stationary
- (ii) Brinjal, Vegetable
- (iii) Chair, Furniture

It is very clear from the above relationship that one object is a part of other, and hence all such relationships can be represented by fig.1.

- An object is said to have an intersection with another object, when two objects share some thing in common.

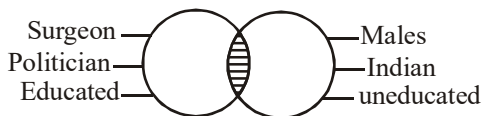


Fig.2

- (i) Surgeon, Males
- (ii) Politicians, Indian
- (iii) Educated, Unemployed

All the three relationships given above have something in common as some surgeons can be male and some female, some politicians may be Indian and some may belong to other countries, educated may be employed and unemployed as well. And all the three relationships can be represented by fig. 2.

- Two objects are said to be disjoint when neither one is subset of another nor they share anything in common. In other words, totally unrelated objects fall under this types of relationship.

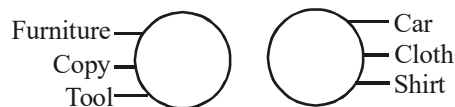


Fig. 3

- (i) Furniture, Car
- (ii) Copy, Cloth
- (iii) Tool, Shirt

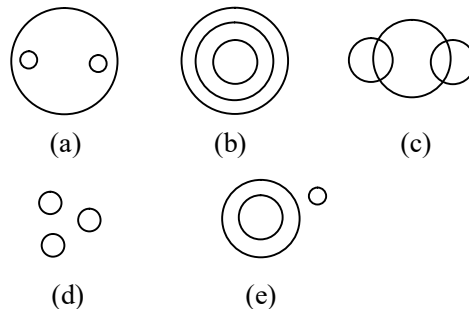
It is clear from the above relationship that both the objects are unrelated to each other, and hence can be represented diagrammatically as shown in fig. 3

From the above discussion we observe that representation of relationship of two objects is not typical if students follow the above points. But representation of three objects diagrammatically pose slight problem before the students. A variety of such relationship is being discussed in the following examples.

❖ EXAMPLES ❖

Directions :

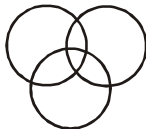
Each of these questions given below contains three group of things. You are to choose from the following five numbered diagrams, a diagram that depicts the correct relationship among the three groups of things in each question.



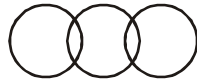
1. Moon, Earth, Universe
2. India, Pakistan, Asia
3. Batsman, Cricket, Stick
4. Book, Pen, Pencil.

- Sol.**
1. Moon and Earth, are the parts of universe and therefore are subsets of universe and hence this relationship is represented by diagram (a).
 2. India and Pakistan, are the subsets of Asia. Hence, option (a) represents this relationship.
 3. Batsman is a subset of Cricket and, Stick is something unrelated to Cricket, therefore, our answer is (e).
 4. Book, Pen, Pencil are neither subset of one another nor have anything in common, Therefore, our answer is (d).

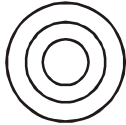
Ex.2 Which of the following diagrams correctly represents the relationship among Tennis fans, Cricket players and Students.



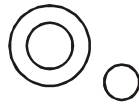
(a)



(b)



(c)



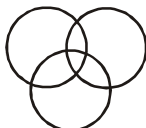
(d)



(e)

Sol. From the relationship given in the question, we observe that each of the objects carries something in common to one another. A tennis fan can be a Cricket player as well as student. Hence diagram (a) represents this relationship. So our answer is (a).

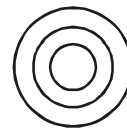
Ex.3 Which of the following diagrams correctly represents the relationship among Smokers, Bidi smokers, Cancer patients.



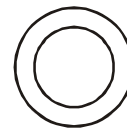
(a)



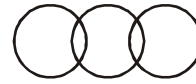
(b)



(c)



(d)



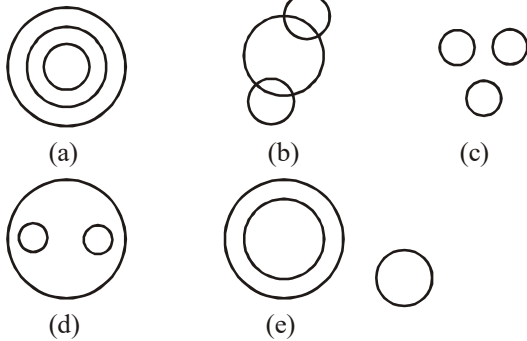
(e)

Sol. Bidi smokers is a subset of Smokers and Cancer patient may be a smoker, bidi smoker and non-smoker. Hence, third object shares a common relationship with first and second object as well. Hence, diagram (b) is our answer.

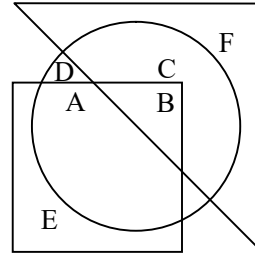
Exercise

Directions :

Each of the questions given below contains three groups of things. You have to choose from the following five numbered diagrams, the diagram that depicts the correct relationship among the three groups of things in each question.

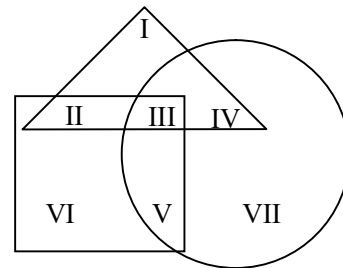


- Q.1** Pop, Songs, Classical
(A) c (B) e (C) d (D) a
- Q.2** Maize, Sugarcane, Crops
(A) a (B) b (C) c (D) d
- Q.3** Birds, Owls, Elephants
(A) a (B) b (C) e (D) d
- Q.4** Apples, Mangoes, Oranges
(A) a (B) b (C) c (D) d
- Q.5** Asia, Delhi, India
(A) a (B) b (C) c (D) d
- Q.6** Lawyers, Women, Doctors
(A) a (B) b (C) c (D) d
- Q.7** Brinjal, Glass, Spoon
(A) a (B) b (C) c (D) d
- Q.8** Pen, Stationary, Powder
(A) a (B) b (C) e (D) d
- Q.9** Vehicle, Car, Jeep
(A) a (B) b (C) c (D) d
- Q.10** Year, Month, Day
(A) a (B) b (C) c (D) d
- Q.11** Which one of the following statements is correct with regard to the given figure ?



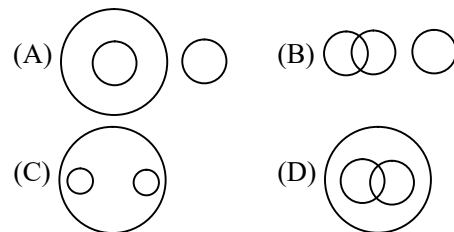
- (A) A and B are in all the three shapes.
(B) E, A, B, C are in all the three shapes.
(C) F, C, D, B, A are in all the three shapes
(D) Only B is in all the three shapes.

- Q.12** The triangle, Square and circle shown below respectively represent the urban, hard working and educated people. Which one of the areas marked I-VII is represented by the urban educated people who are not hard working ?



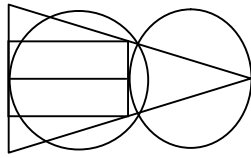
- (A) II (B) I
(C) IV (D) III

- Q.13** Choose from the four diagrams given below, the one that illustrates the relationship among Languages. French, German.



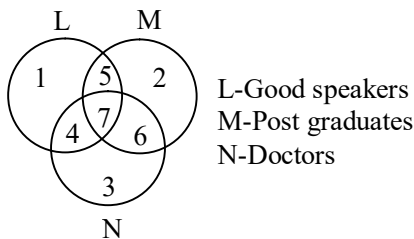
Directions (Q. 14-15)

The following figure represents a set of persons : the triangle represents educated persons, the rectangle represents policemen, the circle represents road tax payers and ellipse represents shopkeepers :



- Q.14** Looking at the figure we can conclude that -
 (A) All educated shopkeepers pay road tax
 (B) All road tax paying policemen are educated
 (C) All educated policemen pay road tax
 (D) All road tax paying shopkeepers are educated
- Q.15** On the basis of this figure, it can be concluded that -
 (A) None of the uneducated shopkeepers is a policeman though an uneducated policeman is a shopkeeper
 (B) Some of the educated shopkeepers are road tax payers even though they discharge duties of a policeman
 (C) Some of the educated policemen who pay road tax are sharing profits with uneducated shopkeepers
 (D) None of the educated shopkeepers is a policeman nor an educated policeman a shopkeeper

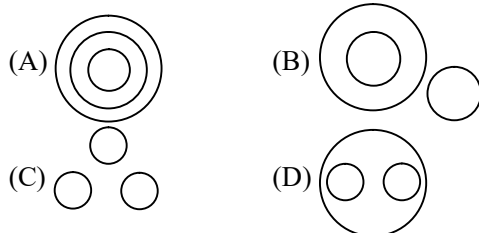
- Q.16** Which number indicates good speakers who are neither post graduates nor doctors ?



- (A) 6 (B) 2
 (C) 5 (D) 1

Directions (Q. 17-20)

Each of these questions below contains three groups of things. You have to choose from the following five numbered diagrams, the diagram that depicts the correct relationship among the three groups of things in each question.



- Q.17** Tables, chairs, Furniture

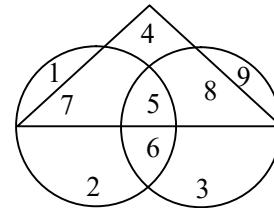
- Q.18** Tie, Shirt, Pantaloon

- Q.19** Dogs, Pets, Cats

- Q.20** Brinjal, Meat, Vegetables

Directions (Q. 21-25)

The following 5 questions (number 9-13) are based on the following diagram, in which the triangle represents female graduates, small circle represents self-employed females and the big circle represents self-employed females with bank loan facility. Numbers are shown in the different sections of the diagram. On the basis of these number given, Answer the following :



- Q.21** How many self-employed female graduates are with bank loan facility ?

- (A) 5 (B) 12
 (C) 7 (D) 20

- Q.22** How many non-graduate self-employed females are with bank loan facility ?

- (A) 8 (B) 6
 (C) 9 (D) 12

- Q.23** How many female graduates are not self-employed ?

- (A) 4 (B) 12
 (C) 10 (D) 15

- Q.24** How many female graduates are self-employed ?

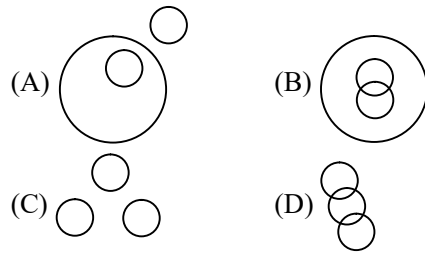
- (A) 13 (B) 12
 (C) 20 (D) 15

- Q.25** How many non-graduate females are self-employed ?

- (A) 9 (B) 11
 (C) 12 (D) 21

Direction (Q. 26-30)

Which is the most suitable Venn diagram among the following which represents interrelationship for the given questions ?



Q.26 Male, Father, Book

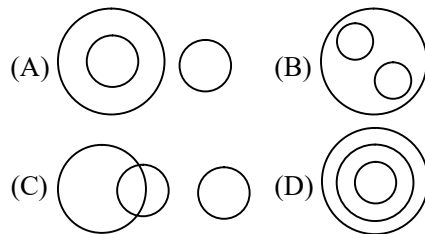
Q.27 Family, Spouse, Husbands

Q.28 Doctors, Human beings, Cows.

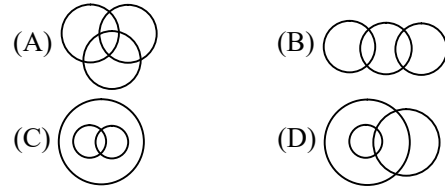
Q.29 Social workers. Alcoholics, Tetotallers.

Q.30 Females, Mothers, Nurses.

Q.31 Which of the following diagrams indicates the best relations between Judge, Thieves and Criminals ?

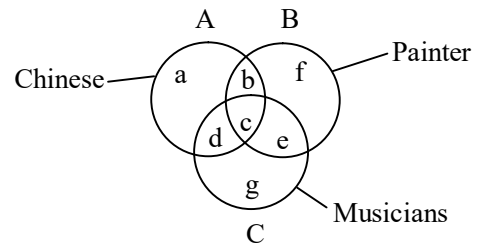


Q.32 Which is the most suitable venn diagram among the following, which represents interrelationship among Antisocial elements, Pick pockets and Black mailers ?



Directions (Q. 33-35)

In the figure given below, there are three intersecting circles each representing certain section of people. Different regions are marked a–g. Read the statements in each of the following questions and choose the letter of the region which correctly represents the statements.



Q.33 Chinese who are painters but not musicians -

(A) b (B) c (C) d (D) g

Q.34 Painters who are neither Chinese nor musicians -

(A) b (B) c (C) f (D) g

Q.35 Chinese who are musicians but not painters -

(A) d (B) c (C) b (D) a

ANSWER KEY

Q.No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	C	D	C	C	A	B	C	C	D	A	D	C	C	B	D	D	D	C	D	B
Q.No	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35					
Ans.	A	B	A	A	C	A	B	A	D	B	A	C	A	C	A					