

9. LOGICAL VENN DIAGRAMS

This section deals with questions which aim at analysing a candidate's ability to relate a certain given group of items and illustrate it diagrammatically.

Here are a few different types of Venn diagrams with their implications made clear.

Suppose you are given a group of three items. Then,

1. if the items evidently belong to three different groups, the Venn diagram representing it would be as shown alongside.

Ex. Doctors, Engineers, Lawyers

These three items bear no relationship to each other. So, they are represented by 3 disjoint figures as shown in Fig. 1.

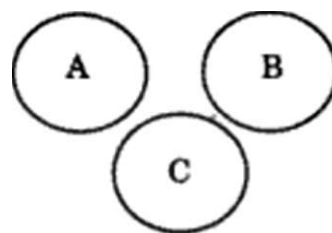
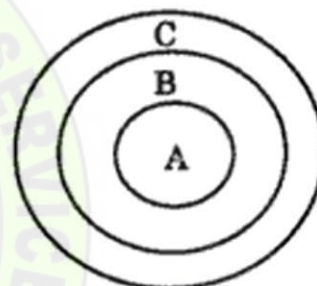


Fig. 1

2. if one item belongs to the class of the second and the second belongs to the class of third, then the representation is in the form of three concentric circles, as shown in Fig. 2.

Ex. Seconds, Minutes, Hours

Clearly, seconds are a part of minutes and minutes are a part of hours. So, the Venn diagram would be as shown in the adjoining figure with circle A representing *Seconds*, circle B representing *Minutes* and circle C representing *Hours*.



2

3. if two separate items belong to the class of the third, they are represented by two disjoint circles inside a bigger circle as shown in Fig. 3.

Ex. Table, Chair, Furniture

Clearly, table and chair are separate items but both are items of furniture. So, they would be represented as in the adjoining figure with circle A representing *Table*, circle B representing *Chair* and circle C representing *Furniture*.

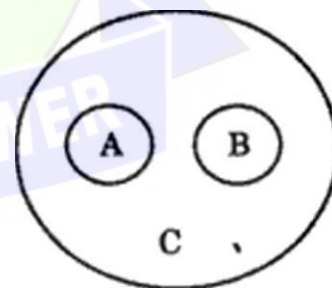


Fig. 3

4. if two items belong to the class of the third such that some items of each of these two groups are common in relationship, then they are represented by two intersecting circles enclosed within a bigger circle.

Ex. Males, Fathers, Brothers

Clearly, some fathers may be brothers. So, fathers and brothers would be represented by two intersecting circles. Also both fathers and brothers are males. So, the diagrammatic representation would be as shown in Fig. 4, with circle A representing *Fathers*, circle B representing *Brothers* and circle C representing *Males*.

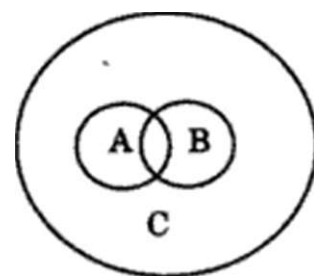


Fig. 4

5. if two items are partly related to the third, and are themselves independent of each other they are represented by three intersecting circles in a line.

Ex. Dogs, Pet*, Cats

Clearly, some dogs and some cats are pets. But, all the pets are not dogs or cats. Also, dogs and cats are not related to each other. So, the given items would be represented as shown in Fig. 5 with circle A representing *Dogs*, circle B representing *Pets* and circle C representing *Cats*.

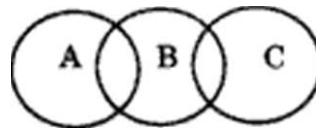


Fig. 5

6. if (he three items are partly related to each other, they are represented as shown in the adjoining figure.

Ex. Clerks, Government Employees, Educated Persons

Clearly, some clerks may be government employees and some may be educated. Similarly, some government employees may be clerks and some may be educated. Also, some educated persons may be clerks and some may be government employees. So, the given items may be represented as shown in Fig. 6 with three different circles denoting the three classes.

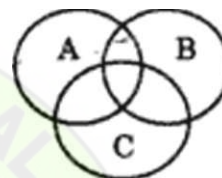


Fig. 6

7. if one item belongs to the class of second while third item is entirely different from the two, then they may be represented by the adjoining diagram.

Ex. Engineers, Human Beings, Rats

Clearly, all engineers are human beings. This would be represented by two concentric circles. But the class of rats is entirely different from these two. Thus, these items would be represented as shown in Fig. 7 with circle A representing *Engineers*, circle B representing *Human Beings* and circle C representing *Rats*.

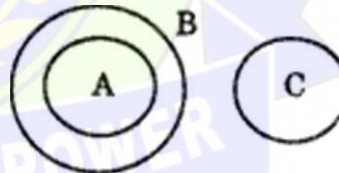


Fig. 7

8. if one item belongs to the class of second and the third item is partly related to these two, they are represented as shown alongside.

Ex. Females, Mothers, Doctors

Clearly, all mothers are females. This would be represented by two concentric circles. But, some females and some mothers can be doctors. So, the circle representing doctors would intersect the two concentric circles. Thus, the diagram becomes as shown in Fig. 8 with circle A representing *Mothers*, circle B representing *Females* and circle C representing *Doctors*.

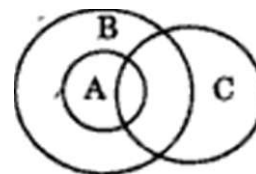
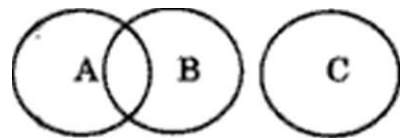
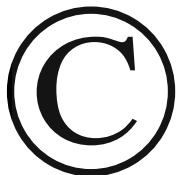

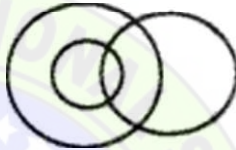



Fig. 8

9. if one item belongs to the class of second and the third item is partly related to the second, they are represented as shown alongside.
Ex. Grass-eating Animals, Cows, Flesh-eating Animals
Clearly, cows are grass-eating animals. So, they would be represented by two concentric circles. But some grass-eating animals are flesh-eating also. Thus, the Venn diagram is as shown in Fig. 9 with circle A representing *Cows*, circle B representing *Grass-eating Animals* and circle C representing *Flesh-eating Animals*.

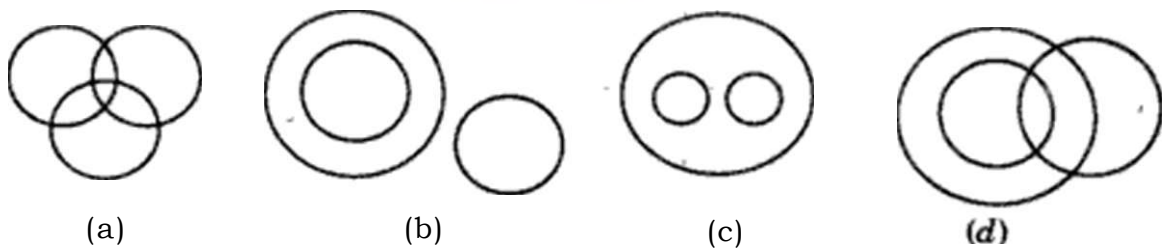


EXERCISE 9A

1. Which of the following diagrams correctly represents *Elephants*, *Wolves*, *Animals* ?
(I.A.S. 1992)
- (a)  (b)  (c)  (d) 
2. Which one of the following Venn diagrams correctly illustrates the relationship among the classes : *Carrot*; *Food*, *Vegetable* ?
(I.A.S. 1996)

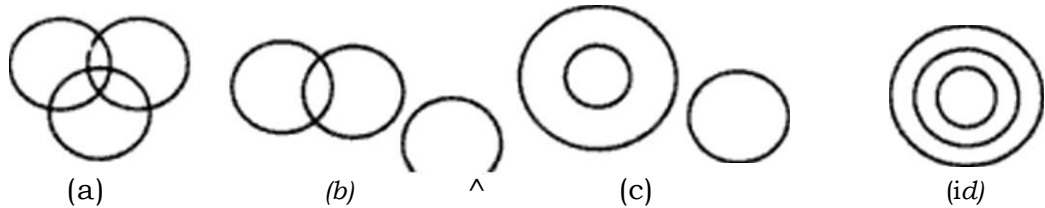


Directions (Questions 3 to 7) : In the following questions, three classes are given. Out of the four figures that follow, you are to indicate which figure will best represent the relationship amongst the three classes.



3. Women, Mothers, Widows
4. Authors, Teachers, Men
5. Sparrows, Birds, Mice
6. Tea, Coffee, Beverages
7. Boys, Students, Athletes

8. Select from the given diagrams, the one that illustrates the relationship among the given three classes : *Judge; Thief, Criminal.* (8.CJLA. 1994)



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



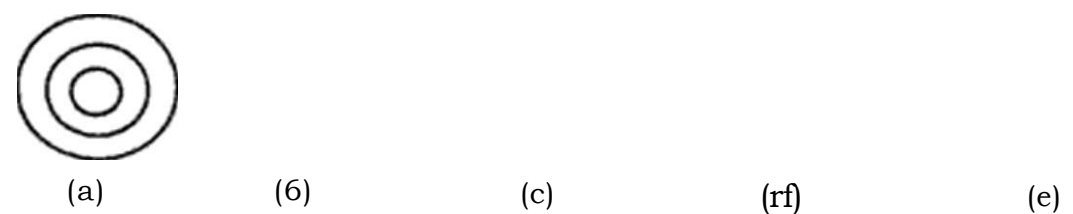
10. Which one of the following diagrams correctly represents the relationship among the classes : *Tennis fans, Cricket players, Students ?* (LAJB. 1990)



II. Which one of the following Venn diagrams best illustrates the three classes *Rhombus, Quadrilaterals, Polygons ?*

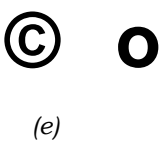
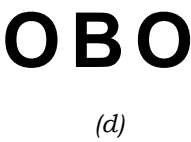
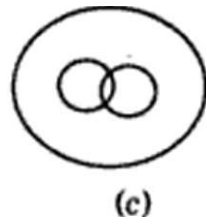
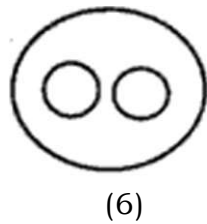
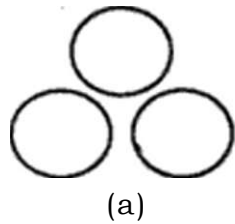


Directions (Questions 12 to 15) : Each of these questions below contains three groups of things. You are to choose from the following five numbered diagrams, the diagram that depicts the correct relationship among the three groups of things in each question. (S.B.I.P.O. 1995)

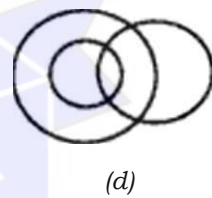
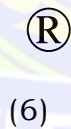
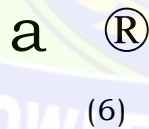


- 12. Tables, Chairs, Furniture
- 13. Tie. Shirt, Pantaloon
- 14. Dogs, Pets. Cats
- 15. Brinjal, Meat, Vegetables

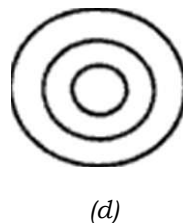
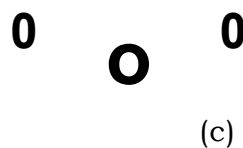
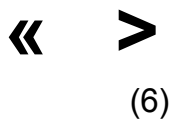
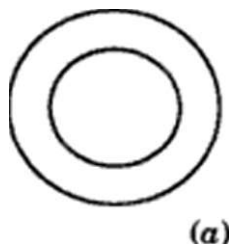
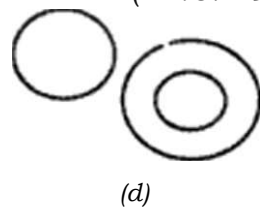
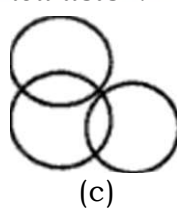
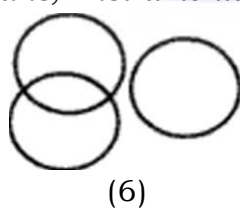
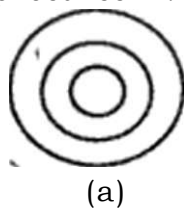
Directions (Questions 16 to 28) : Each one of the following questions contains three items. Using the relationship between these items, match each question with the most suitable diagram. Your answer is the letter denoting that diagram.



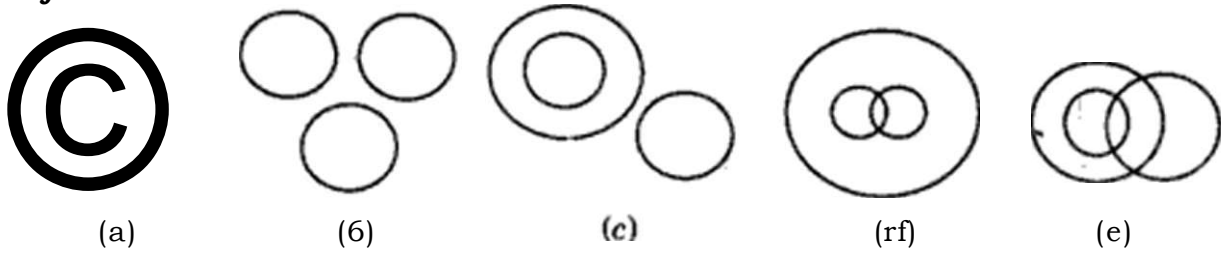
- 16. Deer, Rabbit, Mammal
- 17. Human beings, Teachers, Graduates (Central Excise, 1995)
- 18. Whales, Fishes, Crocodiles
- 19. Plums, Tomatoes, Fruits
- 20. Mountains, Forests, Earth
- 21. Tiger, Fox, Carnivores
- 22. Grams, Beans, Legumes
- 23. Flowers, Clothes, White
- 24. Uncles, Parents, Friends
- 25. Rohtak, Haryana, Punjab
- 26. Engineer, Doctor, People
- 27. Thieves, Lawyers, Criminals
- 28. Sea, Island, Mountain
- 29. Which is the most suitable Venn diagram among the following, which represents interrelationship among Antisocial elements, Pick pockets and Black mailers ? (M.B.A. 1997)



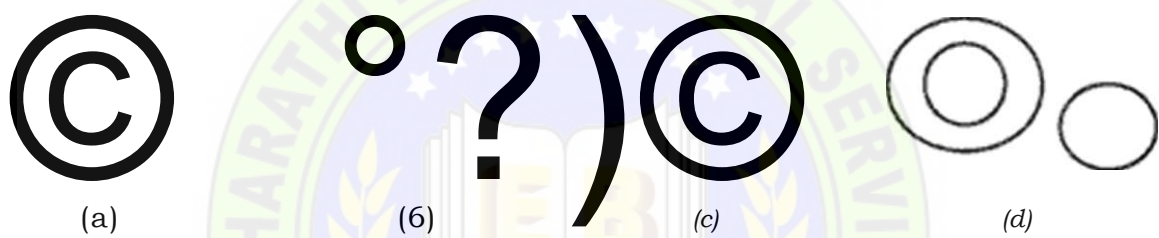
- 30. Which one of the following four logical diagrams represents correctly the relationship between : Musicians, Instrumentalists, Violinists ? (LA.S. 1994)
- 31. Select from the four alternative diagrams, the one that best illustrates the relationship among the three classes : Pigeons, Birds, Dogs. (Assistant Grade, 1993)



Directions (Questions 32 to 37) : In each of the following questions, choose the Venn diagram which best illustrates the relationship among three given items f



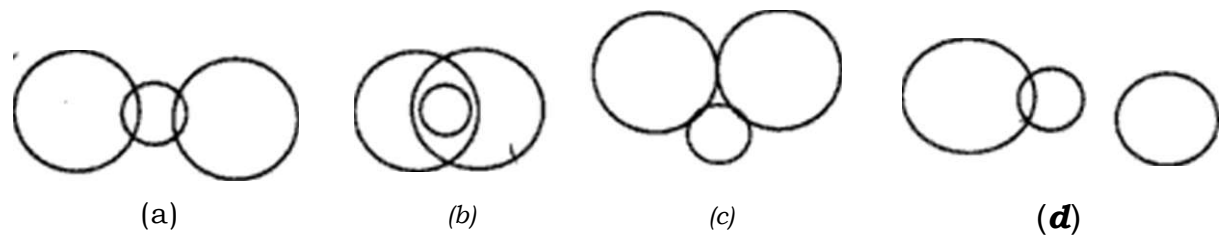
32. Diseases, Leprosy, Scurvy (Hotel Management, 1991)
33. Hockey, Cricket. Games (Hotel Management, 1991)
34. Yak, Zebra. Bear (Hotel Management, 1991)
35. Sun, Moon. Stars (Hotel Management, 1991)
36. Animals, Men, Plants (Hotel Management, 1991)
37. Mercury. Mars, Planets (Hotel Management, 1991)
38. Which of the following figures correctly represents the relation between : Doctors, Lawyers. Professionals ?



39. Which one of the following sets is best represented in the adjoining diagram ? (S.C.RJL 1»94)
(a) Animals, Insects, Cockroaches
(b) Country, States, Districts
(c) Animals. Males, Females and Hermaphrodites
(d) States, Districts, Union Territory
40. Which of the following gives the proper relation of Tall men. Black haired people, Indians ?



41. If animals that live on land and the animals that live in water are represented by two big circles and animals that live in water and on land are represented by small circle, the combination of these three can be best represented as



Directions (Questions 42 to 44) : In each of the following questions, find out which of the alternatives (a), (b) (c) or (d) indicates the correct relationship between the three given words ?
(I. Tax & Central Excise, 1995)

42. Elected house, M.P., M.L.A.

9 ?

(a)

Λ

(b)

GO.

D

(c)

W

(d)

43. Triangle, Four-sided figure, Square



(a)



(b)



(c)



(d)

44. Doctor, Nurse, Human being



(a)

8 o

(b)




(c)



(d)


Questions 45 to 53 :

(a)



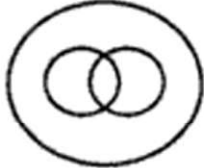
Indicates that one class is completely contained in the other but not the third.

<W




Indicates that two classes are completely contained in the third.

(c)



Indicates that neither class is completely contained in the other but the two have common members, forming one entity.

<d)



Indicates that two classes are interrelated and third one is not.

Directions : Choose the Venn diagram which best illustrates the three given classes in each question.

45. Protons, Electrons, Atoms

46. Sun, Planets, Earth

(Railways, 1990)

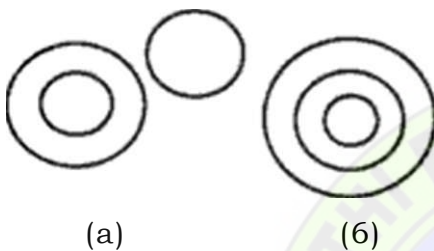
47. Dog, Animal. Pet
48. Science, Physics, Chemistry
49. Atmosphere, Hydrogen, Oxygen
50. Wheat, Grains, Maize
51. Machine. Lathe, Mathematics
52. Biology, Botany. Zoology
53. Citizens, Educated, Men

(Railways, 1990)

(C.B.L, 1990)

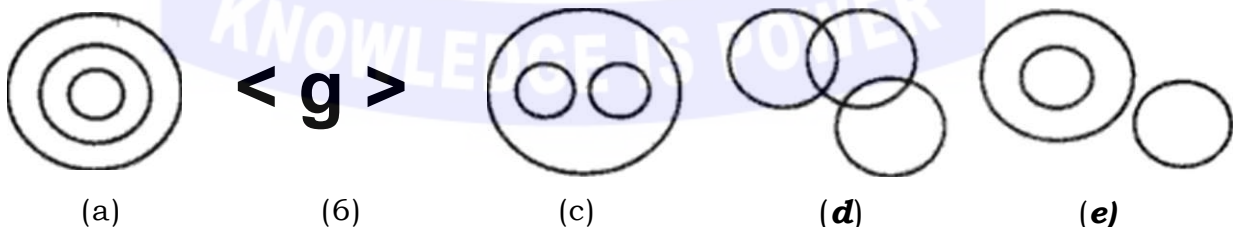
(Railways, 1990)

Directions (**Questions 54 to 58**) : *Each of the questions below contains three elements. These elements may or may not have some inter se linkage. Each group of the elements may fit into one of the diagrams at (a), (fr)₉ (c), (cf) and (e). You have to indicate the group of elements which correctly fits into the diagrams.* (S.B.I.P.O. 1997)



54. Pencil, Stationery, Jeep
55. Factory, Machinery, Product
56. Vegetable, Brinjal, Cauliflower
57. Honesty, Intelligence, Aptitude
58. Truck, Ship. Goods

Directions (**Questions 59 to 68**) : *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 (o)₉ (ft), (c), (d) and (e) below while none of these relationships is applicable to the remaining alternative. That is your answer.* (LJ.C.AAO. 1968)



59. (a) Army, General, Colonel
(c) Painter. Scholar. Table
60. (a) Hen. Dog, Cat
(c) Bed, Ward, Nurse
61. (a) Atmosphere. Air. Oxygen
(c) Man. Worker, Garden
62. (a) Animal. Mammal. Cow
(c) Colour, Red. Blue
63. (a) Body, Hand, Finger
(c) Cereal, Wheat, Rice

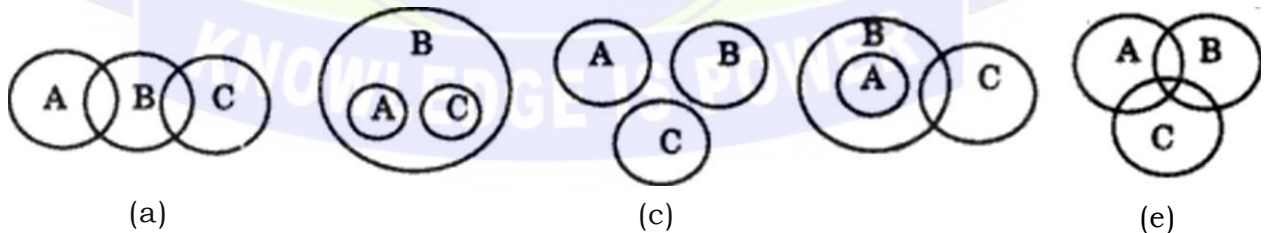
- (ft) Boy, Student, Player
- id) Man, Typist, Peon
- (ft) Body. Ear, Mouth
- id) Tiger, Animal, Carnivorous
- (ft) Boy, Girl. Student
- id) Animal, Dog. Cat
- (ft) Colour. Cloth. Merchant
- (d) Male. Horse, Mare
- (ft) Mammal. Nurse. Woman
- (rf) Males. Cousins. Nephews

64. (a) Bed, Ward, Hospital
(c) Copper, Zinc, Iron
65. (a) Star, Moon, Mars
(c) Nurse, Doctor, Woman
66. (a) Periodical, Weekly, Book
(c) Doctors, Human beings, Married people
67. (a) Director, Engineer, Musician
(c) Fruit, Mango, Grass
68. (a) Mineral, Iron, Copper
(c) Seed, Leaf, Root
- (6) Boy, Girl, Player
(f) Book, Page, Paragraph
(6) Professor, Scholar, Politician
(d) Swimmer, Carpenter, Singer
(6) Mineral, Copper, Wood
(d) Army, Doctor, Engineer
(b) Apple, Orange, Mango
(d) Oxygen, Air, Water
(b) Dean, Painter, Singer
(d) Piston, Engine, Wheel

Directions (Questions 69 to 74) : In each of the following questions, there are three words which are related in some way. The relationship in each case is indicated by one of the four alternatives (a), (b), (c) and (d) given below. The alternative which best states the relationship is your answer. (C.A.T. 1997)

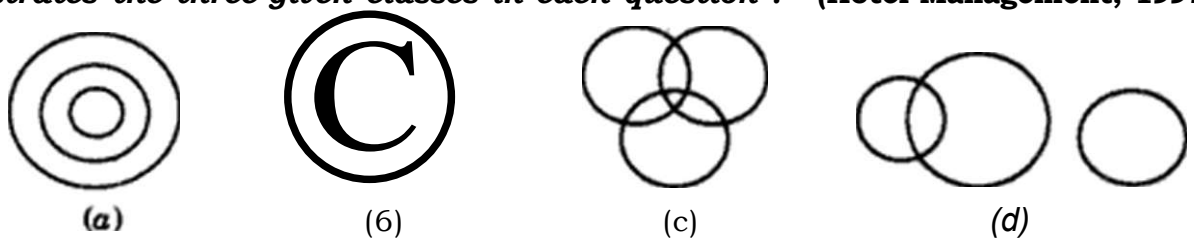
- (a) P includes part of Q and part of R but Q and R are independent of each other.
(b) P includes Q and part of R but Q is independent of R.
(c) P, Q and R include parts of one another.
(d) P includes both Q and R.
69. Wheat, Loaf, Barley
70. Singer, Writer, Actor
71. Soldier, Army, Engineer
72. Wood, Steel, Furniture
73. Researcher, Historian, Scholar
74. Tiger, Elephant, Quadruped

Directions (Questions 75 to 78): Given below are five patterns represented by circles A, B and C which indicate the logical relationship between and among the respective descriptions. On the basis of description given for A, B and C respectively in the questions, decide which of the given patterns (a), (b), (c), (d) or (e) best indicates the logical relationship.



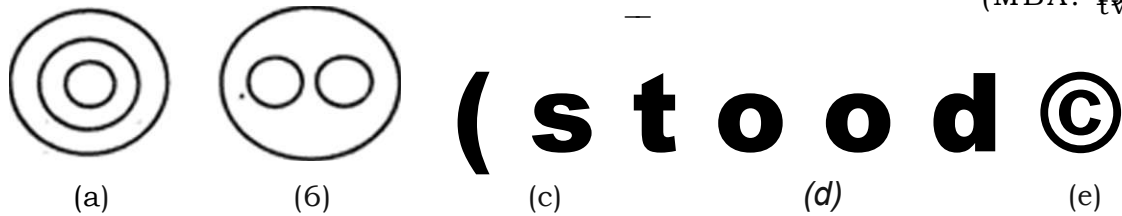
75. (A) Doctor (B) Male (C) Actor
76. (A) Rose (B) Flower (C) Lotus
77. (A) Father (B) Mother (C) Child
78. (A) Gold (B) Ornament (C) Silver

Directions (Questions 79 to 83) : Choose the Venn diagram which best illustrates the three given classes in each question : (Hotel Management, 1997)



- 79. Girl. Athlete, Singer
- 80. Window, Room, Wall
- 81. State, Country, City
- 82. Copper, Paper, Wire
- 83. Teacher, Graduate, Player

Directions (Questions 84-85) : Choose the Venn diagram which best illustrates the three given classes in each of the following questions : (MBA. 1998)

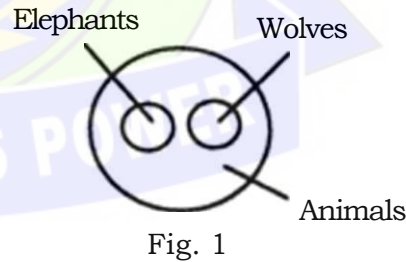


- 84. Vertebrates, Non-vertebrates, Living beings
- 85. Women, Teachers, Doctors
- 86. In a dinner party both fish and meat were served. Some took only fish and some only meat. There were some vegetarians who did not accept either. The rest accepted both fish and meat. Which of the following logic diagrams correctly reflects this situation ? (IA.8. 1998)

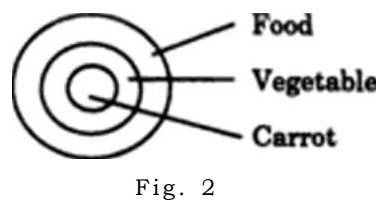


ANSWERS

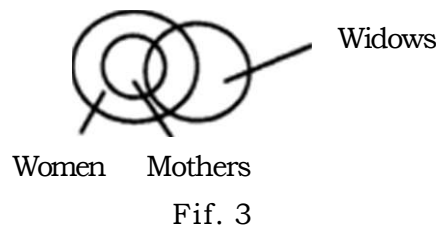
- 1. (a): Elephants and Wolves bear no relationship to each other! But, both of them are animals. (Fig. 1)



- 2. (o): All carrots are vegetables. All vegetables are foods. (Fig. 2)



- 3. (d): All mothers are women. Some mothers and some women can be widows. (Fig. 3)



4. (a) Some *authors* can be *teachers*. Some *teachers* can be *men*. Some *authors* can be *men*. So, the given items are partly related to each other. (Fig. 4)

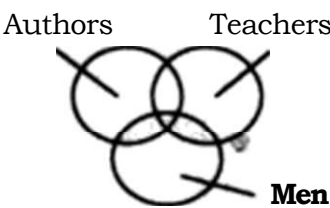


Fig. 4

5.(b): All *sparrows* are *birds*. But, *mice* is entirely different. (Fig. 5)

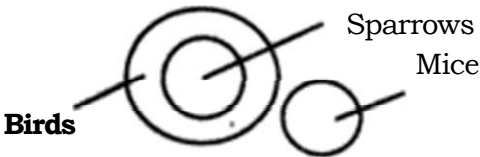


Fig. 5

e.(c) *Tea* and *Coffee* are two separate unrelated items. But, both of them are *beverages*. (Fig. 6)

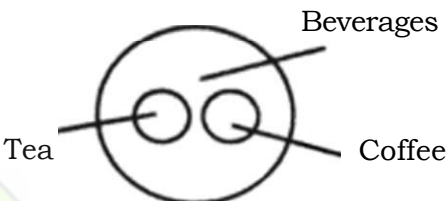


Fig. 6

7. (a) Some *boys* are *students*. Some *students* are *athletes*. Some *boys* are *athletes*. So, the given items are partly related to each other. (Fig. 7)

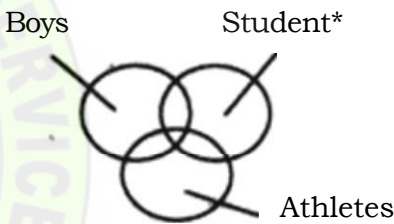


Fig. 7

8. (c)': All *thieves* are *criminals*. But *judge* is entirely different. (Fig. 8)



Fig. 8

9. (c) Both *French* and *German* are *languages*. But, both of them are different from each other. (Fig. 9)

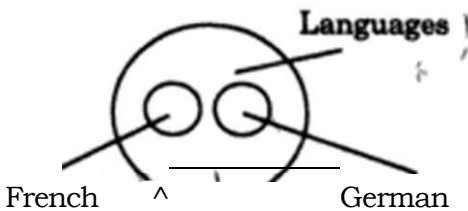


Fig. 9

10. (a) Some *students* can be *cricket players*. Some *cricket players* can be *tennis fans*. Some *students* can be *tennis fans*. So, the given items are partly related to each other. (Fig. 10).

Students • Cricket Players

W

~

Fig. 10

Tennis Fans

11. (a): All rhombus are quadrilaterals. All quadrilaterals are polygons (Fig. 11)

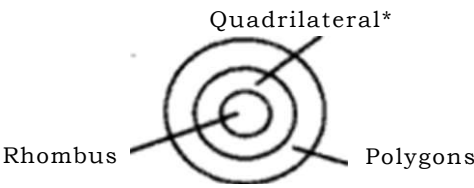


Fig. 11

12. (d) : Tables and Chairs are unrelated items. But, both are items of Furniture (Fig. 12)

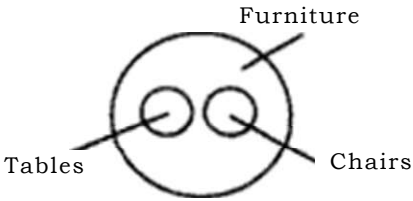


Fig. 12

13. (c): Tie, Shirt and Pantaloons are separate items, entirely different from each other. (Fig. 13)

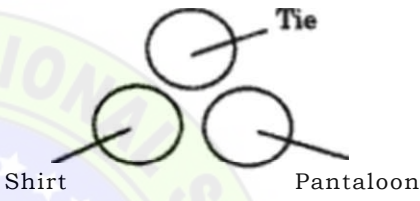


Fig. 13

14. (d) : Dogs and Cats are entirely different from each other. But, both are pet animals. (Fig. 14)



Fig. 14

15. (e): Brinjal is a vegetable. But Meat is entirely different. (Fig. 15)

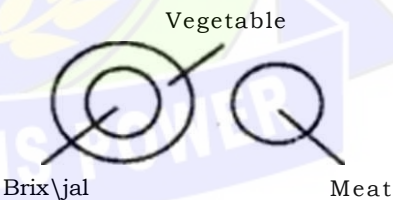


Fig. 15

16. (6): Deer and Rabbit are unrelated items. But, both are mammals (Fig. 16)

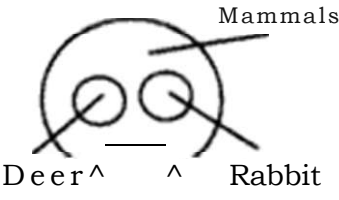


Fig. 16

17. (c): All teachers and graduates are human beings. But, some teachers can be graduates and some graduates can be teachers. (Fig. 17)

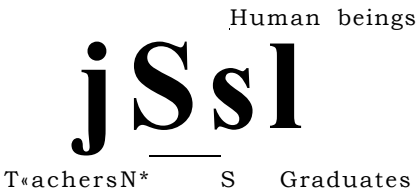
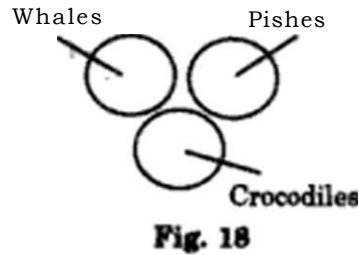
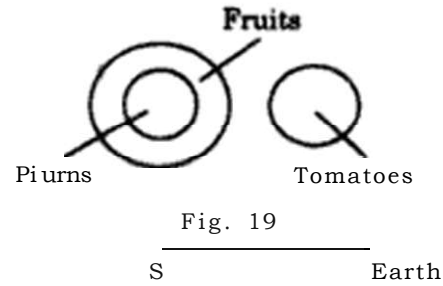


Fig. 17

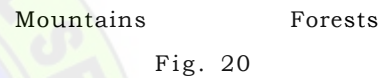
18. (a): *Whales, Fishes and Crocodiles* are all separate items, entirely different from each other. So, they would be represented by three disjoint circles. (Fig. 18)



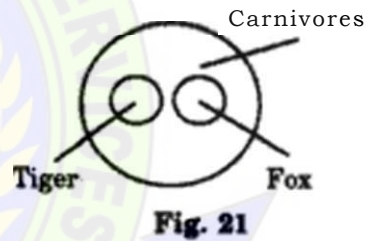
19. ie): All *plums* are *fruits*. But, *tomatoes* are entirely different. (Fig. 19)



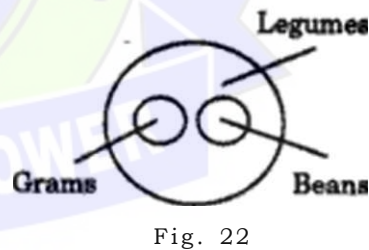
20. (c): *Mountains and Forests* are parts of earth. But, some *mountains* are *forested* and some *forests* are *mountainous*. (Fig. 20)



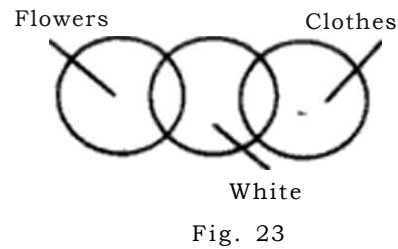
21. (6): *Tiger and Fox* are unrelated and entirely different. But, both are *carnivores* or flesh-eating animals. (Fig. 21)



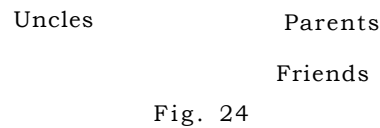
22. (6): *Grams and Beans* are entirely different from each other. But, both are *legumes*. (Fig. 22)



23. id): Some *flowers* are *white*. Some *clothes* are *white*. But, all *white* things are not *flowers* or *clothes*. (Fig. 23)



24. (a) : *Uncles, Parents and Friends* are entirely different from each other. (Fig. 24)



25. (e): *Rohtak* is a part of *Haryana*. *Punjab* is a separate state. (Fig. 25)

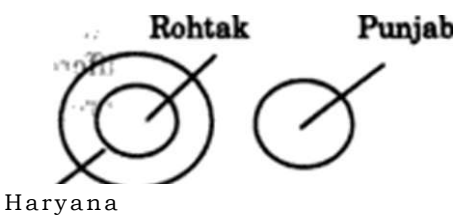


Fig. 25

26. (6): Both *Engineer* and *Doctor* are *people*. But, both of them are different from each other. (Fig. 26)

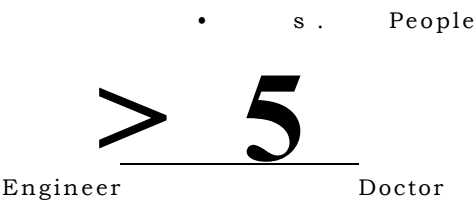


Fig. 26

27. (e): All *thieves* are *criminals*. But, *lawyers* are entirely different. (Fig. 27)

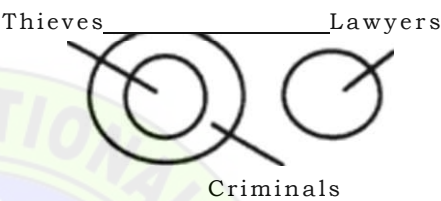


Fig. 27

28. (e): *Island* is a part of *Sea*. But, *Mountain* is entirely different. (Fig. 28)

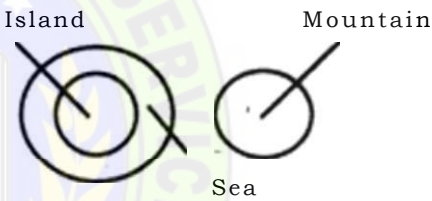


Fig. 28

29. (c): Both *pickpockets* and *blackmailers* are *anti-social elements*. But, some *pickpockets* can be *blackmailers* and vice-versa. (Fig. 29)

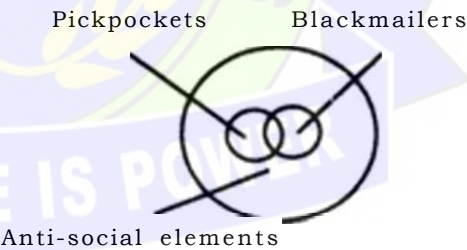


Fig. 29

30. (a): All *violinists* are *instrumentalists*. All *instrumentalists* are *musicians*. (Fig. 30)

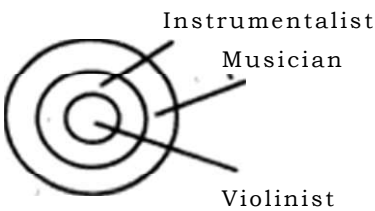


Fig. 30

31. (a): All *pigeons* are *birds*. But, *dogs* are entirely different. (Fig. 31)

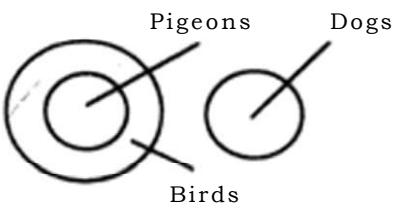


Fig. 31

32. (a) : Both *Leprosy* and *Scurvy* are *Diseases*. But, both are entirely different from each other. (Fig. 32)



Fig. 32

33. (a): Both *Hockey* and *Cricket* are *Games*. But, both are entirely different from each other. (Fig. 33)

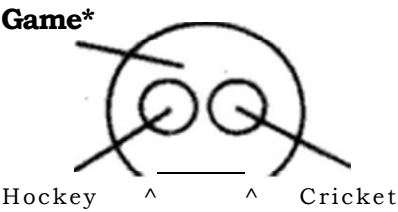


Fig. 33

34. (6): *Yak*, *Zebra* and *Bear* are all different from each other. (Fig. 34)



Fig. 34

35. (c): *Sun* is a *star*. *Moon* is entirely different from the two. (Fig. 35)



Fig. 35

36. (c): *Men* belong to the class of *animals*. *Plants* are entirely different from the two. (Fig. 36)

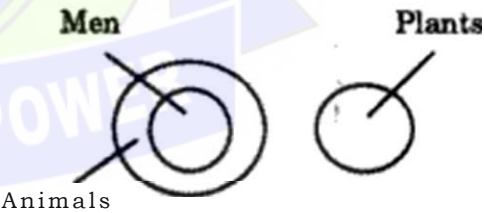


Fig. 96

37. (a): *Mercury* and *Mars* are entirely different from each other. But, both are *planets*. (Fig. 37)

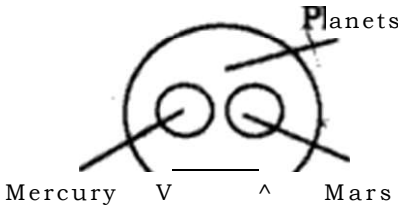


Fig. 37

38. (c) : Both *Doctors* and *Lawyers* are *Professionals*. But, both are entirely different from each other. (Fig. 38)

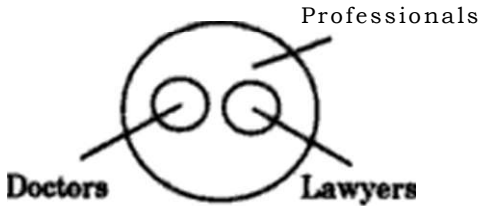
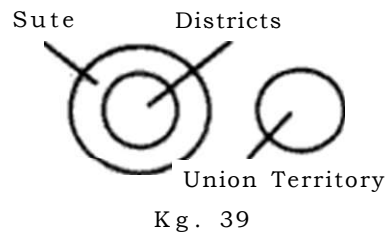
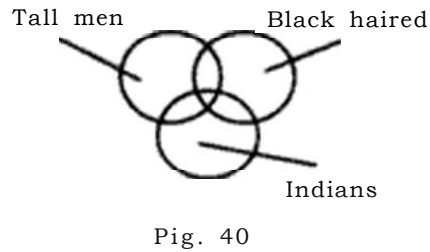


Fig. 38

3*. (rf): *Districts* form part of the StaKr. But, *Union Territory* is entirely different (Fig. 39)

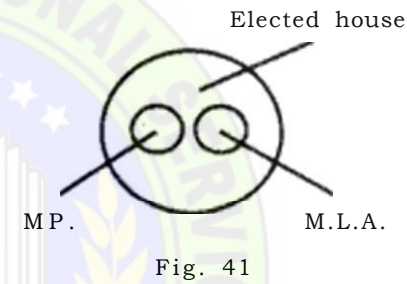


40Ad) : Some *tall men* can be *black Haired*. Some *black haired* persons can be *Indians*.
Some *tall men* can be *Indians*.
So, all the three items are partly interrelated. (Fig. 40)

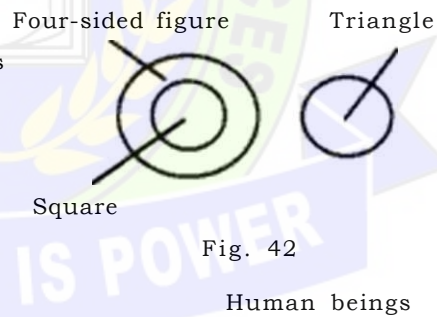


41. (6): Clearly, each one of the animals that live in water and on land, lies in both the other two categories. Also, some of the animals that live on land also live in water.

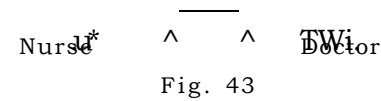
42. (6): Clearly, no M P. can be M.L.A. Also, all M P s and M.L.A.S belong to the elected house.



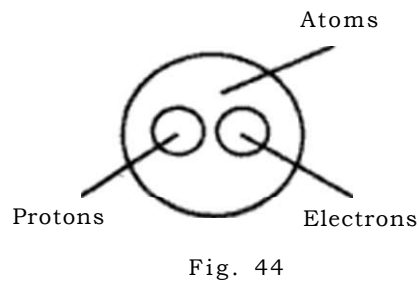
43. (c): *Square* is a *four-sided figure*. But, *triangle* is entirely different. (Fig. 42)



44. (a): *Doctor* and *Nurse* are entirely different. But, both are *human beings*. (Fig. 43)



46. (6): *Protons* and *Electrons* are entirely different from each other. But, both are partsof *atoms*. (Fig. 44)



46. (a): *Earth* belongs to the class of *Planets*. But, *Sun* is entirely different from the two. (Fig. 45)

EarthSun

Planets
Fig. 45

47. (c): Some *dogs* are *pets* and some *pets* are *dogs*. Both, *dog* and *pets* are *animals*. (Fig. 46)

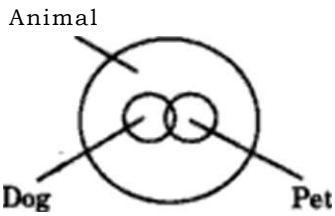


Fig. 46
^ s . Science

48. (6): *Physics* and *Chemistry* are entirely different from each other. But, both belong to the class of *Science*. (Fig. 47)

PhysicsChemistry

Fig. 47

49.(6): *Hydrogen* and *Oxygen* are entirely different from each other. But, both are parts of *atmosphere*. (Fig. 48)

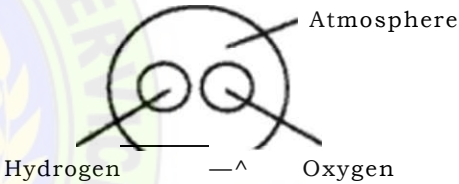


Fig. 48

50. (6): *Wheat* and *Maue* are two different items. But, both belong to the class of *Grains* (Fig. 49)

Grains

WheatMaize

Fig. 49

51. (a): *Lathe* is a type of *machine*. But, *Mathematics* is entirely different from the two. (Fig. 50)

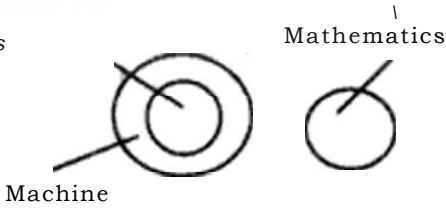


Fig. 50

62. (6): *Botany* and *Zoology* are entirely different from each other But, both are branches of *Biology*. (Fig. 51)

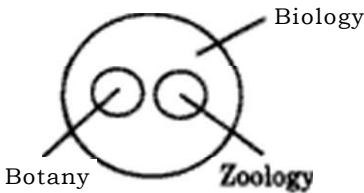


Fig. 51

53. (c): Some *educated* are *citizens*. Some *citizens* are *educated*. But, both *educated* and *citizens* are *men*. (Fig. 52)

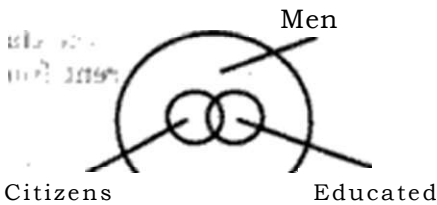


Fig. 52

54. (a): *Pencil* is an item of *Stationery*. But, *Jeep* is entirely different. (Fig. 53)

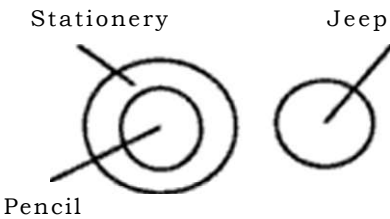


Fig. 53

55. (e): *Machinery* and *product* are entirely different. But, both are present in a *factory*. (Fig. 54)

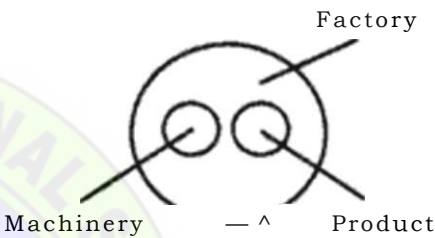


Fig. 54

56. (e): *Brinjal* and *Cauliflower* are entirely different. But, both are *vegetables*. (Fig. 55)

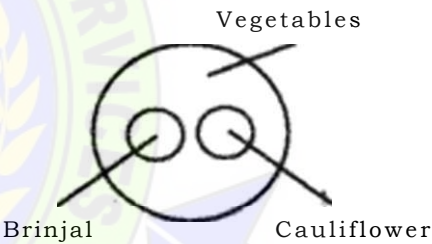


Fig. 55

57. (d) : *Aptitude*, *intelligence* and *honesty* are entirely different.

58. (c): *Truck* and *Ship* are entirely different. But, some *goods* are carried by some *trucks* and some *goods* are carried by some *ships*. (Fig. 56)

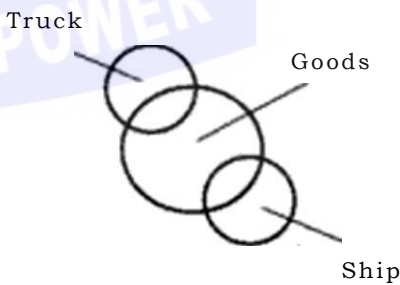


Fig. 56

59. (c): This group of items can be represented as in Fig. 57.

Since there is no such diagram in the question, so (c) is the answer.

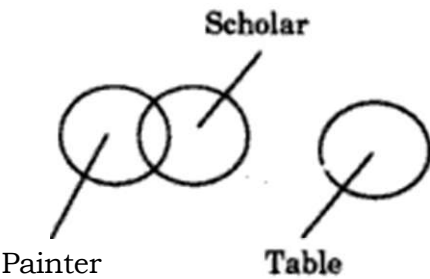
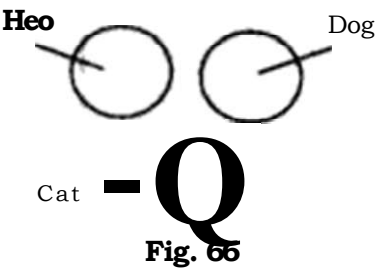


Fig. 57

60. (a): This group of items can be represented aa in Fig M.
Since there is no such diagram in the question,
so (a) is the answer.



61. (c): Thin group of item* can be represented aa in Fig. 69.
Since there is no such diagram in the question,
so (c) is the answer.

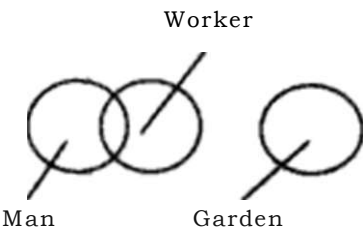


Fig. 69

62. (6>: This group of items can be represented as in Fig. 60
Since there is no such diagram in the question,
no (6) is the answer.

Colour Cloth

63. (</) : This group of items can b» represented as in Fig. 61.
Since there is no such diagram in the question,
so (d) is the answer.

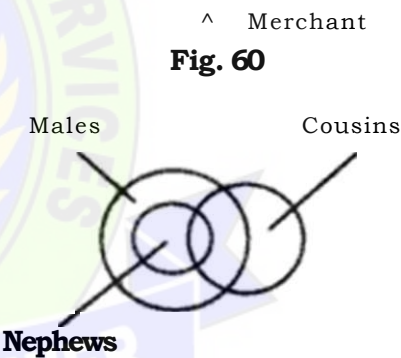


Fig. 60

Fig. 61

64. (c): This group of items can be represented as in Fig. 62.
Since there is no such diagram in the question.
so (c) is the answer.

Capper

Zinc

Iron

Fig. 62

Star

Moon

66. (a): This group of items can be* represented as in Fig 63.
Since there is no such diagram in the question,
so (a) is the answer

Fig. 63

66. (c): This group of items can be represented as in Fig. 64.
Since there is no such diagram in the question, so (c) is the answer.

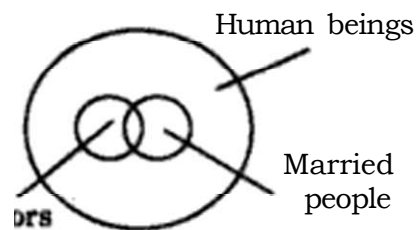


Fig. 64

67. *ib*): This group of items can be represented as in Fig. 65.
Since there is no such diagram in the question, so (b) is the answer.

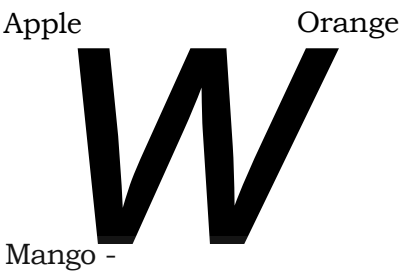


Fig. 66

68. (c): This group of items can be represented as in Fig. 66.
Since there is no such diagram in the question, so (c) is the answer



Fig. 66

69. (a): Here P is Loaf, Q is Wheat and R is Barley.
70. (c): Here P is Singer, Q is Writer and R is Actor.
71. (a): Here P is Army, Q is Soldier and R is Engineer.
72. (a): Here P is Furniture, Q is Wood and R is Steel.
73. (c): Here P is Researcher, Q is Historian and R is Scholar.
74. (d): Here P is Quadruped, Q is Tiger and R is Elephant.
75. (a): Some *doctors* and some *actors* are *males*. But, *doctor* and *actor* are entirely different.
76. (6): Both *Rose* and *Lotus* are *flowers*. But, *Rose* and *Lotus* are entirely different.
77. (c): *Father*, *Mother* and *Child* are entirely different.
78. (a): Some *ornaments* are made of *gold* and some of *silver*. *Gold* and *Silver* are entirely different.
79. (c) : Some *girls* can be *athletes*.
Some *athletes* can be *singers*.
Some *girls* can be *singers*.



Fig. 67

80. (6): Both *wall* and *window* are parts of a room.
But, *wall* and *window* are entirely different.'

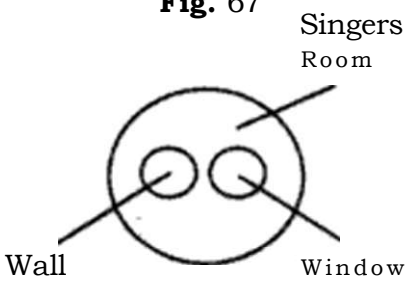


Fig. 68

81. (a): A *city* lies within a *state*, which lies within a *country*.

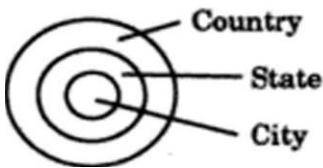


Fig. 69

82. (d): Some *wires* are made of *copper*. But, *Paper* is entirely different.

83. (c): All three items are partly related to each other.

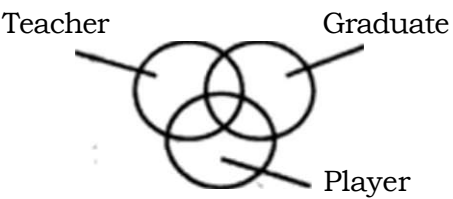


Fig. 70

84. (6): Both *vertebrates* and *non-vertebrates* are entirely different, but both are *living beings*.

86. (d): Some *teachers* and some *doctors* are *women*.
But, *Teacher* and *Doctor* are entirely different.



Fig. 71

86. (a): The given situation can be represented as under :

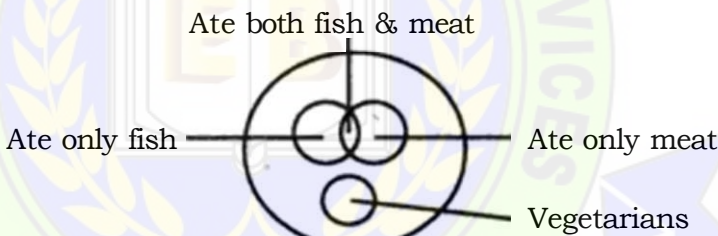
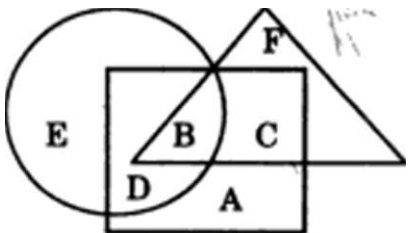


Fig. 72

TYPE-2

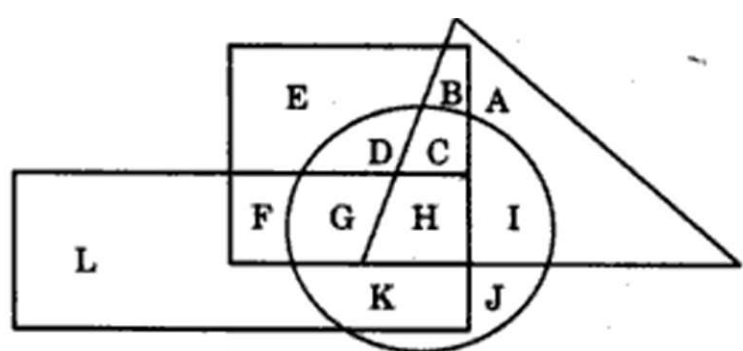
In this type of questions, generally a Venn diagram is given. Each geometrical figure in the diagram represents a certain class. The candidate is required to study and analyse the figure carefully and then answer certain questions regarding the given data.

Example 1 : In the following diagram, three classes of population are represented by three figures. The triangle represents the school teachers, the square represents the married persons and the circle represents the persons living in joint families.



1. Married persons living in joint families but not working as school teachers are represented by
(a) C (6) F (c) D id) A
- Sol.** Married persons living in joint families are represented by the region common to the square and the circle i.e., D and B. But, according to the given conditions, the persons should not be school teachers. So, B is to be excluded. Hence, the required condition is denoted by region D. So, the answer is (c).
2. Persons who live in joint families, are unmarried and who do not work as school teachers are represented by
(a) C (6) B (c) E (d) D
- Sol.** Persons living in joint families are represented by the circle. According to the given conditions, the persons should be unmarried and not working as school teachers. So, the region should not be a part of either the square or the triangle. Thus, the given conditions are satisfied by the region E. So, the answer is (c).
3. Married teachers living in joint families are represented by
(a) C (6) B (c) D (d) A
- Sol.** Married teachers are represented by the region common to the square and the triangle i.e., B and C. But, according to the given conditions, the persons should be living in joint families. So, the required region should be a part of the circle. Since B lies inside the circle, so the given conditions are satisfied by the persons denoted by the region B. Hence, the answer is (6).
4. School teachers who are married but do not live in joint families are represented by
(a) C (6) F (c) A ODD
- Sol.** As in the above question, married teachers are represented by B and C. But, here, the given conditions lay down that the persons should not be living in joint families. So, the required region should lie outside the circle. Since C lies outside the circle, so the given conditions are satisfied by the persons denoted by the region C. Hence, the answer is (a).
5. School teachers who are neither married nor do live in joint families are represented by
(a) F (6) C <c)B (d) A
- Sol.** School teachers are represented by the triangle. But according to the given conditions, persons are neither married nor do they live in joint families. So, the region should not be a part of either the square or the circle. Such a region is F. Hence, the answer is (a).

Example 2 : In the following diagram, the square represents girls, the circle tall persons, the triangle is for tennis players and the rectangle stands for the swimmers.



On the basis of the above diagram, answer the following questions.

1. Which letter represents tall girls who are swimmers but don't play tennis ?

- (a) C (6) D (c) G (d) H

Sol. Tall girls, who are swimmers are represented by the region common to the square, circle and the rectangle i.e., G and H. But, according to the given conditions, the girls shouldn't be tennis players. So, the required region should not be a part of the triangle i.e., H should be excluded. Thus, the region representing the persons satisfying the given conditions is G. Hence, the answer is (c).

2. Which letter represents girls who are swimmers, play tennis but are not tall ?

- (a) B (ft) E (c) F (rf) None of these

Sol. Girls who are swimmers and play tennis are represented by the region common to the square, triangle and rectangle i.e., H. But, it is given that the girls shouldn't be tall. So, the required region should not be a part of the circle. Since H is a part of the circle, so the answer is (d).

3. Which letter represents tall girls who do not play tennis and are not swimmers ?

- (a) C (ft) D (c) E (d) G

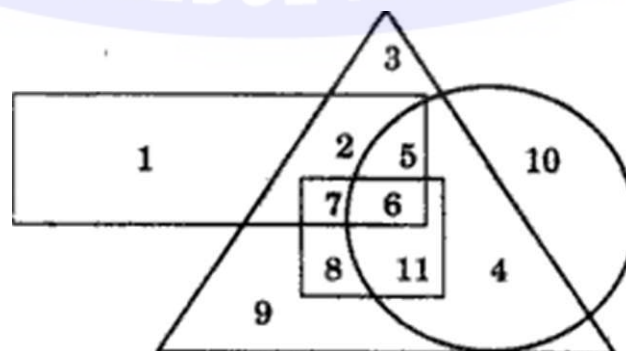
Sol. Tall girls are represented by the region common to the square and the circle i.e., D, C, J and H. But, according to the given conditions, the girls are neither tennis players nor swimmers. So, the required region should be neither a part of the rectangle nor the triangle. G lies inside the rectangle, C inside the triangle and H is common to both. So, the answer is (6).

4. Which letter represents tall persons who are gents and swimmers but do not play tennis ?

- (a) I (ft) J (ic) K (d) L

Sol. The tall persons are represented by regions inside the circle i.e., C, D, G, H, I, J and K. Since the persons are not girls and do not play tennis, so the region should not be a part of either the square or the triangle. Thus, C, D, G, H should be excluded. Also, according to the given conditions, the persons should be swimmers. So, the required region should be a part of the rectangle and such a region is K. Hence, the answer is (c).

Example 3 : **The following questions are based on the diagram given below :**



- (1) The rectangle represents government employees.
- (2) The triangle represents urban people.
- (3) The circle represents graduates.
- (4) The square represents clerks.

1. Which of the following statements is true ?

- ia) All government employees are clerks.
- (6) Some government employees are graduates as well as clerks.
- (c) All government employees are graduates.
- (rf) All clerks are government employees but not graduates.

Sol. The above cases may be considered as under :

For statement (a) to be true, the rectangle should lie inside the square. This is not true. Hence, (a) is false.

For statement (6) to be true, there should be a region common to the rectangle, circle and the square. Such a region is 6. Hence, (6) is true.

Further, for statement (c) to be true, the rectangle should lie inside the circle. So, (c) is false.

For statement (d) to be true, square should lie wholly inside the rectangle, with no region common to the circle. This is not true. So, (d) is false.

2. Which of the following statements is true ?

- ia) All urban people are graduates.
- (6) Some clerks are government employees but not urban.
- ic) All government employees are clerks.
- id) Some urban people are not graduates.

Sol. For the validity of condition (a), the triangle should lie inside the circle. This is not true. So, (a) is false.

For the validity of statement (b), there should be a region which is common to the square and the rectangle but is not a part of the triangle. Since no such region exists, (b) is false.

For the validity of statement (c), the rectangle should lie inside the square. This is not true. So, (c) is false.

For the validity of statement (d), some region of the triangle should lie outside the circle. Since this is true, so, (d) is true.

3. Choose the correct statement :

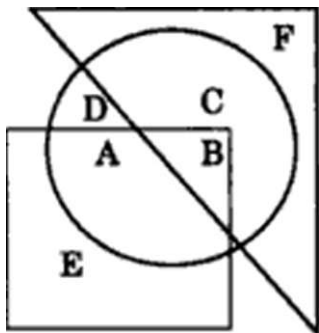
- ia) Some clerks are government employees.
- ib) No clerk is urban.
- ic) All graduates are urban.
- id) All graduates are government employees.

Sol. For the validity of statement (a), there should be a region common to the square and rectangle. Such regions are 6 and 7. So, (a) is true.

Further, for statement (b) to be true, there should be no region common to the square and the triangle. But since square lies wholly inside the triangle, (b) is false. For statement (c) to be true, circle should lie inside the triangle. Clearly, (c) is false. For the validity of statement (d), the circle should lie inside the rectangle. Clearly, (d) is false.

EXERCISE 9B

1. Which one of the following statements is correct with regard to the given figure ?
(S.CJLA 1994)

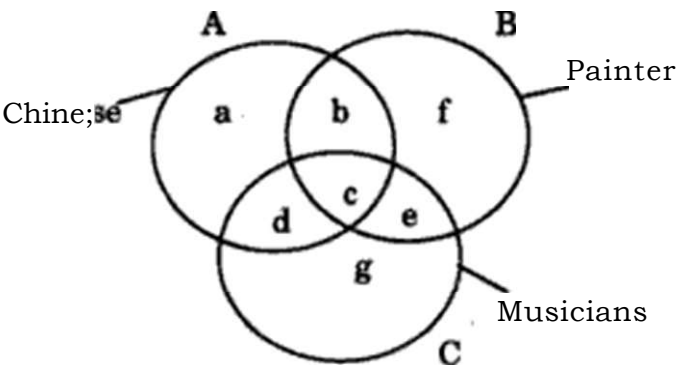


- (a) A and B are in all the three shapes.
(b) E, A, B, C are in all the three shapes,
(c) F, C, D, B, A are in all the three shapes,
(d) Only B is in all the three shapes.
2. The triangle, square and circle shown below respectively represent the urban, hard working and educated people. Which one of the areas marked I-VII is represented by the urban educated people who are not hard working ?
(Civil Services, 1992)



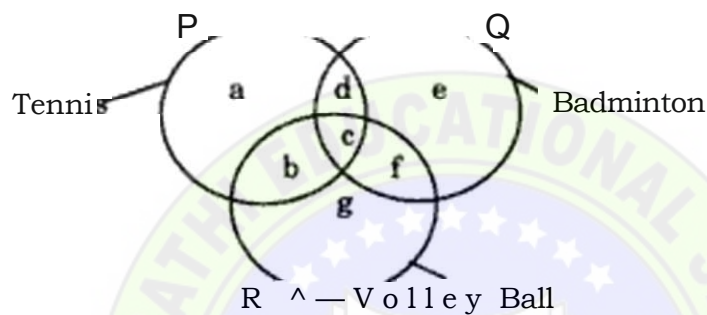
- (a) II (b) I (c) IV (d) III

Directions (Questions 3 to 6) : 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.



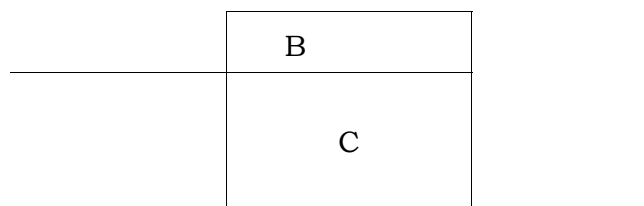
3. Chinese who are painters but not musicians,
(a) b (6) c (c) d (<0g
4. Painters who are neither Chinese nor musicians,
(a) b (6) c (c) f (d)g
5. Chinese who are musicians but not painters,
(a) d (6) c (c) b (d) a
6. Chinese who are painters as well as musicians,
(a) a (b) b (c) c (d) d

Directions (Question* 7 to 10) : 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.



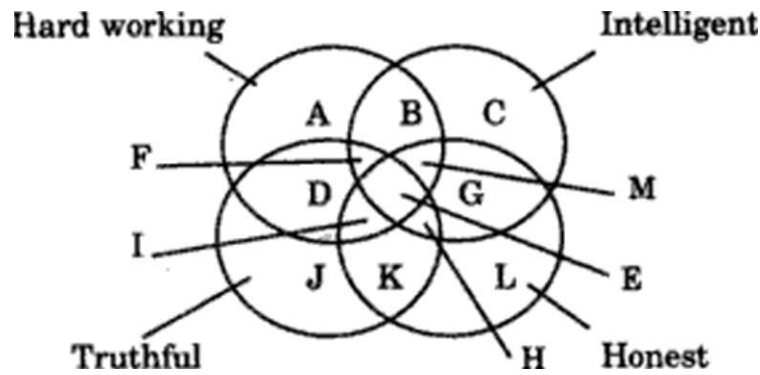
- On the basis of the above figure, answer the questions given below.
7. Which letter represents the set of persons who play all the three games ?
(a) b (6) c (c) f (d) g
8. Which letter represents the set of persons who play Tennis and Volley Ball but not Badminton ?
(a) g (6) e (c) c (<f) b
9. Which letter represents the set of persons who play Tennis but neither Badminton nor Volley Ball ?
(o) a (6) b (c) c (d) d
10. Which letter represents the set of persons who pipy Tennis and Badminton but not Volley Ball ?
(a) b (6) c (c) d id) f
11. In the given figure, the triangle represents gtrls, 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
(I.A.S. 1996)

A

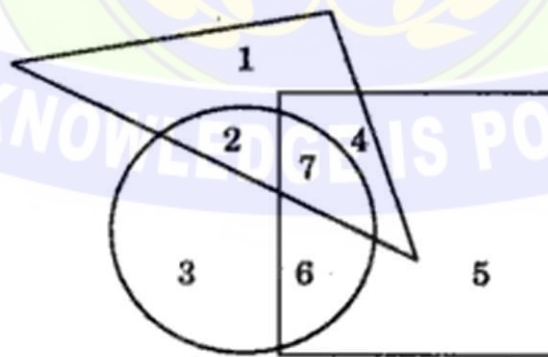


- (a) A (b) B (c) D (d) E

Directions (Questions 12 to 16) : 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.

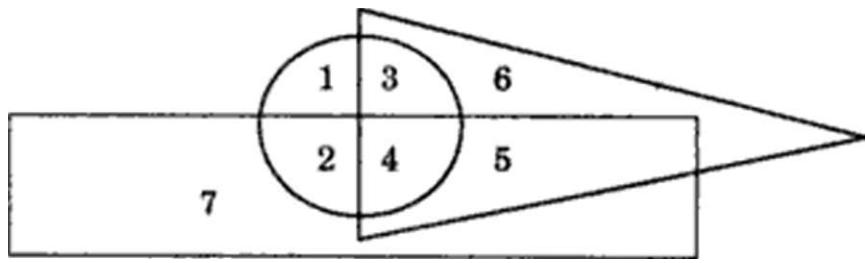


12. The region which represents the people who are intelligent, honest and truthful but not hard working is denoted by
(a) E (b) F (c) H (d) I
13. The people possessing all the qualities are represented by
(a) I (b) H (c) F (d) E
14. The region which represents people who are not honest but possess all other three qualities, is denoted by
(a) B (b) D (c) F (d) I
15. People who are not hard working, intelligent and truthful are represented by
(a) G (b) H (c) K (d) L
16. 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
17. If Tall is equivalent to circle, Army men to triangle and Strong to square, indicate which number will represent strong army men ? (LA.S. 1982)



- (a) 3 (b) 4 (c) 5 (d) 6

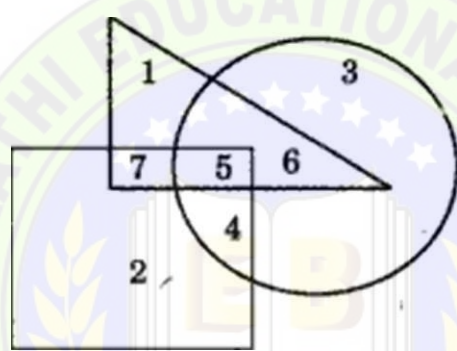
Directions (Questions 18 to 21) : In the figure given below, the circle represents young persons, the triangle represents uneducated persons and the rectangle represents employed persons.



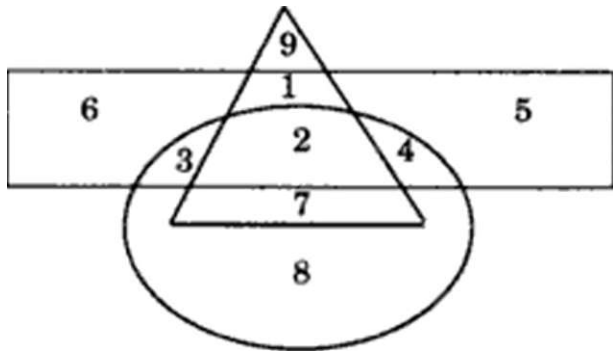
Study the figure carefully and answer the questions given below.

- 18. Which region represents young, uneducated and employed persons ?
(a) 6 (b) 5 (c) 4 (d) 3 (e) 2
- 19. The region which represents educated, employed young persons, is denoted by
(a) 2 (b) 3 (c) 4 (d) 5 (e) 6
- 20. Which region represents young, educated and unemployed persons ?
(a) 7 (b) 4 (c) 1 (d) 5 (e) 3
- 21. Which region represents young, uneducated and unemployed persons ?
(a) 1 (b) 2 (c) 6 (d) 3 (e) 5

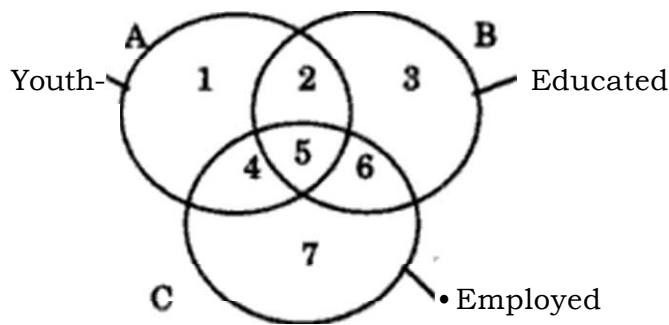
Directions (Questions 22 to 24) : The following questions are based on the diagram given below. In the diagram, the triangle stands for graduates, square stands for membership of professional organisations and the circle stands for membership of social organisations. Read each statement and find out the appropriate number(s) to represent the people covered by the given statement.
(Assistant Grade, 1994)



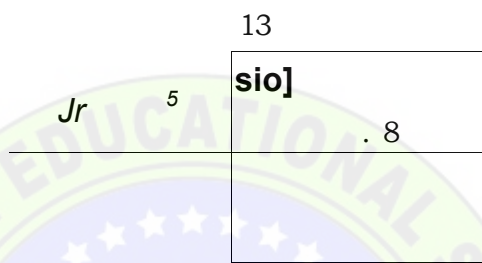
- 22. Number of graduates in social organisations
(a) 1 (b) 5 (c) 6 (d) 5 and 6
- 23. Number of graduates in social organisations only
(a) 3 (b) 4 (c) 5 (d) 6
- 24. Number of graduates in professional organisations
(a) 5 and 7 (b) 5, 6 and 7 (c) 6 and 7 (d) 4, 5 and 6
- 25. In the figure given below, 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.
(C.B.I. 1993)



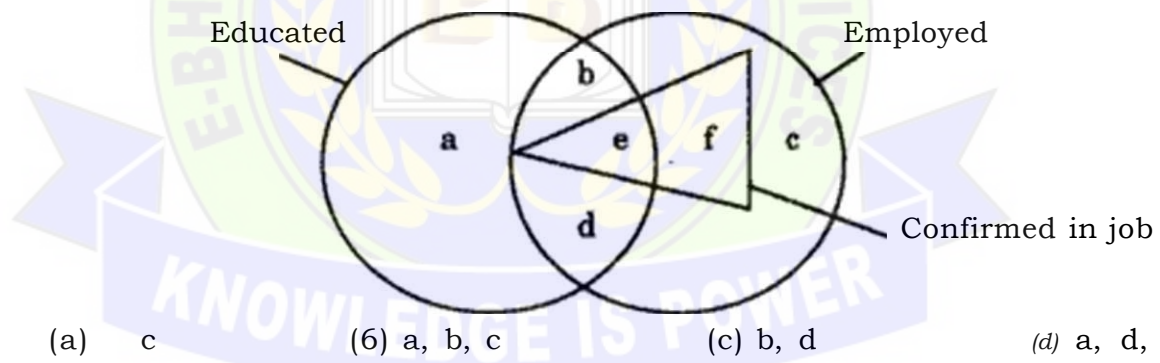
- (a) 1 (b) 3 (c) 7 (d) 8
- 26. Study the diagram below and identify the region representing youth who are employed but not educated.
(S.8.C. 1995)



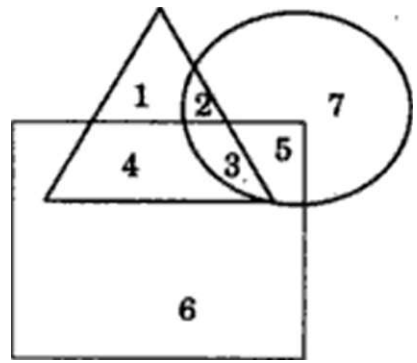
- (a) 4 only (b) 1, 4, 7 (c) 4, 7 (d) 4, 5, 6
27. In the following diagram, parallelogram represents women, triangle represents sub-inspectors of police and circle represents graduates. Which numbered area represents women graduate sub-inspectors of police ? (CJB.I. 1994)



- (a) 5 (b) 3 (c) 8 (d) 13
28. Read the figure and find the region representing persons who are educated and employed but not confirmed. (Assistant Grade, 1993)



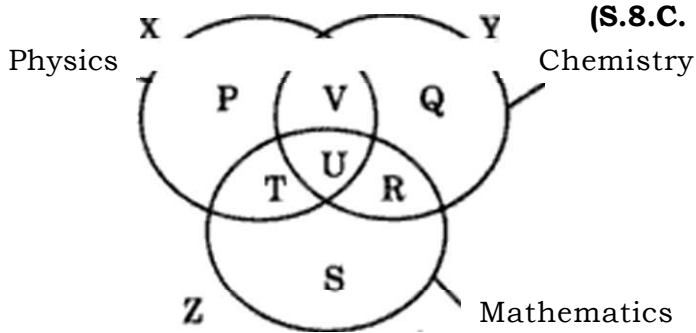
- (a) c (b) a, b, c (c) b, d (d) a, d, c
29. Ip the figure given below, triangle represents the healthy, square represents the old and circle represents the men. Find out the area of the figure which represents the men who are healthy but not old ? (C.B.L 1993)



- (a) 1 (b) 2 (c) 3 (d) 7

30. 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.

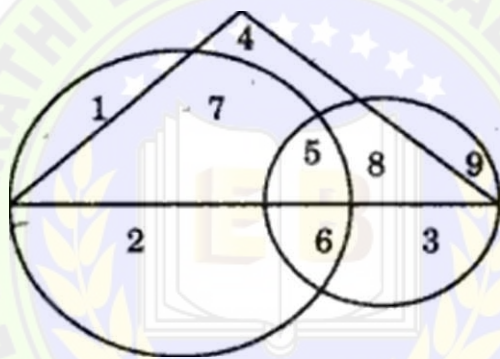
(S.8.C. 1995; I.A-S. 199S)



- (a) T (6) P + T + S (c) V (d) P + T + S + R + tJ + V

Directions (Questions 31 to 35) : The following five questions 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 numbers, answer the following :

(M.BJL 1997)



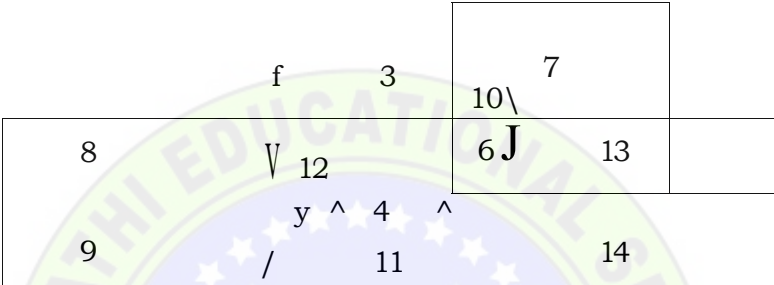
31. How many
(a) 12 (6) 13 (c) 15 (d) 20
32. How many
(a) 4 (6) 10 (c) 12 (d) 15
33. How many
(a) 9 (6) 11 (c) 12 (d) 21
34. How many
(a) 5 (b) 7 (c) 12 (d) 20
35. How many
(o) 3 (b) 8 (c) 9 (d) 12

Directions

answer the questions given below it. The rectangle represents artists, the circle represents players and the triangle represents doctors.

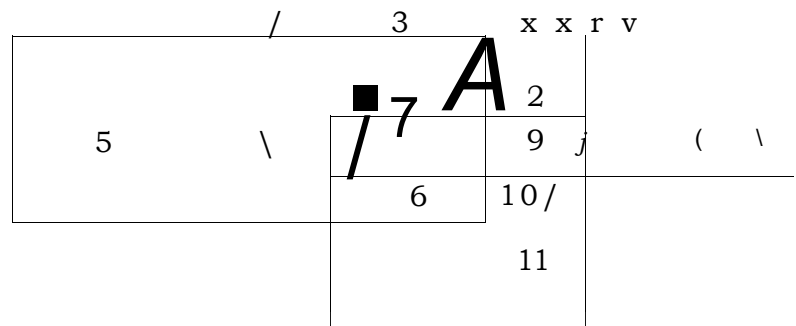
36. How many players are neither artists nor doctors ?
ia) 3 ib) 8 (c) 22 id) 25
37. How many artists are players ?
ia) 30 (6) 29 (c) 25 id) 22
38. How many doctors are both players and artists ?
(a) 3 (6) 4 (c) 8 id) 11
39. How many doctors are neither players nor artists ?
la) 30 (6) 27 (c) 22 id) 8
40. How many artists are neither players nor doctors ?
ia) 22 (6) 24 (c) 29 id) 30

Directions (Questions 41 to 48) The following questions are based on the diagram given below : (IA.8. 1985)



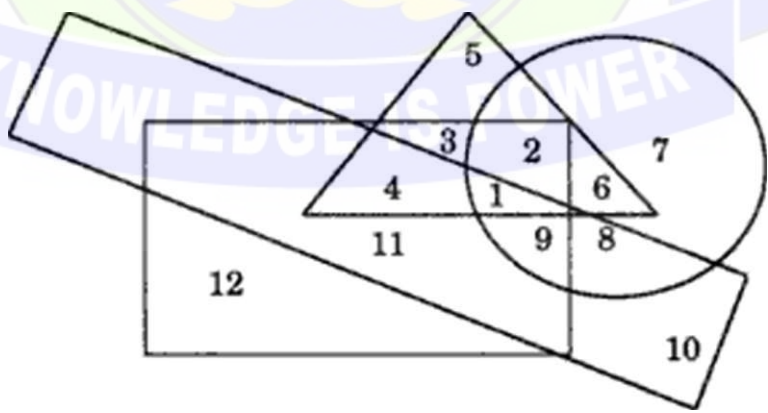
- (1) Rectangle represents males.
(2) Triangle represents educated.
(3) Circle represents urban.
(4) Square represents civil servants.
41. Who among the following is an educated male who is not an urban resident ?
ia) 4 (6) 5 ic) 9 id) 11
42. Who among the following is neither a civil servant nor educated but is urban and not a male ?
ia) 2 (6) 3 ic) 6 id) 10
43. Who among the following is a female, urban resident and also a civil servant ?
ia) 6 (6) 7 ic) 10 id) 13
44. Who among the following is an educated male who hails from urban area ?
ia) 4 (6) 2 ic) 11 id) 5
45. Who among the following is uneducated and also an urban male ?
ia) 2 ib) 3 ic) 11 id) 12
46. Who among the following is only a civil servant but not a male nor urban oriented and uneducated ?
ia) 7 ib) 8 ic) 9 id) 14
47. Who among the following is a male, urban oriented and also a civil servant but not educated ?
<a) 13 (6) 12 ic) 6 id) 10
48. Who among the following is a male civil servant, who is neither educated nor belongs to urban area ?
(a) n ib) 13 ic) 4 id) 1

Directions (Questions 49 to 53): In the following figure, rectangle, square, circle and triangle represent the regions of wheat, gram, maize and rice cultivation respectively. On the basis of the above figure, answer the following questions.



49. Which area is cultivated by all the four commodities ?
(a) 7 (b) 8 (c) 9 (d) 2
50. Which area is cultivated by wheat and maize only ?
(a) 8 (b) 6 (c) 5 (d) 4
51. Which area is cultivated by rice only ?
(a) 5 (b) 1 (c) 2 (d) 11
52. Which area is cultivated by maize only ?
(a) 10 (b) 2 (c) 3 (d) 4
53. Which area is cultivated by rice and maize and nothing else ?
(a) 9 (b) 8 (c) 2 (d) 7

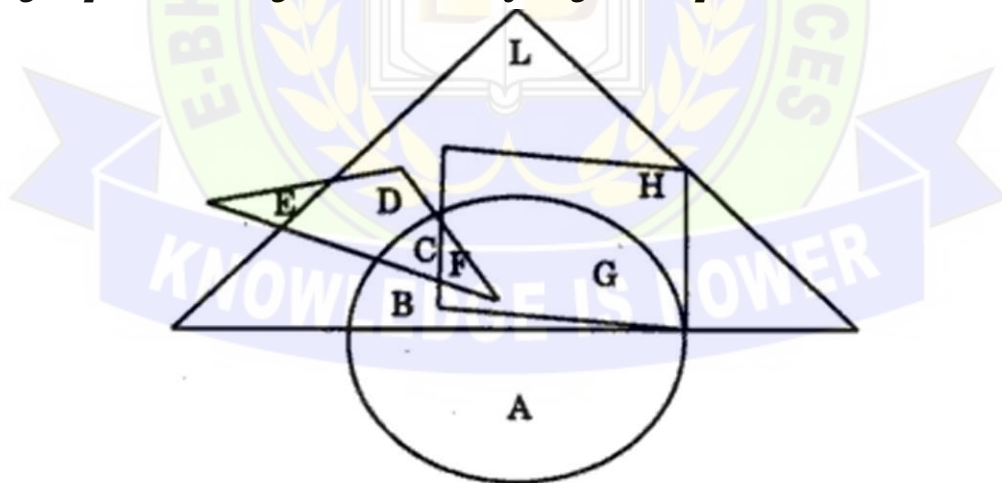
Directions (Questions 54 to 63) : In the following figure> the circle stands for employed, the square stands for hard working, the triangle stands for rural and the rectangle stands for intelligent. Study the figure carefully and answer the questions that follow.



54. Non-rural, employed, hard working and intelligent people are indicated by region
(a) 8 (b) 9 (c) 10 (d) 11 (e) 12
55. Non-rural, employed people who are neither intelligent nor hard working are represented by region
(a) 12 (b) 11 (c) 10 (d) 7 (e) 5
56. Intelligent, employed and hard working non-rural people are indicated by region
(a) 11 (b) 6 (c) 9 (d) 4 (e) 3

57. Hard working non-rural people who are neither employed nor intelligent are shown by region
(a) 8 (b) 7 (c) 6 (d) 10 (e) 12
58. Employed, hard working and intelligent rural people are indicated by region
(a) 1 (b) 2 (c) 3 (d) 4 (e) 5
59. Rural hard working people who are neither employed nor intelligent are indicated by region
(a) 6 (b) 5 (c) 4 (d) 3 (e) 2
60. Rural employed people who are neither intelligent nor hard working are indicated by region
(a) 2 (b) 4 (c) 6 (d) 9 (e) 10
61. Rural people who are hard working and employed but not intelligent are indicated by region
(a) 1 (b) 2 (c) 3 (d) 4 (e) 5
82. Unemployed rural hard working and intelligent people are indicated by region
(a) 1 (b) 2 (c) 3 (d) 4 (e) 5
63. Rural employed people who are neither intelligent nor hard working are indicated by region
(a) 10 (b) 9 (c) 6 (d) 4 (e) 2

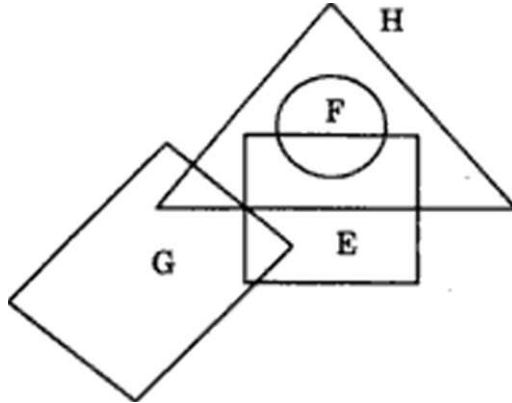
Directions (Questions 64 to 67) i In the following figure, the smaller triangle represents the teachers; the big triangle, the politicians; the circle, the graduates and the rectangle, the members of Parliament. Different regions are being represented by the letters of English alphabet. (8.S.C. 1992)



On the basis of the above diagram, answer the following questions :

64. Who among the following are graduates or teachers but not politicians ?
(a) B, G (b) G, H (c) A, E (d) E, F
65. Who among the following politicians are graduates but not the members of Parliament ?
(a) B, C (b) L, B (c) D, L (d) A, H, L
66. Who among the following politicians are neither teachers nor graduates ?
(a) E, F (b) D, E (c) C, D (d) L, H
67. Who among the following members of Parliament is a graduate as well as a teacher ?
(a) G (b) F (c) C (d) H

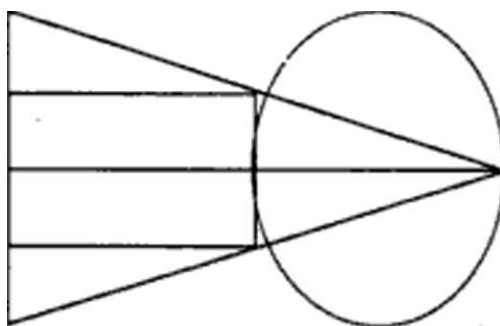
Directions (Questions 68 to 70) : These questions are based on the following diagram : (M.B.A. 1998)



The triangle stands for Hindi-speaking people, circle for French-speaking, square for English-speaking and rectangle for German-speaking people.

68. In the above diagram, which one of the following statements is true ?
- (a) All French-speaking people speak German.
 - (b) All French-speaking people speak English.
 - (c) All German-speaking people speak English and Hindi.
 - (d) All French-speaking people speak Hindi also.
69. In the diagram, which one of the following statements is true ?
- (a) There are some people who speak all four languages.
 - (b) Some German-speaking people can speak either Hindi or English.
 - (c) Some English-speaking people cannot speak all the languages.
 - (d) All Hindi-speaking people speak French but not German.
70. In the above diagram, which one of the following statements is not true ?
- (a) German-speaking people cannot speak French.
 - (b) No French-speaking people can speak German.
 - (c) Some Hindi-speaking people can speak French, English and German as well.
 - (d) Some French-speaking people can speak Hindi and English but not German.

Directions (Questions 71 to 75) : The following figure represents a set of persons — the triangle represents educated persons, the rectangle represents policemen, the bigger ellipse represents road tax payers and smaller ellipse represents shopkeepers. (Delhi Police, 1988)



The following questions are based on the above diagram.

71. Looking at the given figure, it can be said that
- (a) some persons who are neither shopkeepers nor policemen are educated.
 - (b) some persons who are either shopkeepers or policemen, pay road tax, though uneducated.
 - (c) some persons who are either shopkeepers or policemen pay road tax and are also educated.
 - (d) all the above statements are correct.
72. According to this figure, it follows that
- (a) policemen do not pay road tax.
 - (b) shopkeepers do not pay road tax.
 - (c) some shopkeepers are educated.
 - (d) some policemen are shopkeepers.
73. From the above figure, it can be concluded that
- (a) all educated policemen pay road tax.
 - (b) all educated shopkeepers pay road tax.
 - (c) all road tax paying policemen are educated.
 - (d) all road tax paying shopkeepers are educated.
74. Looking at the given figure, it can be said that
- (a) some of the uneducated policemen pay road tax.
 - (b) some of the educated shopkeepers pay road tax.
 - (c) some of the road tax payee policemen are shopkeepers too.
 - (d) some of the road tax payee shopkeepers are policemen too.
78. On the basis of this figure, it can be concluded that
- (a) none of the educated 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.

ANSWERS

1. (d): B is the region common to the circle, square and triangle.
2. (c): The required region is the one which is common to the triangle and the circle but is not a part of the square i.e. IV.
3. (a): The required region is the one which is common to the circles A and B and lies outside circle C i.e. b.
4. (c): The required region is the one which lies inside the circle B but is not a part of either circle A or circle C i.e. f.
- t*. (a): The required region is the one which is common to the circles A and C but is not a part of circle B i.e. d.
6. (c): The required region is the one common to all the three circles i.e. c.
7. (6): The required region is the one common to all the three circles i.e. c.
8. (d): The required region is the one which is common to circles P and R but is not a part of circle Q. i.e. b.

9. (a) : The required region is the one which lies inside circle P but is not common to circle Q or circle R or both i.e. a
10. (c): The required region is the one which is common to circles P and Q but lies outside circle R i.e. d.
11. (6): The required region is the region which is common to the triangle and square but lies outside the circle i.e., B,
12. (c): The required region is the one which is common to the circles 2, 3 and 4 but is not a part of circle 1 i.e. H.
13. (d): The required region is the one which is common to all the four circles i.e. E.
14. (c) : The required region is the one which is common to the circles 1, 2 and 4 but lies outside circle 3 i.e. F.
15. (d) : The required region is the one which does not lie inside circle 1, 2 and 4. i.e. L
16. (b): The given conditions are satisfied by the persons denoted by the region which is common to circles 1 and 2 but is not a part of either circle 3 or circle 4 i.e. B
17. (6): Strong army men will be represented by the region which is common to the square and the triangle but lies outside the circle i.e. 4.
18. (c): The given set of persons is denoted by the region common to the circle, the triangle and the rectangle i.e. 4.
19. (a): The given set of persons is denoted by the circular region contained in the rectangle but outside the triangle i.e. 2.
20. (c): The given set of persons is denoted by the circular region outside the triangle and the rectangle i.e. 1.
21. (d): The given set of persons is denoted by the circular region inside the triangle and outside the rectangle i.e. 3.
22. (d): The required region is the one common to the circle and triangle i.e. regions 5 and 6.
23. (d) : The required region is the one which is common to the triangle and circle but lies outside the square i.e. 6.
24. (a): The required region is the one common to the triangle and square i.e. regions 7 and 8.
25. (c): The required region is the one which is common to the triangle and circle but lies outside the rectangle i.e. 7.
26. (o): The required region is the one which is common to the circles A and C but lies outside circle B i.e. 4.
27. (6) : The required region is the one common to the parallelogram, triangle and circle i.e. 3.
28. (c): The required region is the one which is common to the two circles but lies outside the triangle i.e., regions b and d.
29. (b) : The required region is the one which is common to the triangle and circle but lies outside the square i.e. 2.
30. (a) : The required region is the one which is common to circles X and Z but lies outside circle Y i.e. T.
31. (d): The region common to the triangle and any of the two circles represents the number of self-employed female graduates. It is $8 + 5 + 7 = 20$.
32. (a): The region lying inside the triangle but outside both the circles represents the number of female graduates who are not self-employed. It is 4.
33. (d): The regions lying outside the triangle but inside any of the two circles represent the number of non-graduate, self-employed females. It is $(9 + 3 + 6 + 2 + 1) = 21$.
34. (c): The region common to the triangle and the bigger circle represents the number of self-employed female graduates with bank loan facility. It is $7 + 5 = 12$.
35. (c): The region lying outside the triangle but inside the bigger circle represents the number of non-graduate self-employed females with bank loan facility. It is $(6 + 2 + 1) = 9$.
36. (d): The region lying inside the circle but outside the triangle and the rectangle represents the number of players who are neither artists nor doctors. It is 25.

37. (c): The region common to the circle and the rectangle represents the required set of persons. Thus, number of artists who are players = $(22 + 3) = 25$.
38. (a): The region common to the circle, triangle and the square represents the required set of persons. Thus, number of doctors who are both players and artists $\times 3$.
39. (6): The region which lies inside the triangle but outside the circle and the rectangle represents the persons satisfying the given conditions. Thus, number of doctors who are neither players nor artists = 27.
40. (d) : The region which lies inside the rectangle but outside the triangle and the circle represents the required set of persons. Thus, number of artists who are neither players nor doctors = 30.
41. (d): The person satisfying the given conditions is represented by the region which is common to the triangle and the rectangle but lies outside the circle *i.e.* 11.
42. (ft): The person satisfying the given conditions is represented by the region which lies inside the circle but outside the square, the rectangle and the triangle *i.e.* 3.
43. (c): The person satisfying the given conditions is represented by the region which lies outside the rectangle and is common to the circle and the square *i.e.* 10.
44. (a): The person satisfying the given conditions is represented by the region which is common to the triangle and the rectangle and also lies inside the circle *i.e.* 4. *
45. (d) : The person satisfying the given conditions is represented by the region which lies outside the triangle and is common to the circle and the rectangle *i.e.* 12.
- Remember** : The condition which is not mentioned shouldn't be considered or assumed. For instance, here, 6 also denotes the required region. But since it lies inside the square and there is no mention of 'civil servant', so it cannot be the answer.
46. (a): The person satisfying the given conditions is denoted by the region which lies inside the square but outside the circle, rectangle and triangle *i.e.* 7.
47. (c): The person satisfying the given conditions is denoted by the region which is common to the rectangle, circle and the square but lies outside the triangle *Le.* 6.
48. (6): The person satisfying the given conditions is represented by the region common to the rectangle and the square but lying outside the triangle and the circle *i.e.* 13.
49. (a): The required region is the one common to the rectangle, square, circle and the triangle *i.e.* 7.
50. (d): The required region is the one which is common to only the rectangle and the circle and is not a part of either the triangle or the square *i.e.* 4.
51. (ft): The required region is the one which lies inside the triangle and outside the rectangle, square and circle *i.e.* 1.
52. (c): The required region is the one which lies inside the circle but outside the rectangle, square and triangle *Le.* 3.
53. (c): The required region is the one which is common to only the triangle and the circle *i.e.* 2.
54. (ft): The required set of people is represented by the region which lies outside the triangle and is common to the circle, square and rectangle *i.e.* 9.
55. (d): The required set of people is represented by the region which lies outside the triangle, inside the circle but outside the rectangle and the square *i.e.* 7.
56. (c): The required set of people is represented by the region which is common to the rectangle, circle and square but lies outside the triangle *i.e.* 9.
57. (e): The required set of people is denoted by the region which lies inside the square but outside the triangle, circle and rectangle *i.e.* 12.
58. (a): The required set of people is denoted by the region common to the circle, square, rectangle and triangle *Le.* 1.
59. (rf): The required set of people is represented by the region which is common to the triangle and the square but lies outside the circle and rectangle *i.e.* 3.

60. (c): The required set of people is denoted by the region which is common to the triangle and the circle, but is not a part of either the rectangle or the square i.e. 6.
61. (6): The required set of people is represented by the region which is common to the triangle, square and circle but is not a part of the rectangle i.e 2.
62. (d): The required set of people is represented by the region which lies outside the circle and is common to the triangle, square and rectangle i.e. 4.
63. (c): The required set of people is denoted by the region which is common to the triangle and circle but is not a part of either the rectangle or the square *Le.* 6.
64. (c): The persons satisfying the given conditions are denoted by regions which lie inside the smaller triangle or the circle but outside the bigger triangle i.e. *A* and *B*.
65. (a): The persons satisfying the given conditions are represented by regions which are common to the triangle and the circle but lies outside the rectangle *Le.* *B* and *C*.
66. (d) : The persons satisfying the given conditions are represented by regions which lies inside the bigger triangle but outside the smaller triangle and the circle i.e. *L* and *H* -
67. (6): The person satisfying the given conditions is represented by the region common to the rectangle, circle and the smaller triangle i.e. *F*.
68. (d) 69. (6) 70. (c)
71. (d) 72. (c) 73. (c) 74. (6) 75. (d)

