

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.

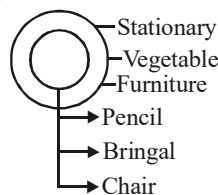


Fig.1

- (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

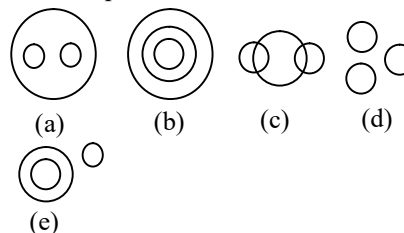
It is clear from the above relationship that both the objects are unrelated to each other, and hence can be represented diagrammatically as shown in fig. 3

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.

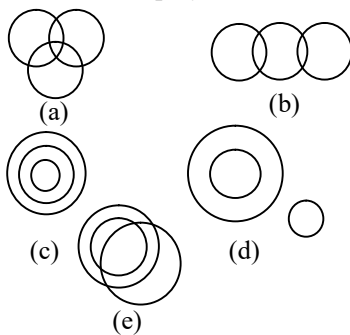
Ex.1



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

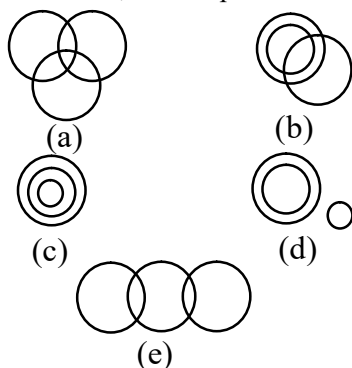
- Sol. 1.** Moon and Earth, are the parts of universe and therefore are subsets of universe and hence this relationship is represented by diagram (a).
- India and Pakistan, are the subsets of Asia. Hence, option (a) represents this relationship.
 - Batsman is a subset of Cricket and, Stick is something unrelated to Cricket, therefore, our answer is (e).
 - 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.



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.

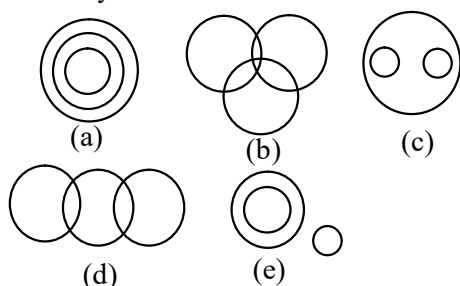


Sol. Bidi smokers is a subset of Smokers and Cancer patient may be a smoker, bidi smoker and non-smoker. Hence, third object shares a common relationship with first and second object as well. Hence, diagram (b) is our answer.

EXERCISE

Directions :

Out of the four alternatives in each of the following questions, three alternatives are such that the three words in each are related among themselves in one of the five ways represented by (a), (b), (c), (d) and (e) below. And one of the alternative represents a relationship which is not represented by any of the figures given below. The relationship that complies this condition is your answer.

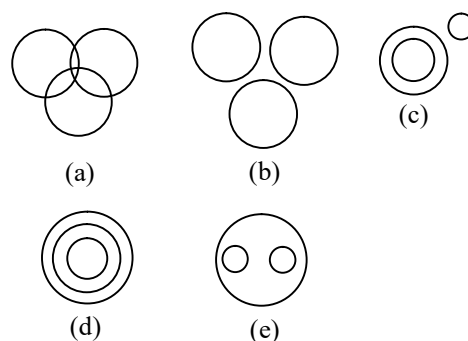


- Q.1** (A) Army, General, Colonel
(B) Boy, Student, Player
(C) Painter, Scholar, Table
(D) Man, Typist, Peon
- Q.2** (A) Hen, Dog, Cat
(B) Body, Ear, Mouth
(C) Bed, Ward, Nurse
(D) Tiger, Animal, Carnivorous.
- Q.3** (A) Mineral, Iron, Copper
(B) Dean, Painter, Singer
(C) Seed, Leaf, Root
(D) Piston, Engine, Wheel
- Q.4** (A) Director, Engineer, Musician
(B) Apple, Orange, Mango
(C) Fruit, Mango, Grass
(D) Oxygen, Air, Water
- Q.5** (A) Bed, Ward, Hospital
(B) Boy, Girl, Player
(C) Copper, Zinc, Iron
(D) Book, Page, paragraph
- Q.6** (A) Atmosphere, Air, Oxygen
(B) Boy, Girl, Student
(C) Man, Worker, Garden
(D) Animal, Dog, Cat

- Q.7** (A) Body, Hand, Finger
(B) Mammal, Nurse, Woman
(C) Cereal, Wheat, Rice
(D) Males, Cousins, Nephews
- Q.8** (A) Star, Moon, Mars
(B) Professor, Scholar, Politician
(C) Nurse, Doctor, Woman
(D) Swimmer, Carpenter, Singer
- Q.9** (A) Animal, Mammal, Book
(B) Colour, Cloth, Merchant
(C) Colour, Red, Blue
(D) Male, Horse, Mare
- Q.10** (A) Periodicals, Weekly, Book
(B) Mineral, Copper, Wood
(C) Doctors, Human beings, Married People
(D) Army, Doctors, Engineers

Directions :

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

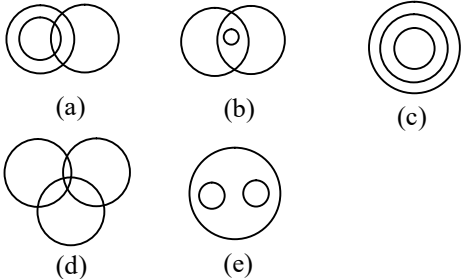


- Q.11** Vegetable, Fruit, Brinjal
(A) a (B) b (C) c (D) d
- Q.12** Door, Window, House
(A) a (B) b (C) e (D) d
- Q.13** Honest, Intelligent, Poor
(A) a (B) b (C) c (D) d
- Q.14** Car, Train, automobile
(A) a (B) b (C) c (D) d
- Q.15** Zinc, Copper, Iron

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

Directions :

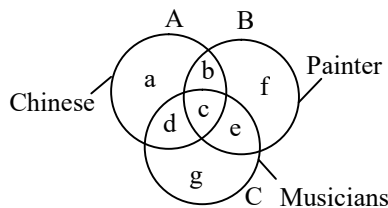
Each question below has three items having certain relationship among them. The same relationship is expressed by sets of circles, each circle representing one item irrespective of its size. Match the items with right set of circles.



- Q.16** Revers, Canals, Perennial source of water.
(A) a (B) e (C) c (D) d
- Q.17** Rings, Ornaments, Diamond rings.
(A) c (B) b (C) a (D) d
- Q.18** Women, Married persons, Wives who work.
(A) a (B) c (C) d (D) b
- Q.19** Computer skille, Graduates, Employed.
(A) a (B) d (C) b (D) e
- Q.20** Students, First divisioners, Third divisioners.
(A) b (B) c (C) d (D) e

Directions :

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 statement.

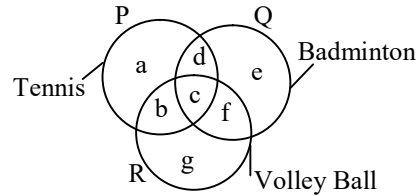


- Q.21** Chinese who are painters but not misicians.
(A) b (B) c (C) d (D) g
- Q.22** Painters who are neither Chinese nor musicians.
(A) b (B) c (C) f (D) g
- Q.23** Chinese who are musicians but not painters.
(A) d (B) c (C) b (D) a
- Q.24** Chinese who are painters as well as musicians.

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

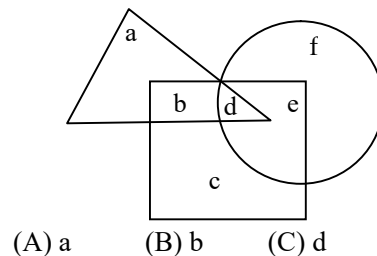
Direction :

The figure given below consists of three intersecting circles which represent sets of students who play Tennis, Badminton and Volley Ball. Each region in the figure is represented by a small letter.



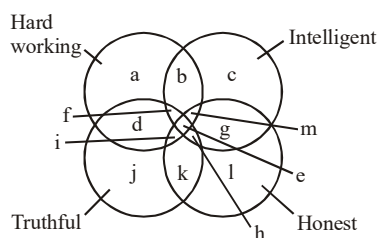
On the basis of the above figure, answer the questions given below.

- Q.25** Which letter represents the set of persons who play all the three games ?
(A) b (B) c (C) f (D) g
- Q.26** Which letter represents the set of persons who play Tennis and Volley Ball but no Badminton?
(A) g (B) e (C) c (D) b
- Q.27** Which letter represents the set of persons who play Tennis but neither Bad minton nor Volley Ball ?
(A) a (B) b (C) c (D) d
- Q.28** Which letter represents the set of persons who play Tennis and Badminton but not Volley Ball ?
(A) b (B) c (C)d (D) f
- Q.29** In the given figure, the triangle represents girls, the square represents sports persons and the circle represents coaches. The portion in the figure which represents girls, who are sports persons but not coaches is the one labelled

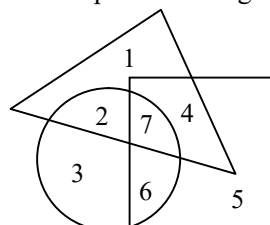


Direction :

Below is given a figure with four intersecting circles, each representing a group of persons having the quality written against it. Study the figure carefully and answer the questions that follow.



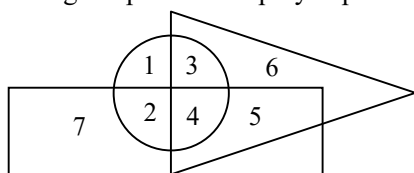
- Q.30** The region which represents the people who are intelligent, honest and truthful but not hard working is denoted by
(A) e (B) f (C) h (D) i
- Q.31** The people possessing all the qualities are represented by
(A) i (B) h (C) f (D) e
- Q.32** The region which represents people who are not honest but possess all other three qualities, is denoted by
(A) b (B) d (C) f (D) i
- Q.33** People who are not hard working, intelligent and truthful are represented by
(A) g (B) h (C) k (D) L
- Q.34** People who are not honest and truthful but are hard working and intelligent both, are represented by
(A) e (B) b (C) m (D) i
- Q.35** If Tall is equivalent to circle, Armymen to triangle and Strong to square, indicate which number will represent strong armymen ?



- (A) 3 (B) 4 (C) 5 (D) 6

Direction :

In the figure given below, the circle represents young persons, the triangle represents uneducated persons and the rectangle represents employed persons.



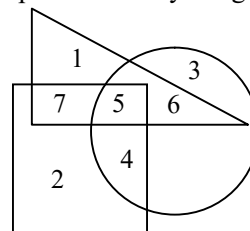
Study the figure carefully and answer the questions given below.

- Q.36** Which region represents young, uneducated and employed persons ?
(A) 6 (B) 5 (C) 4 (D) 3

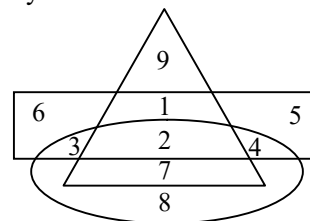
- Q.37** The region which represents educated, employed young persons, is denoted by
(A) 2 (B) 3 (C) 4 (D) 5
- Q.38** Which region represents young, educated and unemployed persons ?
(A) 7 (B) 4 (C) 1 (D) 5
- Q.39** Which region represents young, uneducated and unemployed persons ?
(A) 1 (B) 2 (C) 6 (D) 3

Directions :

The following questions are based on the diagram given below. In the diagram, the triangle stands for graduates, square stands for membership of professional organisations and the circle stands for membership of social organisations. Read each statement and find out the appropriate number(s) to represent the people covered by the given statement.

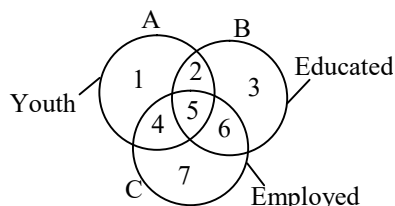


- Q.40** Number of graduates in social organisations
(A) 1 (B) 5 (C) 6 (D) 5 & 6
- Q.41** Number of graduates in social organisations only
(A) 3 (B) 4 (C) 5 (D) 6
- Q.42** Number of graduates in professional organisations
(A) 5 and 7 (B) 5, 6 and 7
(C) 6 and 7 (D) 4, 5 and 6
- Q.43** In the figure given below, triangle represents the women, rectangle represents the employed and circle represents the doctors, find out the area of the figure which represents women doctors who are not employed



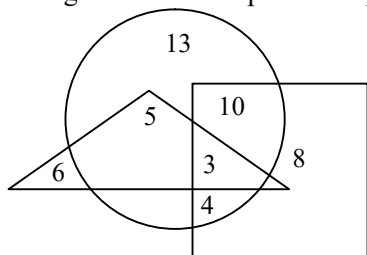
- (A) 1 (B) 3 (C) 7 (D) 8

- Q.44** Study the diagram below and identify the region representing youth who are employed but not educated.



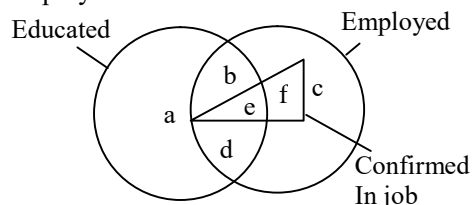
- (A) 4 only
(B) 1, 4, 7
(C) 4, 7
(D) 4, 5, 6

- Q.45** In the following diagram, parallelogram represents women, triangle represents sub-inspectors of police and circle represents graduates. Which number area represents women graduate sub-inspectors of police ?



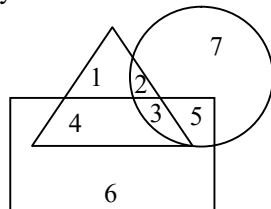
- (A) 5
(B) 3
(C) 8
(D) 13

- Q.46** Read the figure and find the region representing persons who are educated and employed but not confirmed.



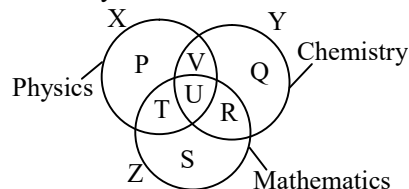
- (A) a, c
(B) a, b, c
(C) b, d
(D) a, d, c

- Q.47** In the figure given below, triangle represents the healthy, square represents the old and circle represents the men. Find out the area of the figure which represents the men who are healthy but not old ?



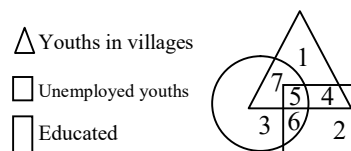
- (A) 1
(B) 2
(C) 3
(D) 7

- Q.48** The diagram below represents the students who study Physics, Chemistry and Mathematics. Study the diagram and identify the region which represents the students who study physics and Mathematics but not Chemistry.



- (A) T
(B) P + T + S
(C) V
(D) P + T + S + R + U + V

- Example :** Study the diagram given here carefully and answer the questions that follow



- Q.49** Uneducated unemployed youths in villages are represented by

- (A) 1
(B) 4
(C) 6
(D) 7

- Q.50** Educated unemployed youths in villages are represented by ?

- (A) 6
(B) 5
(C) 7
(D) 4

- Q.51** Educated youths in villages are represented by ?

- (A) 5
(B) 4
(C) 6
(D) 7

- Q.52** Educated unemployed youths are represented by ?

- (A) 3, 6
(B) 7, 5
(C) 5, 6
(D) 4, 5

- Q.53** What does number 6 represent ?

- (A) unemployed youths
(B) unemployed educated youths
(C) unemployed educated youths in villages
(D) educated youths in villages

- Q.54** What does number 4 represent ?

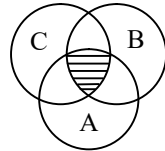
- (A) educated unemployed youths
(B) uneducated youths in villages
(C) educated employed youths
(D) unemployed youths in villages who are not educated

- Q.55** What does number 7 represent ?

- (A) unemployed youths
(B) uneducated unemployed youths
(C) educated youths in villages
(D) uneducated youths in villages

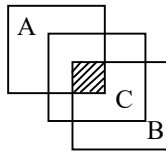
- Q.56** Unemployed youths are represented by
 (A) 4, 5, 6, 7 (B) 6, 2, 7, 1
 (C) 4, 2, 5, 6 (D) 4, 2, 5, 3

- Q.57** The following diagrams represents club membership of people in a city, where A = members of LEO club, B = members of JEO club, and C = members of DEO club. What does the shaded portion represent?



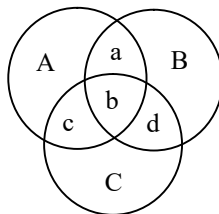
- (A) members who are common in both LEO and JEO clubs
 (B) members who are common in both JEO and DEO clubs
 (C) members who are common in all the three clubs
 (D) members who are common in more than two clubs

- Q.58** The following diagrams depicts various media by which people get news. Here A represents TV as the medium B represents radio, and C represents newspapers. What does the shaded portion depict ?



- (A) people getting news from only one medium
 (B) people getting news from TV as well as newspapers
 (C) people getting news from Radio as well as TV
 (D) people getting news from Radio, TV as well as newspapers

- Q.59** The diagram below shows group of people earning their living by various means, viz.

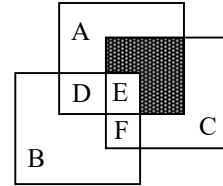


A = by working in offices
 B = by working in factories
 C = by running their own business

Which portion in the diagram depicts people who are earning their living from their own business as well as by working in offices ?

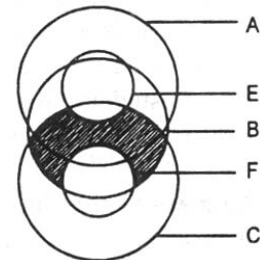
- (A) a (B) b
 (C) c (D) d

- Q.60** If A = Football fans, B = Cricket fans and F = Cricket Fans who play cricket also, then what does the shaded portion depict.



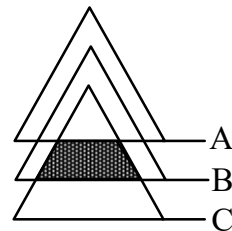
- (A) football fans who play football also
 (B) football fans who are also volleyball fans
 (C) football fans who play cricket also
 (D) none of the above

- Q.61** If A = Athletes, B = Basketball players and C = Cricket fans, E = People above eighth years of age and F = People below forty years of age, then the shaded area depicts.



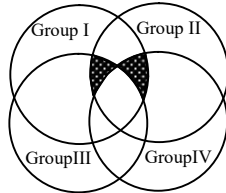
- (A) People who are Athletes and play basketball but are of 20 years of age
 (B) Athletes who play basketball and are also Cricket fan between the age group 40 to 80
 (C) Cricket fans between age group 40 to 80 who play basketball also
 (D) None of the above

- Q.62** What does the shaded portion depict, if

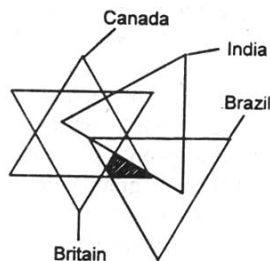


A = Students studying Maths,
 B = Students studying Economics
 C = Football players

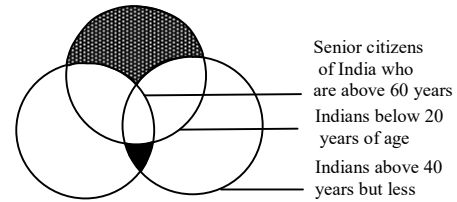
- Q.63** The shaded area if combined will have people from how many groups?



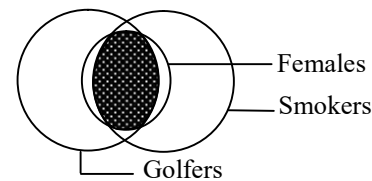
- Q.64** What does the shaded area depict



- Q.65** The combined shaded area represents



- Q.66** The shaded area represents



- (A) The smokers and golfers grouped together
(B) Females who smoke as well as play golf
(C) Females who have married cigarette smoking golfers
(D) None of the above

[illegible]