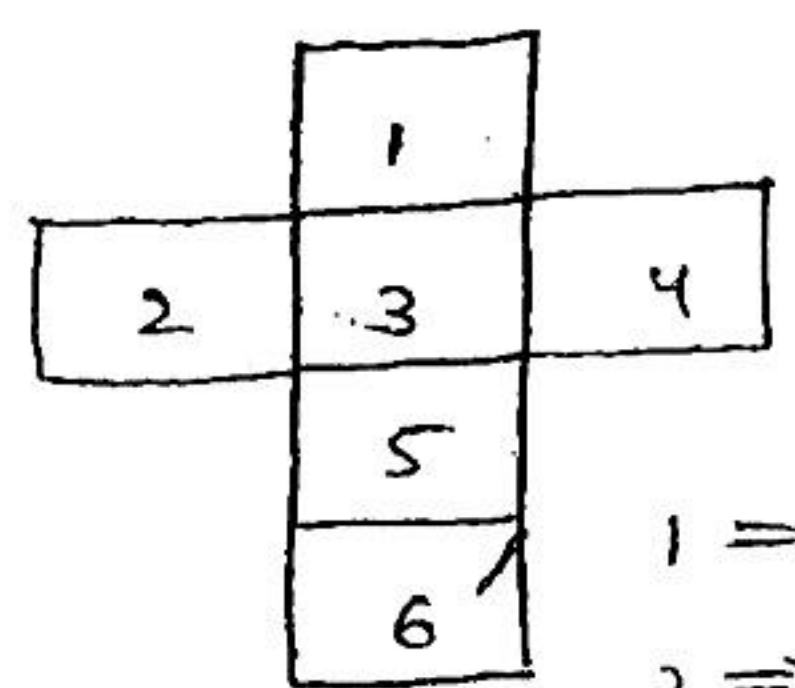


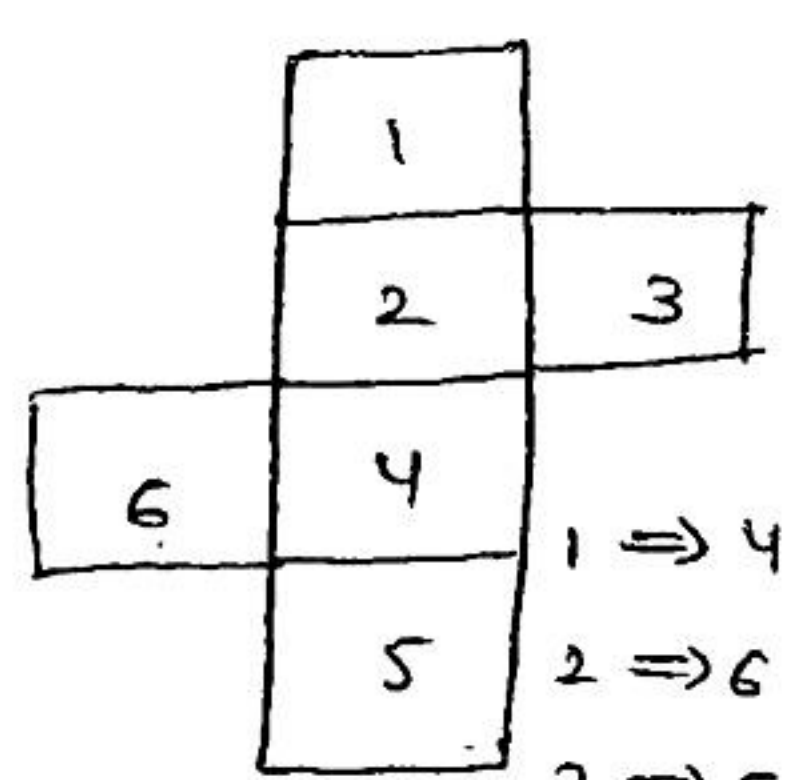
18 - H -

NON VERBAL TEST OF REASONING

CUBES AND DICES

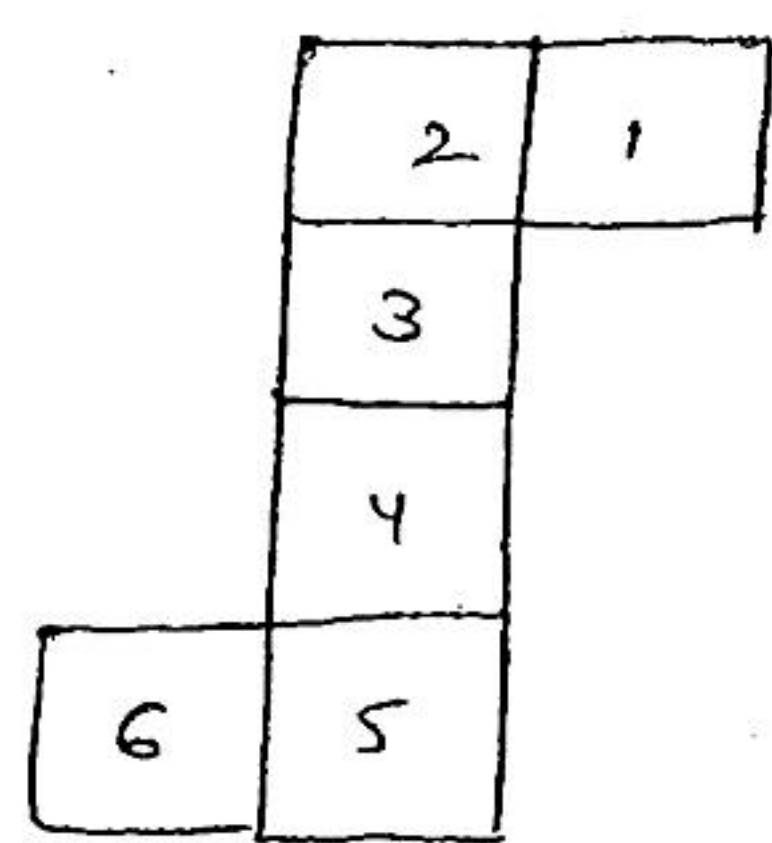


$1 \Rightarrow 5$
 $2 \Rightarrow 4$
 $3 \Rightarrow 6$

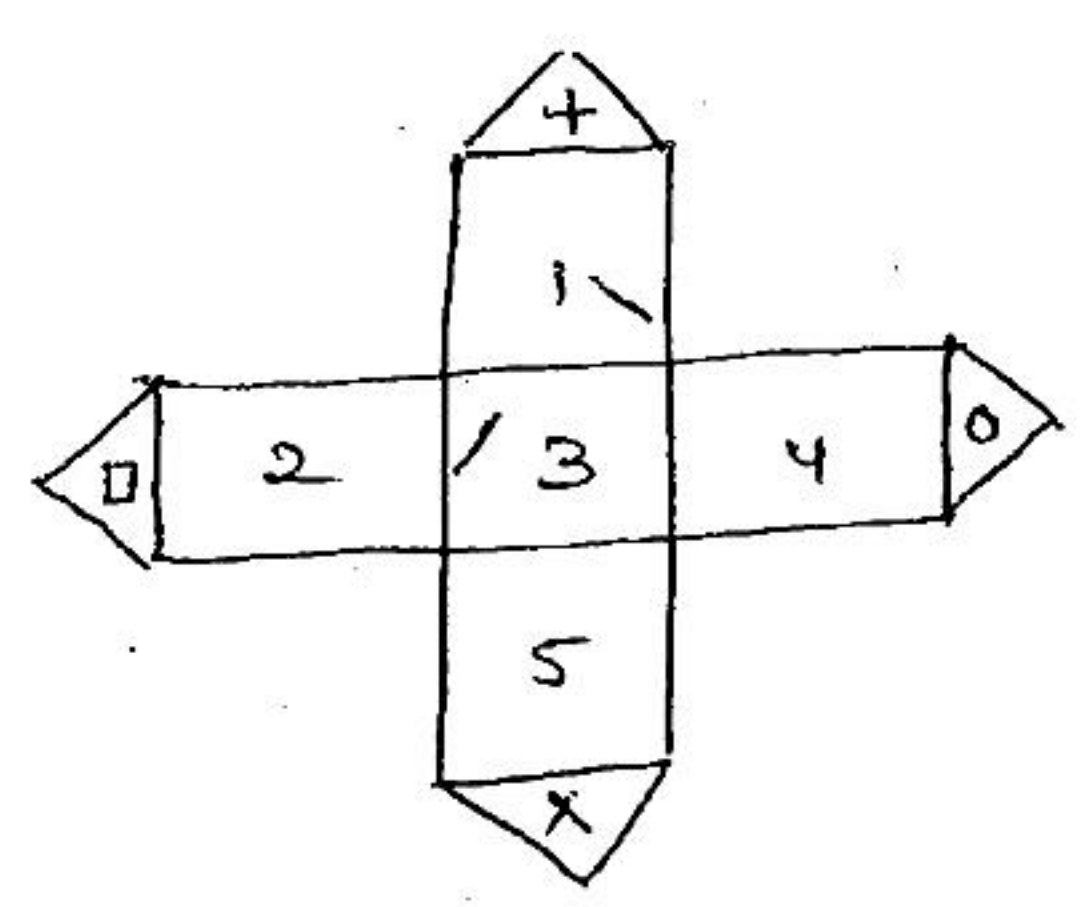


$1 \Rightarrow 4$
 $2 \Rightarrow 6$
 $3 \Rightarrow 5$

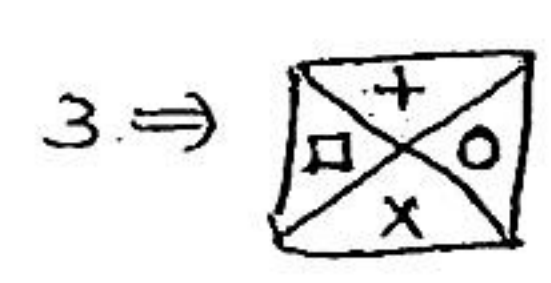
(opposite faces)



$1 \Rightarrow 6$
 $2 \Rightarrow 4$
 $3 \Rightarrow 5$

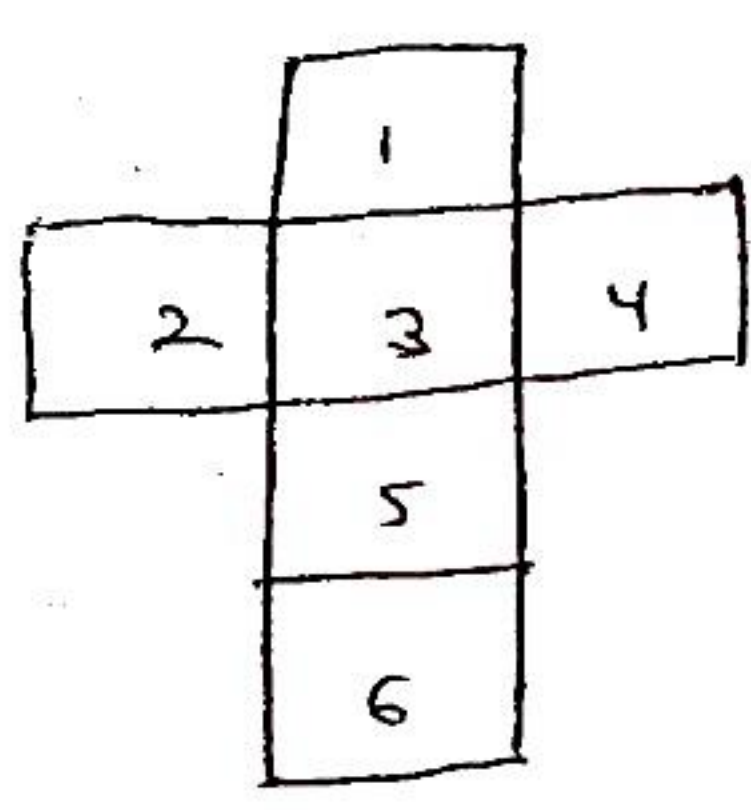
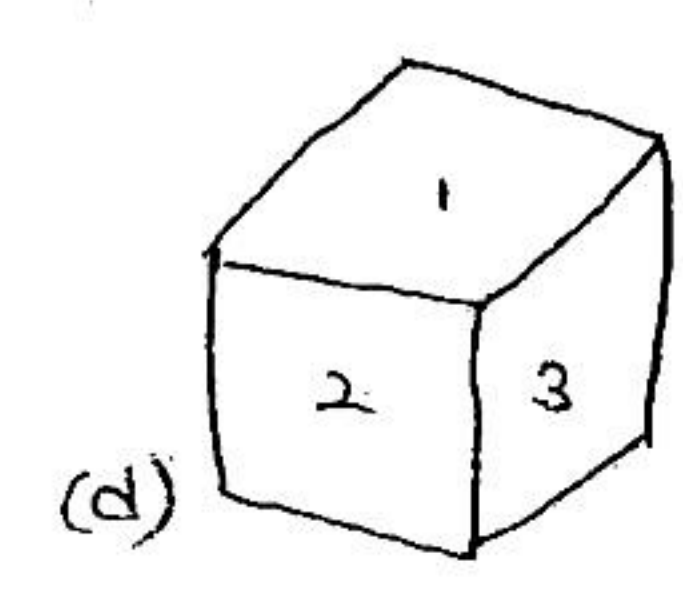
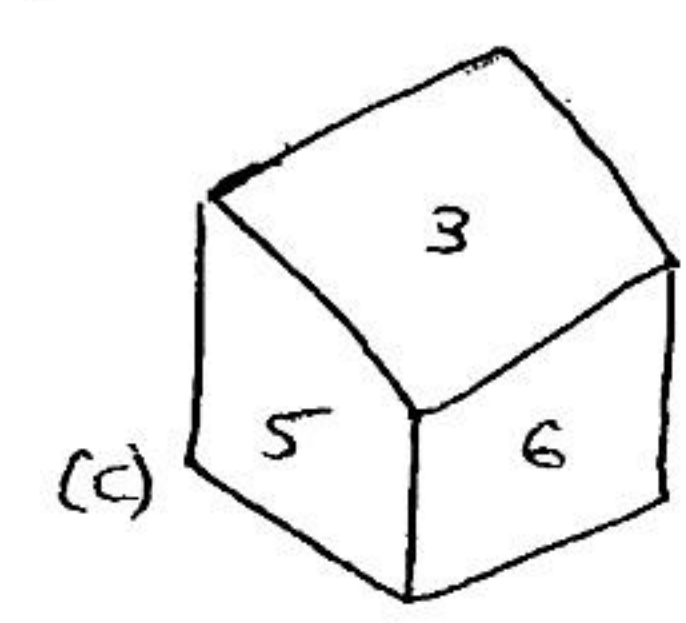
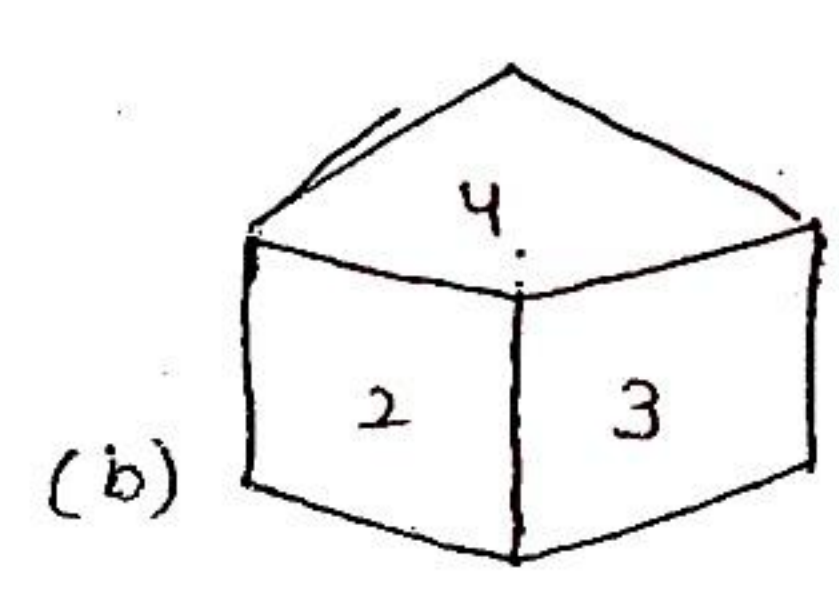
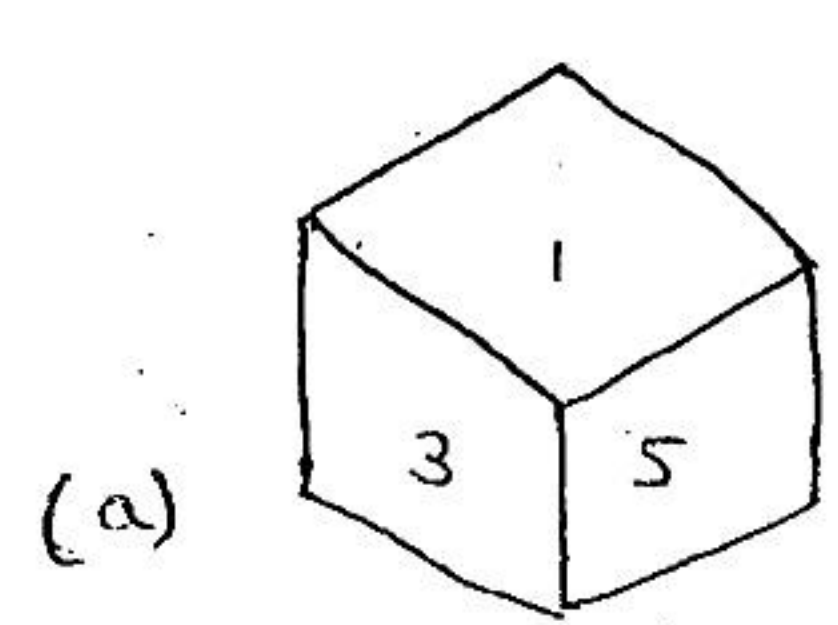


$1 \Rightarrow 5$
 $2 \Rightarrow 4$



Model - I :-

1. In each of the following question one figure is given, if that figure is folded the following cubes are formed.



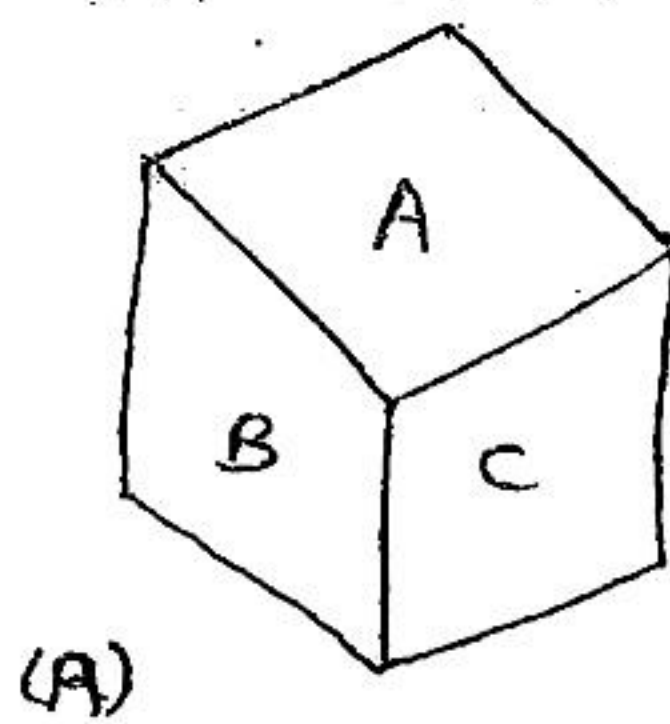
$1 \Rightarrow 5$
 $3 \Rightarrow 6$
 $2 \Rightarrow 4$

Ans:- (d)

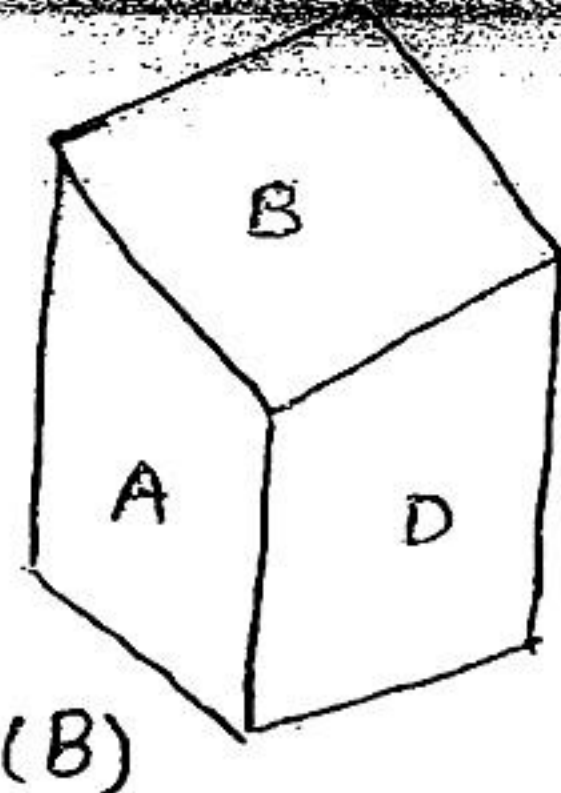
In (d) fig. 1 is opposite to 5
it is not 3 $\Rightarrow$ 6, 2 $\Rightarrow$ 4.

In other (a) fig. 1 is adjacent to 5 not correct.
(b) 2 is adjacent to 4 not correct.
(c) 3 is adjacent to 6 not correct.

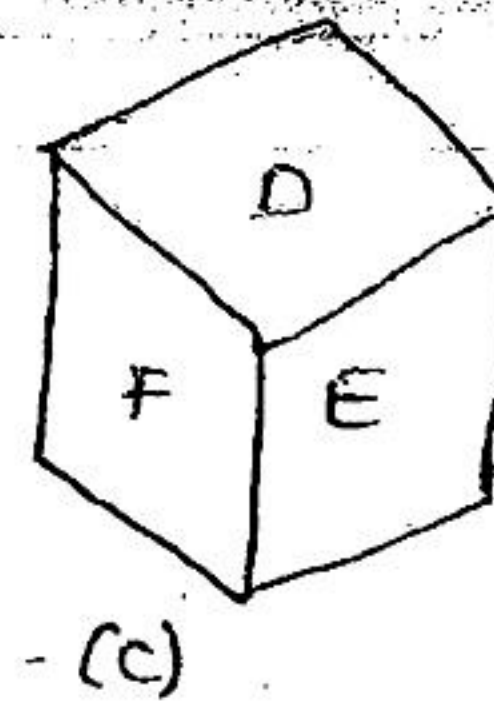
2)



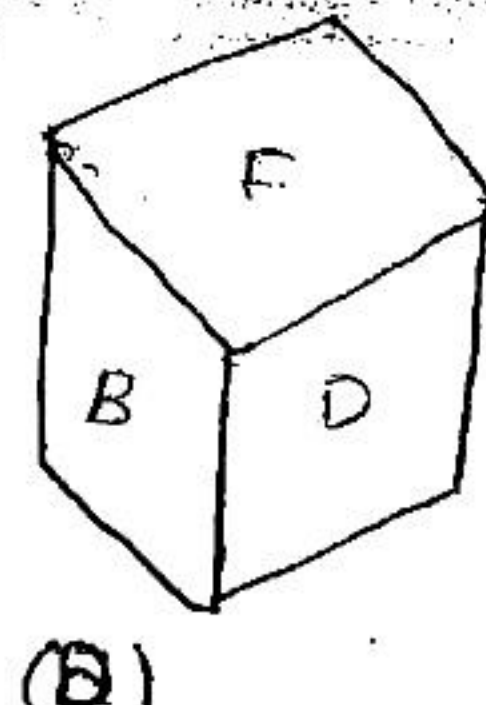
(A)



(B)

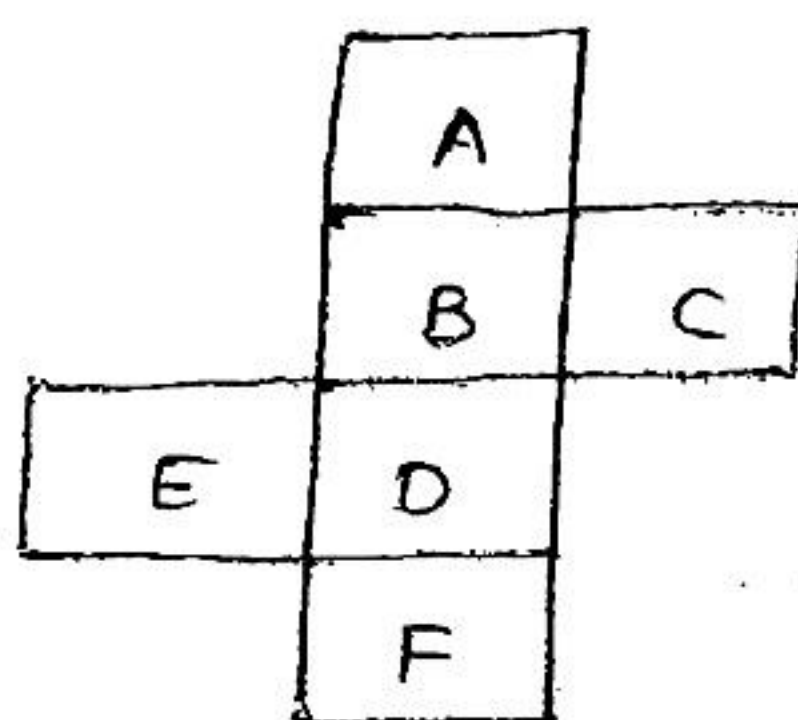


(C)



(D)

20

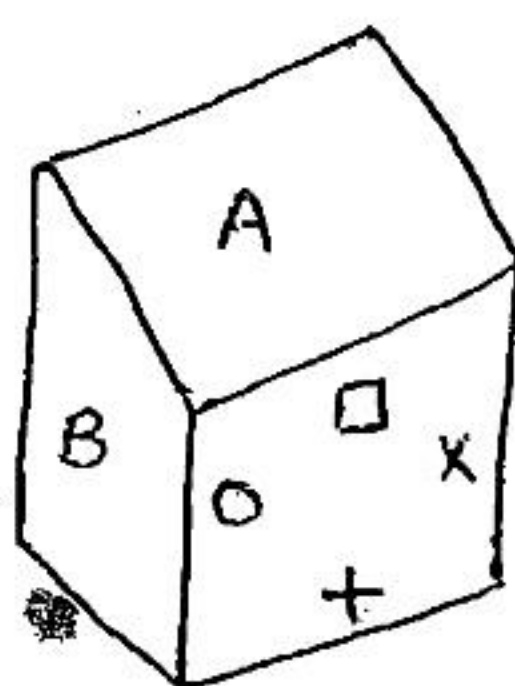


opposite
 $A \Rightarrow D$
 $B \Rightarrow F$
 $E \Rightarrow C$

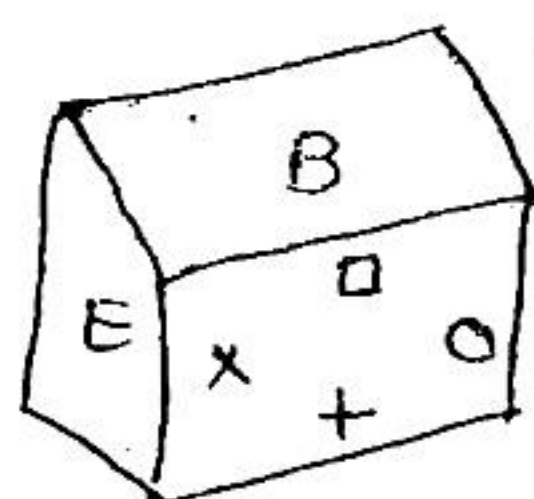
- a) (A) & (B) only
 b) (A) & (C) only
 c) (D) only
 d) All the above

[b]

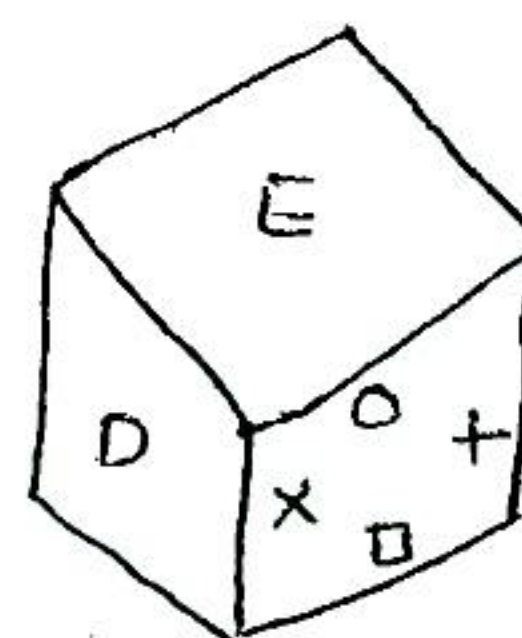
3)



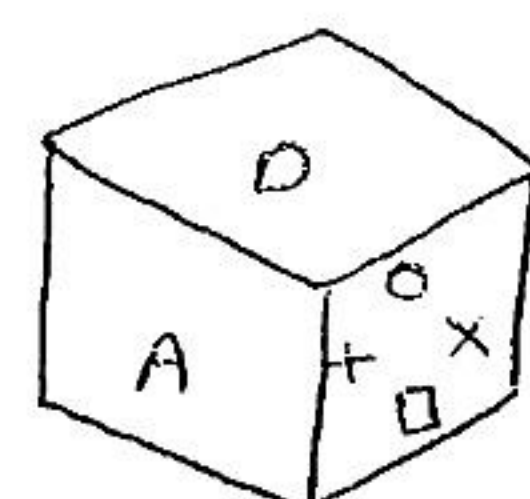
(A)



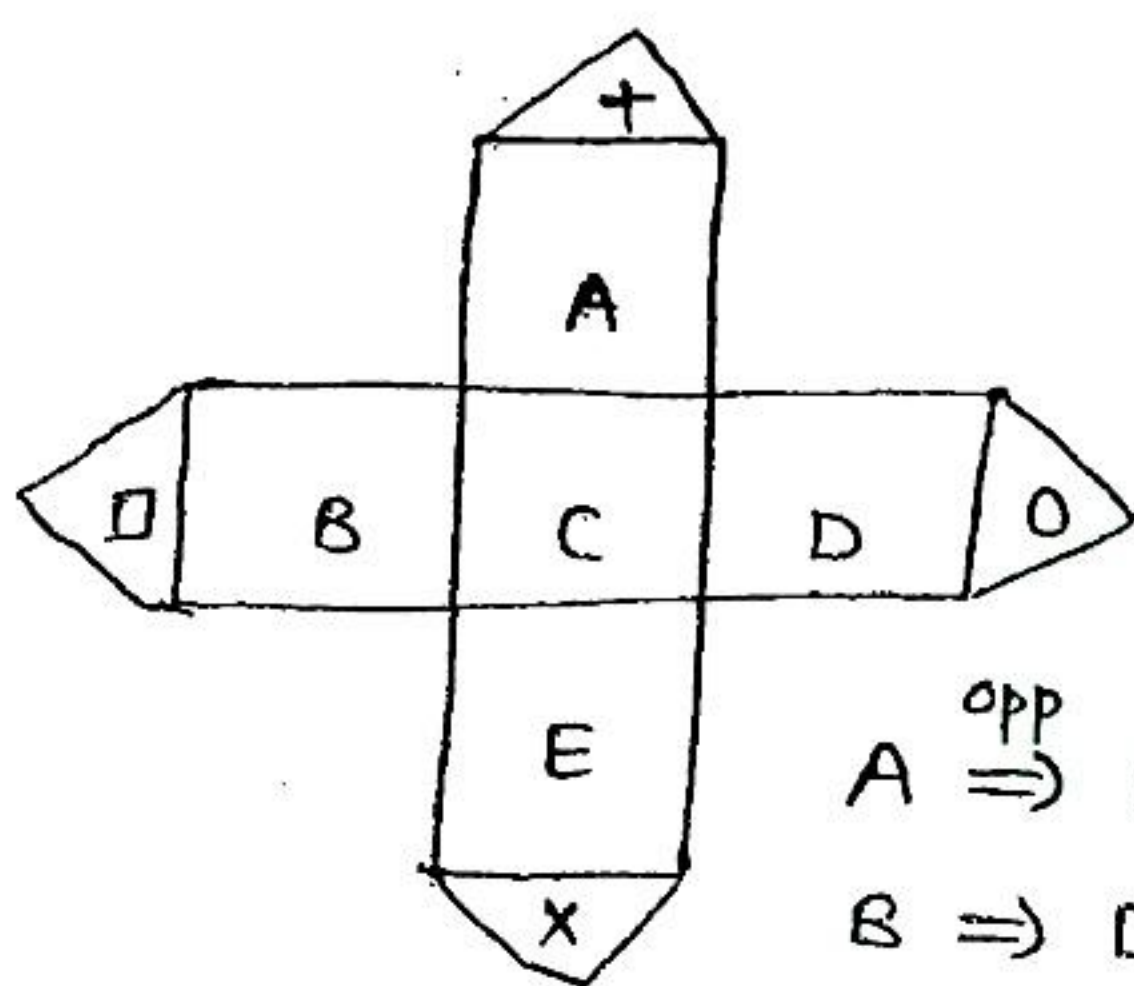
(B)



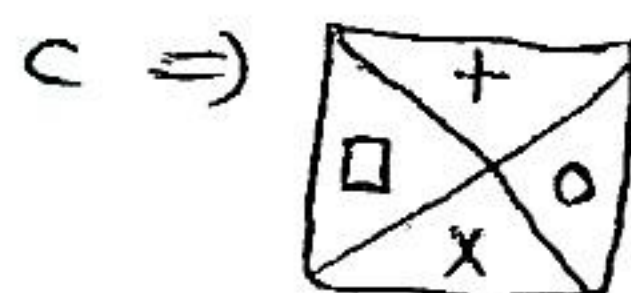
(C)



(D)



opp
 $A \Rightarrow E$
 $B \Rightarrow D$

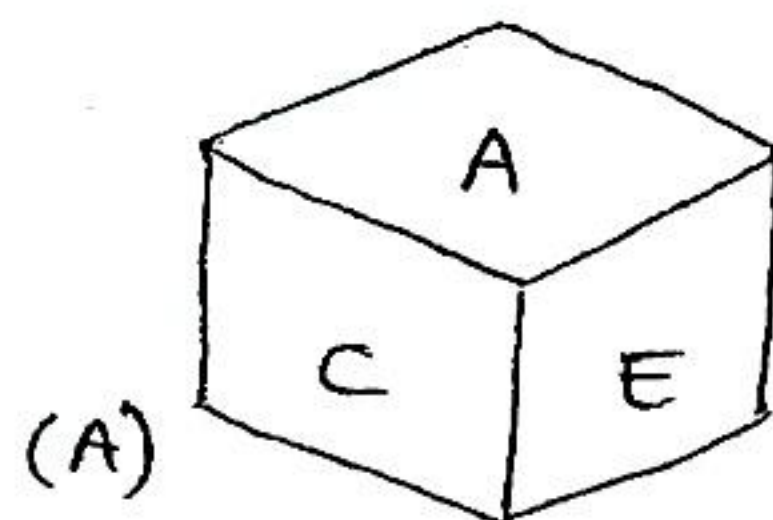


- a) (A) & (B) only
 b) (A) & (C) only
 c) (C) & (D) only
 d) All the above.

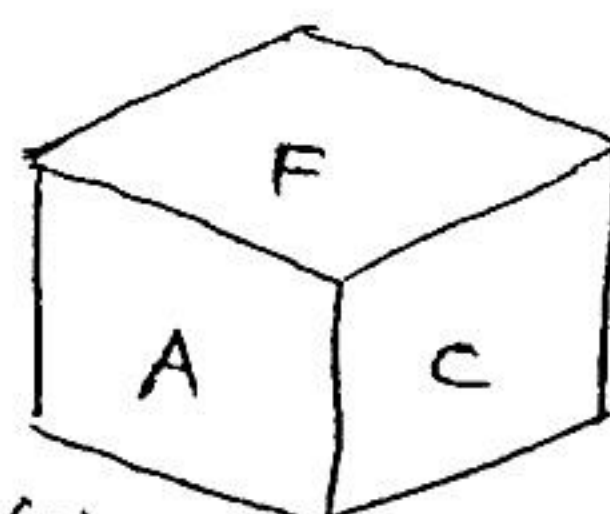
[c]

Model - II :-

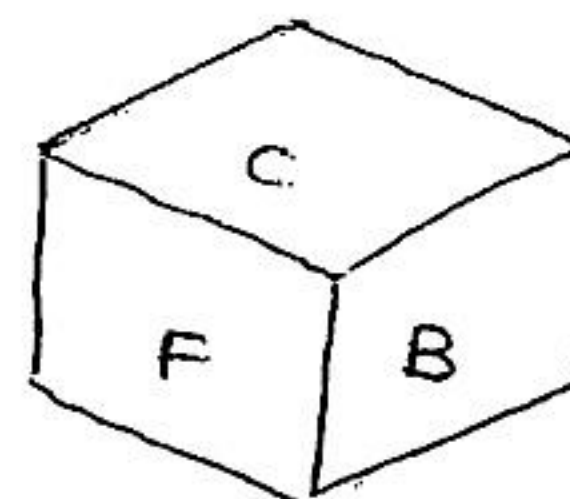
4)



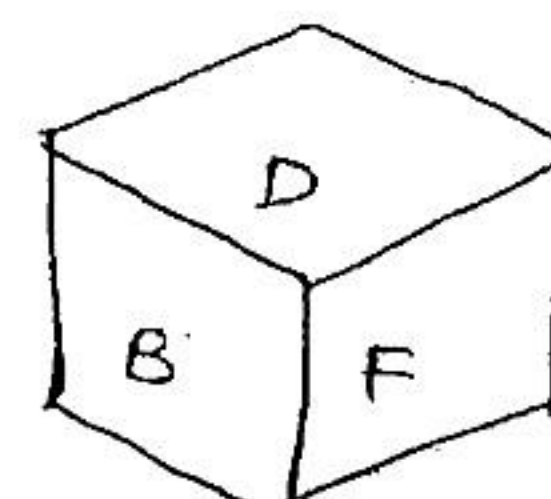
(A)



(B)



(C)



(D)

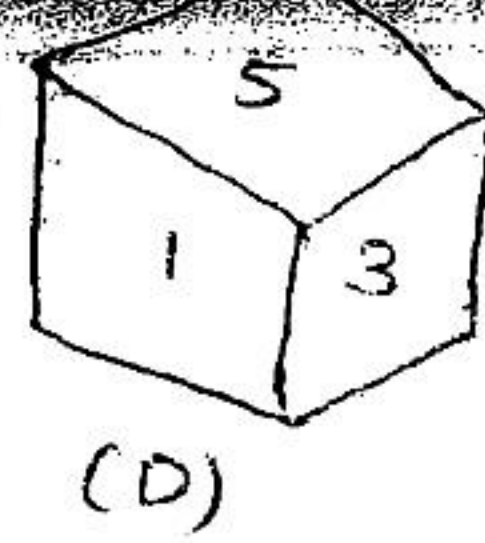
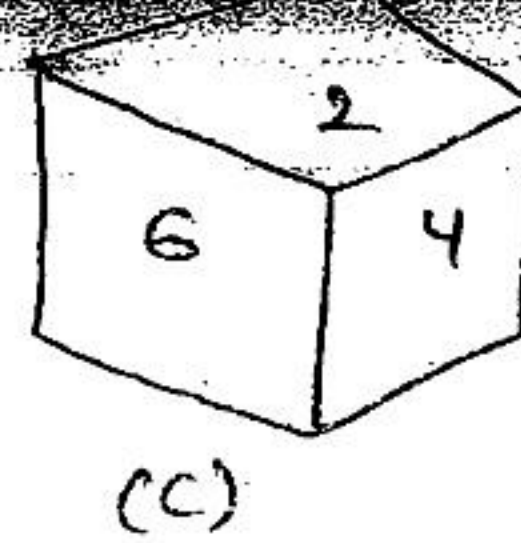
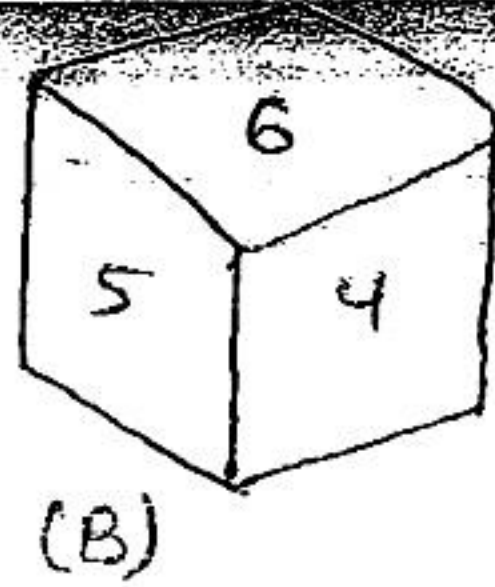
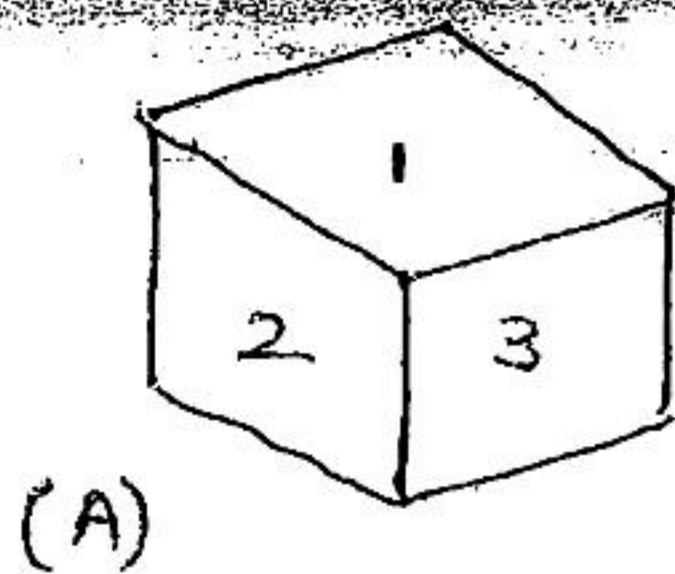
From above four positions of cube which base is opposite to face 'C'. [D]

adjacent
 $D \Leftarrow C \Rightarrow A, E, F, B$

adjacent
 $(A) \rightarrow C \Rightarrow A, E$
 $(B) \rightarrow C \Rightarrow A, F$
 $(C) \rightarrow C \Rightarrow F, B$

(D) $\rightarrow$ C is not given

5.



In above four positions of cube if face '2' is top and which face is bottom. [D]

$$5 \leftarrow 2 \xrightarrow{\text{opp}} 1, 3, 4, 6$$

Data:-

A wooden cube of 8cm is painted with three different colors i.e., red, blue, green. Red painted on top and bottom and remaining faces and that oppose it are painted with remaining colors and cut into a cubical blocks of each face 2cm and answer the following questions.

1. How many cubes are there which are only one face painted with any color and remaining faces are unpainted. [D]

- A) 4 B) 8 C) 12 D) 24

2. How many cubes are there which are only two faces painted with in any color and remaining faces are unpainted. [C]

- A) 8 B) 12 C) 24 D) 32

3. How many cubes are there which are only three faces painted with in any color and remaining faces are unpainted. [B]

- A) 4 B) 8 C) 10 D) 12

4. How many cubes are there which are three faces painted with three different colors and remaining faces are unpainted. [A]

- A) 8 B) 10 C) 12 D) 16

5. How many cubes are there which are one face painted with red color and remaining faces are unpainted. [B]

- A) 4 B) 8 C) 12 D) 14

6. How many faces are there two faces painted with red and blue and remaining faces are unpainted. [B] (2)

- A) 4 b) 8 c) 12 d) 16

7. How many cubes are there which are two faces painted with red or blue. The remaining faces are painted (or) may not be painted. [C]

- A) 8 B) 12 C) 16 D) 20

8. How many cubes are there which are two faces painted with green color and remaining faces are unpainted.

- A) 4 B) 8 C) 10 d) None

9. How many cubes are formed in all. [C]

- A) 24 B) 32 C) 48 d) 64

$$\begin{aligned} n^3 \\ n &= \frac{8}{2} = 4 \\ \Rightarrow (4)^3 &= 64 \end{aligned}$$

10. How many cubes are there which are no face painted with any color. [B]

- A) 4 b) 8 c) 12 d) None

$$\begin{aligned} (n-2)^3 \\ \Rightarrow (4-2)^3 \\ \Rightarrow 8 \end{aligned}$$

11. How many cubes are there which are at least one face painted with any color. [d]

- A) 24 B) 32 C) 48 d) 56.

$$\begin{aligned} n^3 - (n-2)^3 \\ \Rightarrow 4^3 - 2^3 \\ \Rightarrow 56 \end{aligned}$$

12. How many cubes are there which are at least two faces painted with any color. [C]

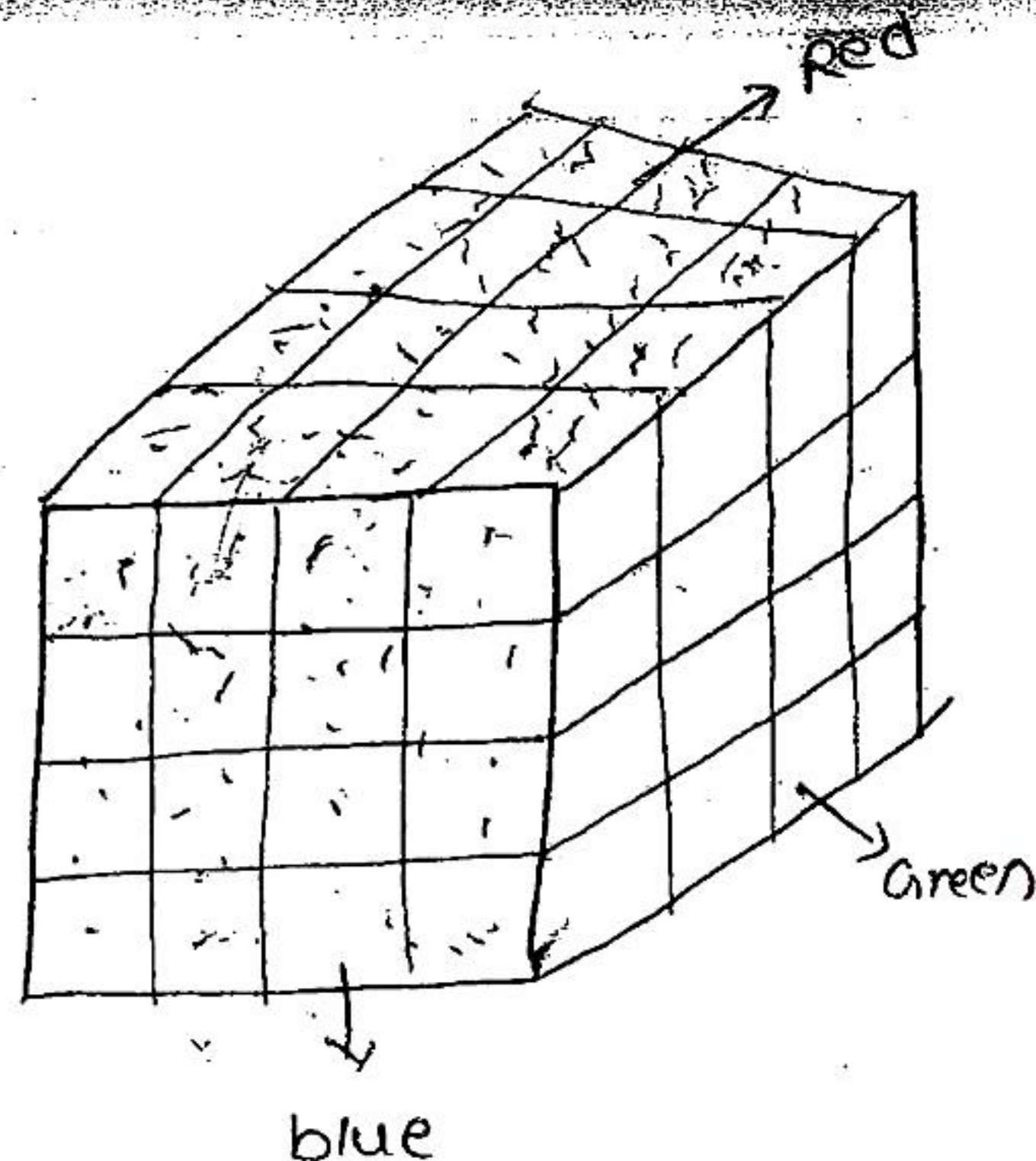
- A) 12 b) 24 c) 32 d) 44.

13. How many cubes are there which are at least three faces painted with any color. [B]

- A) 4 b) 8 c) 12 d) None

Answers:-

1. $4 \times 6 \text{ (faces)} = 24$
2. $2 \times 12 \text{ (edges)} = 24$
3. $1 \times 8 \text{ (corners)} = 8$
4. $1 \times 8 = 8$
5. $4 + 4 = 8$
 $R + R$
6. Red & ~~Blue~~ ^{Red} = $4 + 4 = 8$
~~Blue~~
7. Red & blue = $8 + 8 = 16$
8. None
9. $n^3 = (4)^3 = 64$
 $n = \frac{8 \text{ cm}}{2 \text{ cm}} = 4 \text{ parts}$
10. $(n-2)^3 = (4-2)^3$
 $= 8$
11. Total = 64
No-faces = $\frac{8}{56}$
(or) $n^3 - (n-2)^3 = 56$
12. Atleast one = 56
Only one = $\frac{24}{32}$
(or) $\frac{(2) + (3) \text{ Qs}}{24 + 8 = 32}$
13. $1 \times 8 = 8$



opp. of green also green
opp. of Red also Red
opp. of blue also blue

Cube Analysis:-

1. No. of faces = 6
2. No. of edges = 12
3. No. of corners = 8

Q. A wooden cube of 18 cm painted with three different colors i.e., red, blue and green. Red painted on top and bottom and remaining faces at that opposite are painted with remaining colors and cut into a cubicle blocks of each face 2cm and answer the above problem questions.

Analytical Figures:-

(22)

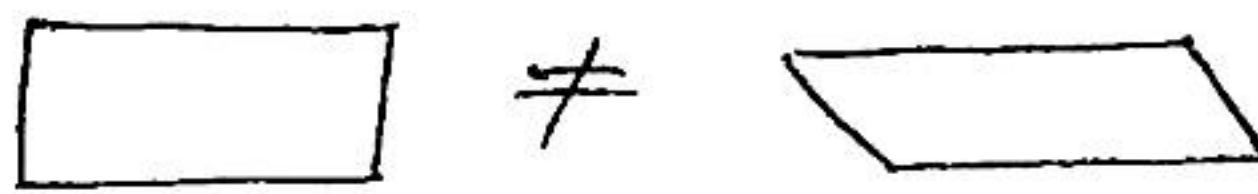
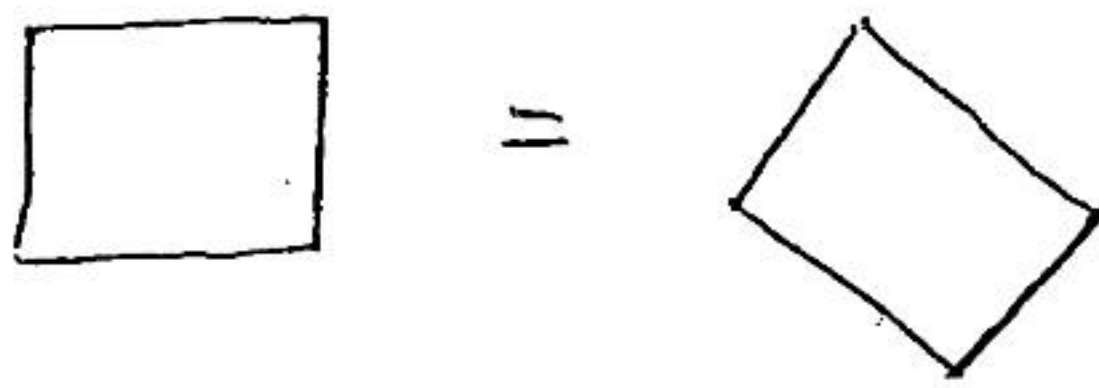
Triangle = 3 sides + 3 angles

Right angle /

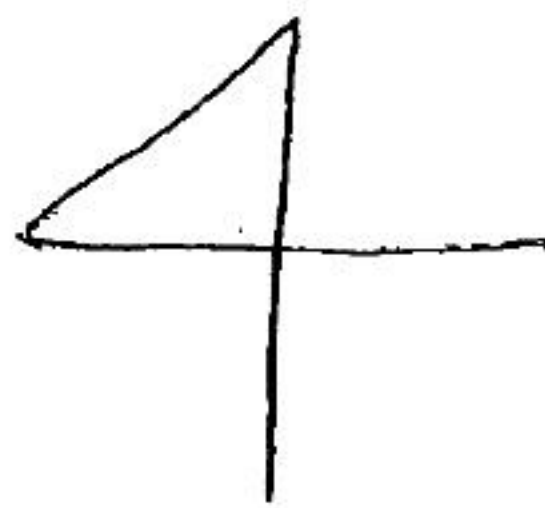
Equilateral triangle

Isosceles triangle

Scalen triangle.



Straight line:-



Horizontal st. line = 1

verticle st. line = 1

Inclined st. line = 1

3 st. lines

1. How many straight lines and how many triangles are there in the following figure.

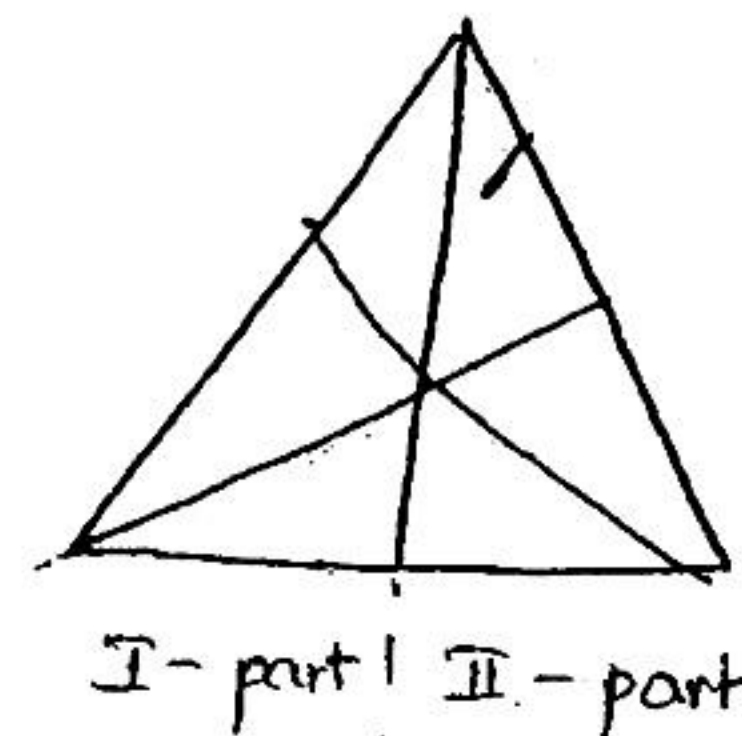
A. 16 triangles, 6 st-lines

1 Fig. triangle = $3 \times 2 = 6$

2 Fig. triangle = $1 \times 2 = 2 + C_1 = 3$

3 Fig. triangle = $1 \times 2 = 2 + C_4 = 6$

6 Fig. triangle = $\frac{1}{16}$



C - combined

half part from I-part

and remaining part from II-part.

2. How many straight lines and how many triangles are there in the following figure.

A. 7 straight lines, 23 triangles

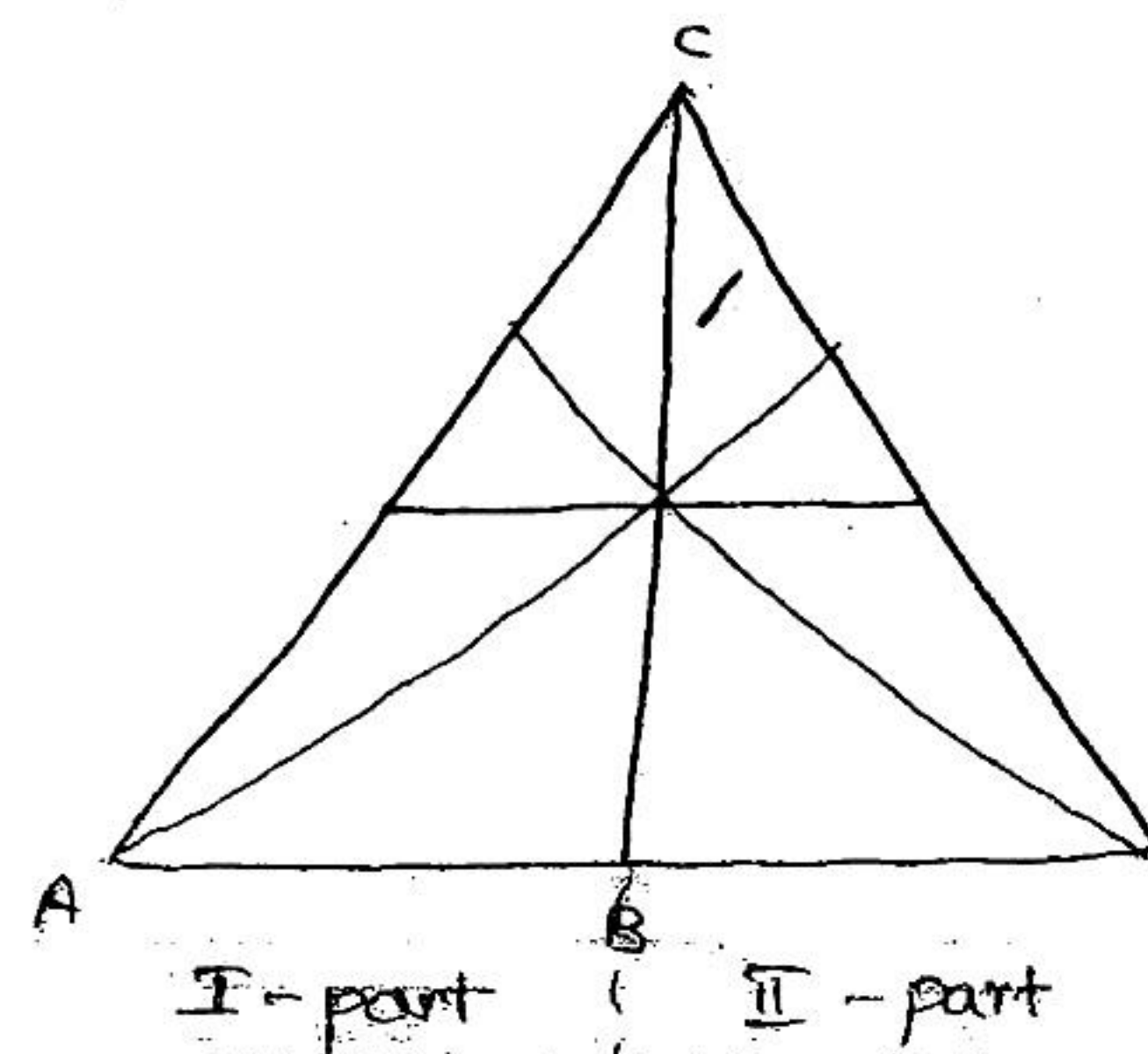
1 F. triangle = $4 \times 2 = 8$

2 F. triangle = $2 \times 2 = 4 + C_1 = 5$

3 F. triangle = $1 \times 2 = 2 + C_0 = 2$

4 F. triangle = $1 \times 2 = 2 + C_5 = 7$

8 F. triangle = $1 = 1$



3. How many st. lines and how many triangles are there in the following figure. []

A) 50 B) 51 C) 52 D) 53

A. No. of straight lines = 11

No. of triangles =

$$1F \text{ triangle} = 12 = 12$$

$$4F \text{ triangles} = 3+2+4 = 9$$

$$2F \text{ triangles} = 4+4+2+2 = 12$$

$$6F \text{ triangles} = 1+1+2 = 4$$

$$8F \text{ triangles} = 2+1+1+1+2 = 7$$

$$16F \text{ triangle} = 1$$

4. How many st. lines and how many triangles are there in the following figure.

A. straight lines = 8

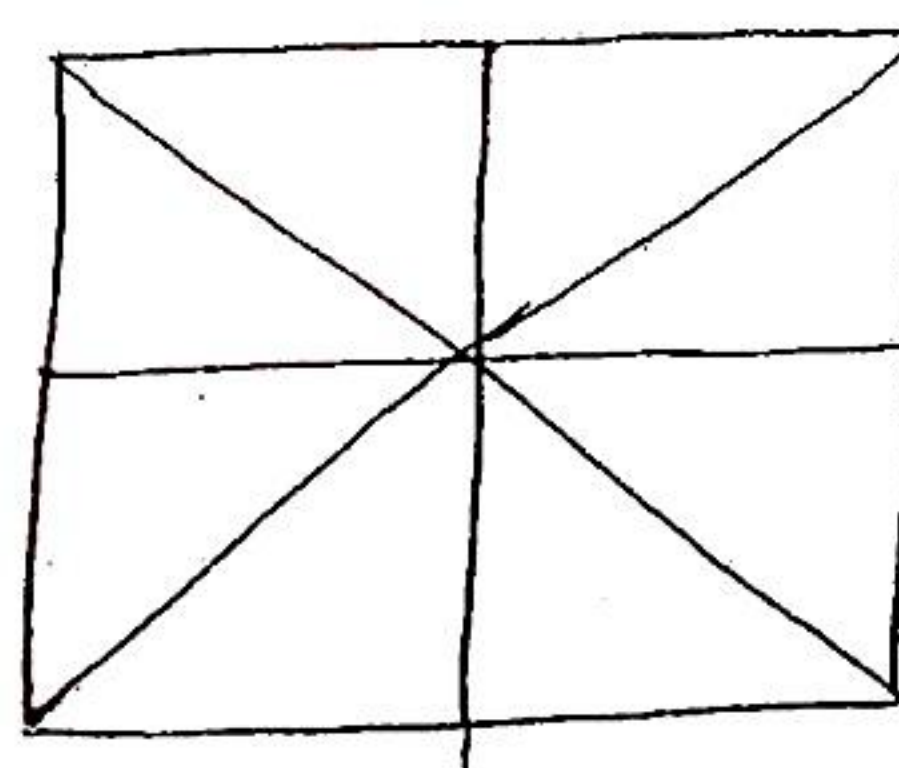
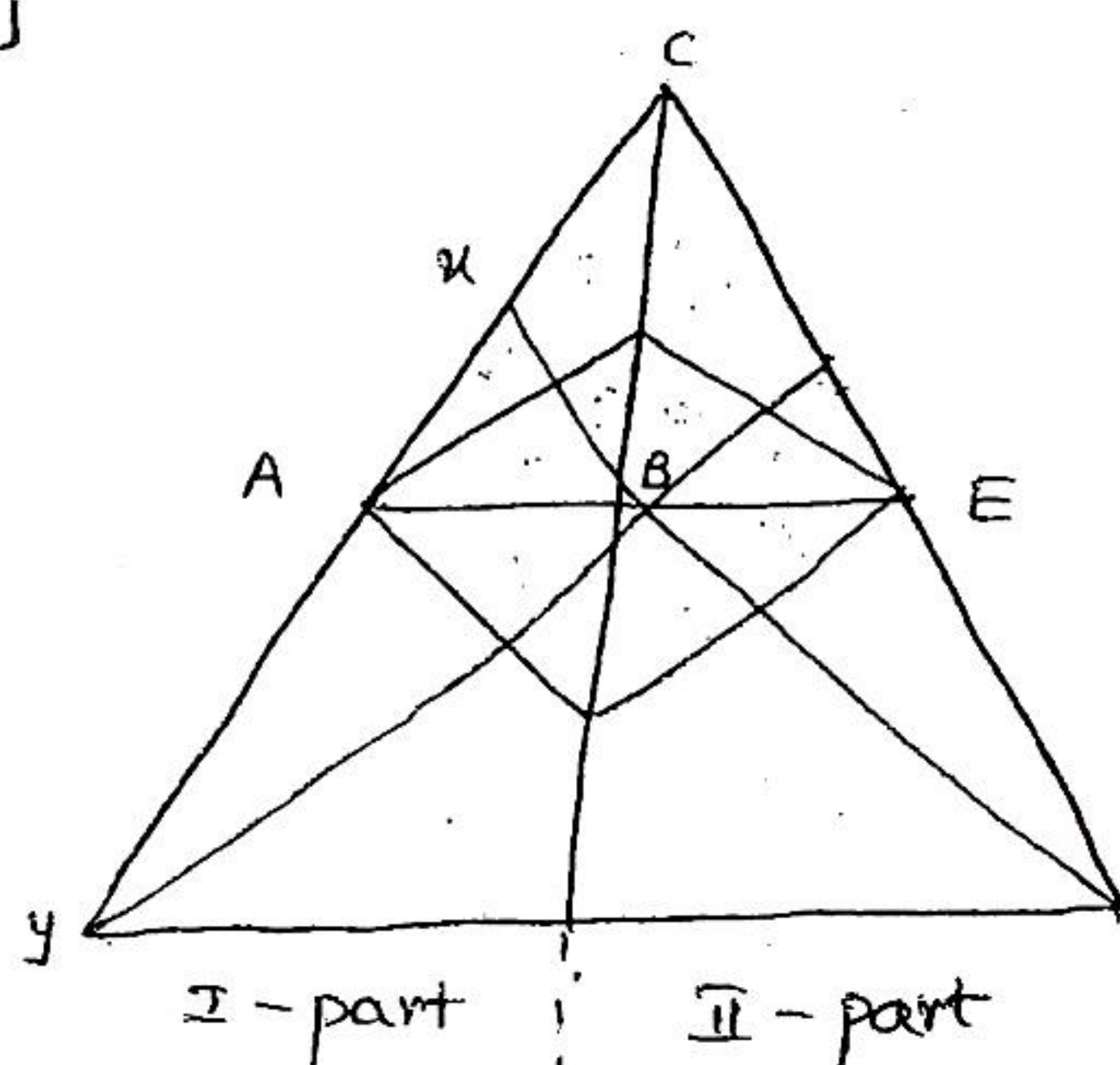
triangles = 16

$$1F \text{ triangle} = 4 \times 2 = 8$$

$$2F \text{ triangle} = 0 + C_4 = 4$$

$$4F \text{ triangle} = 0 + C_4 = 4$$

16



I-part II-part

5. How many straight lines and how many triangles are there in the following figure.

A. straight lines = 12

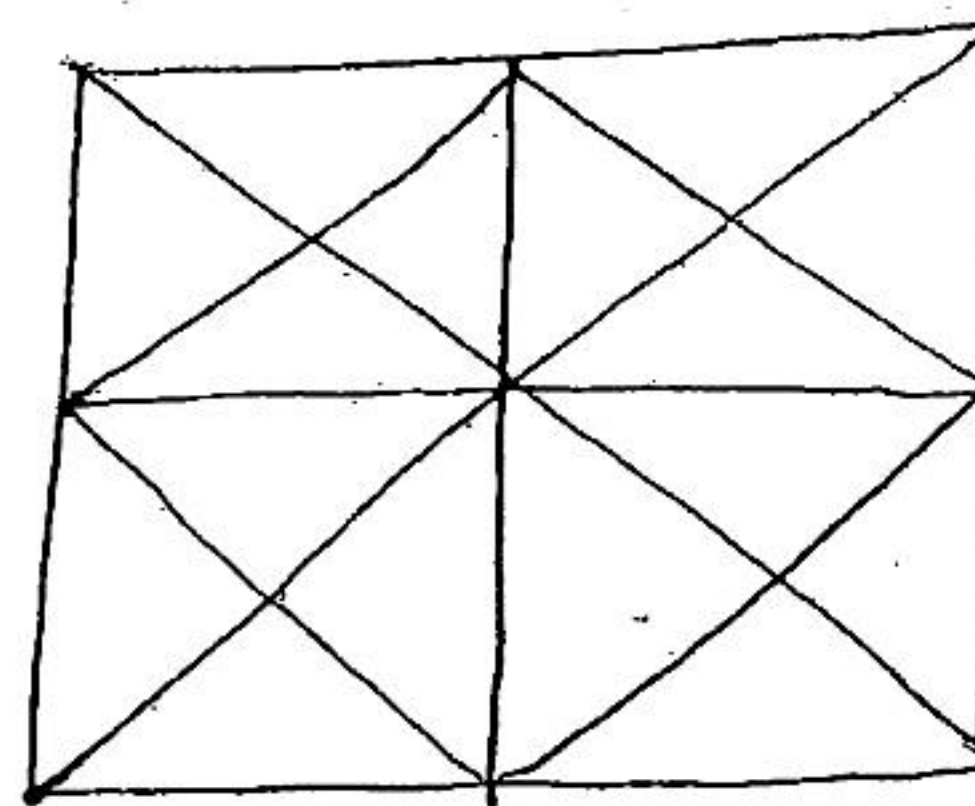
triangles = 44

$$1F \text{ triangle} = 16$$

$$2F \text{ triangle} = 16$$

$$4F \text{ triangle} = 4+4 = 8$$

$$8F \text{ triangle} = \frac{4}{44}$$



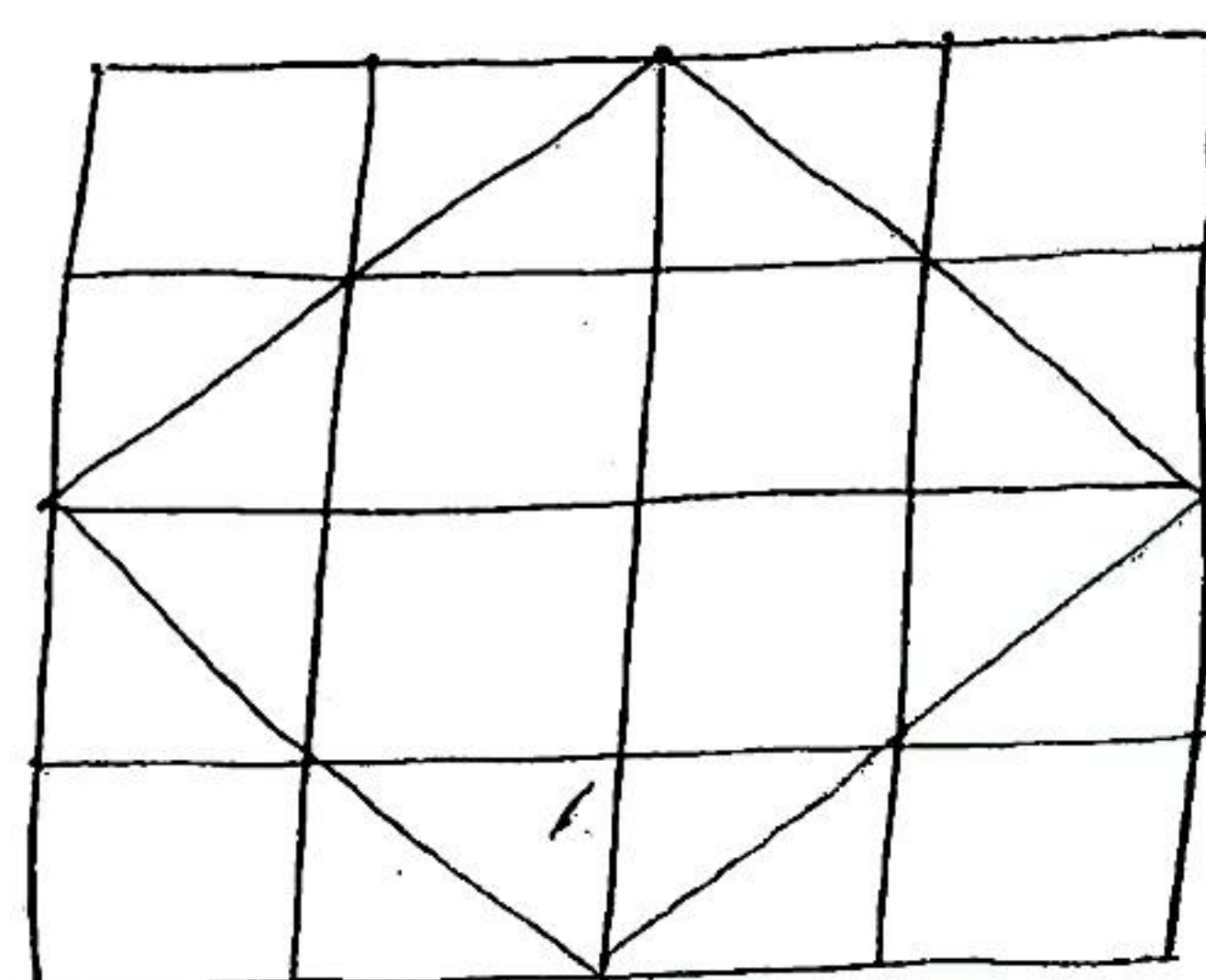
I-part II-part

6. How many st. lines and how many triangles are there in the following figure. [] (23)

a) 94 b) 96 c) 98 d) 99

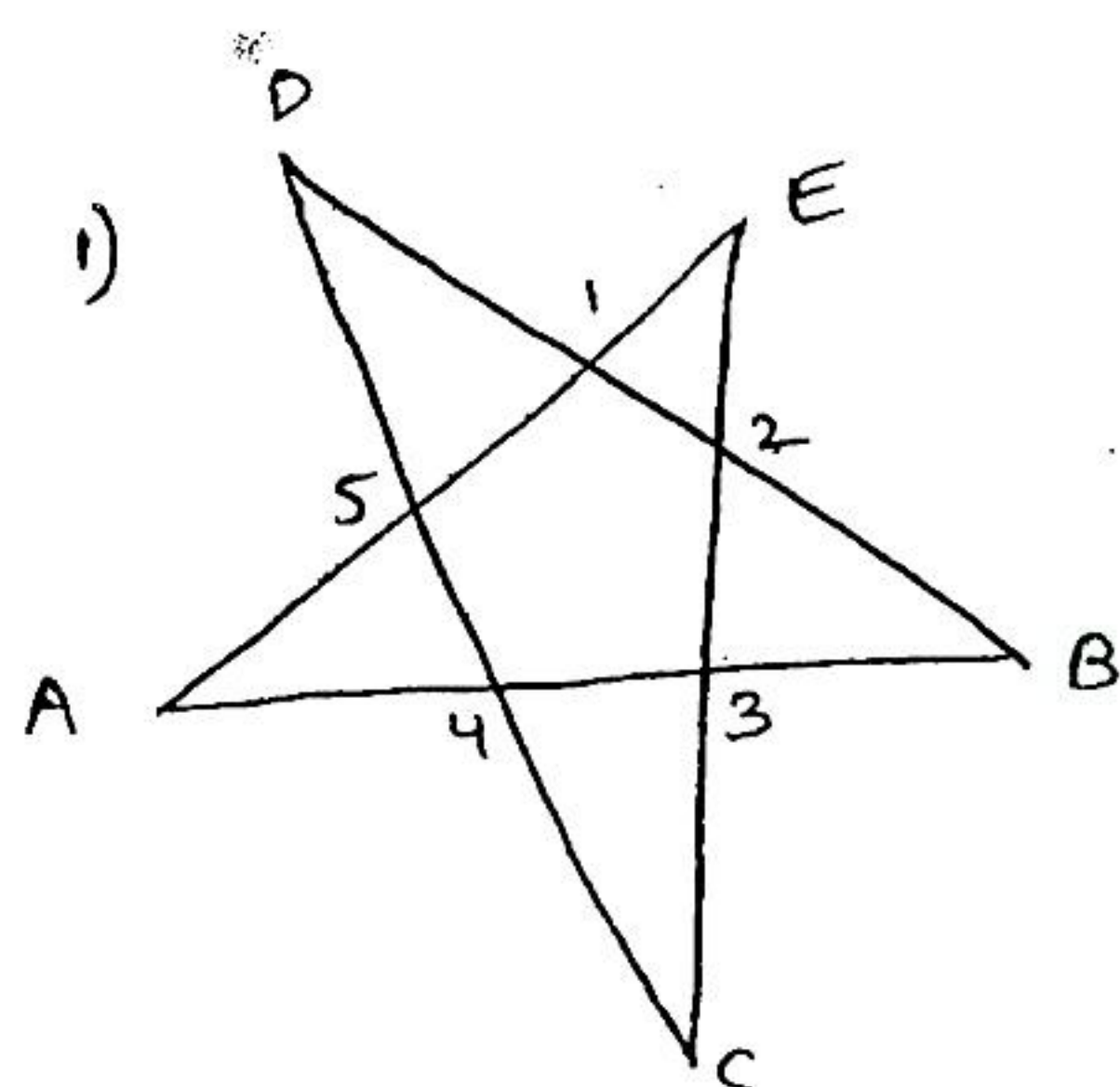
A. No. of st. lines = 14

No. of triangles =



II - model :-

7. How many straight lines and how many triangles are there in the following fig.

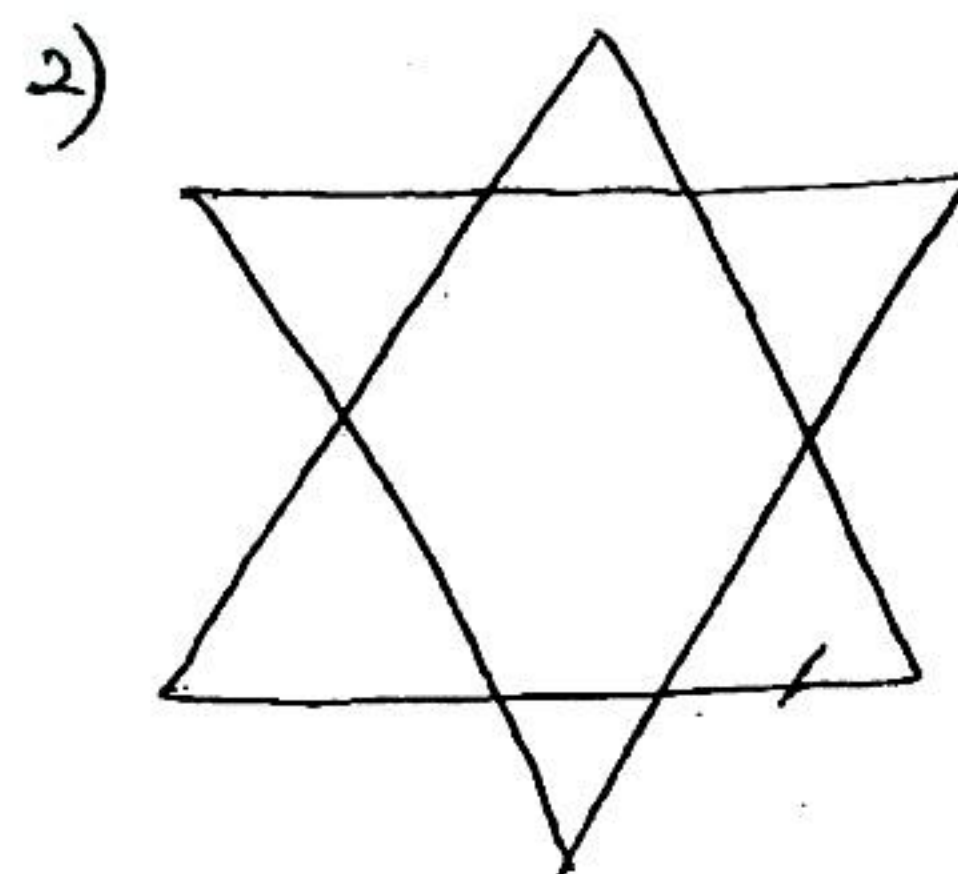


No. of st. lines = 5

No. of triangles = 10

$$AB_1 + CD_2 + AE_3 + BD_4 + CE_5 = 5$$

$$\begin{array}{r} 1 \text{ F triangle} = 5 \\ \hline 10 \end{array}$$



No. of st. lines = 6

No. of triangles = 8

III - model :-

8. How many straight lines and how many parallelogram are there in the following figure.

No. of straight lines = 7

No. of parallelogram = 18

1 F. parallelogram = 6

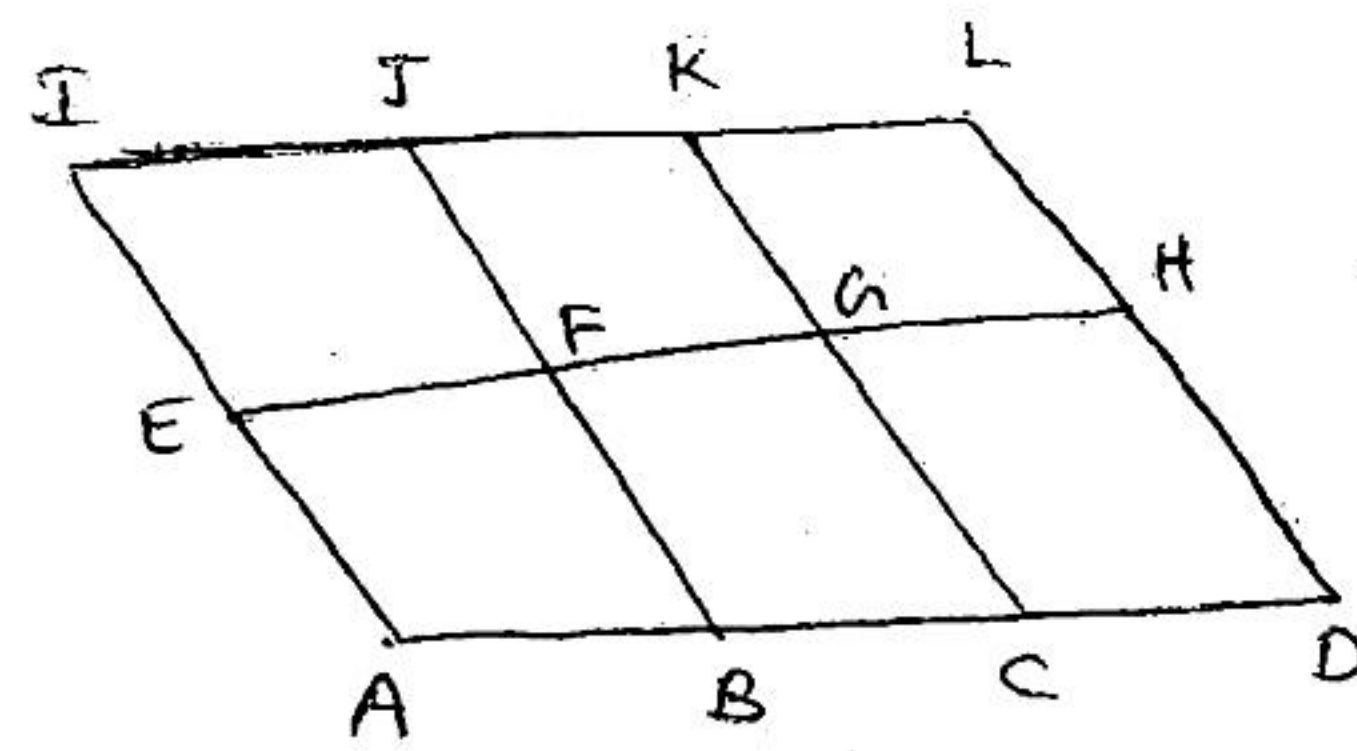
2 F. parallelogram = 7

4 F. parallelogram = 2

3 F. parallelogram = 2

6 F. parallelogram = 1

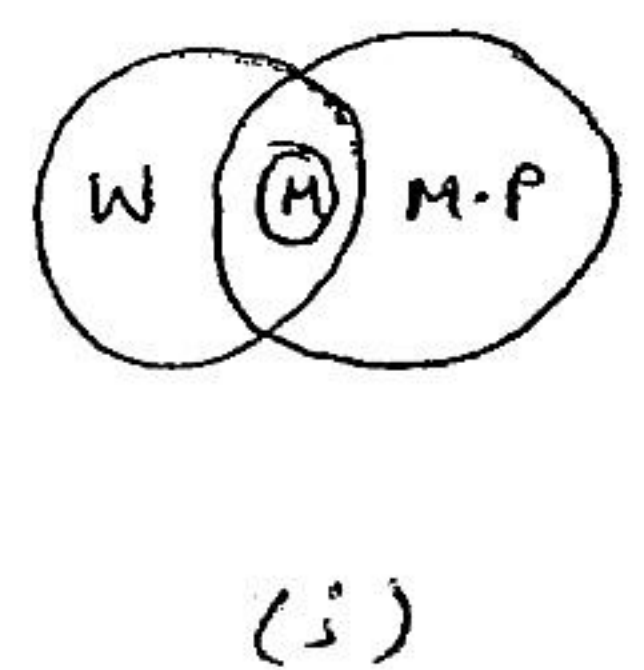
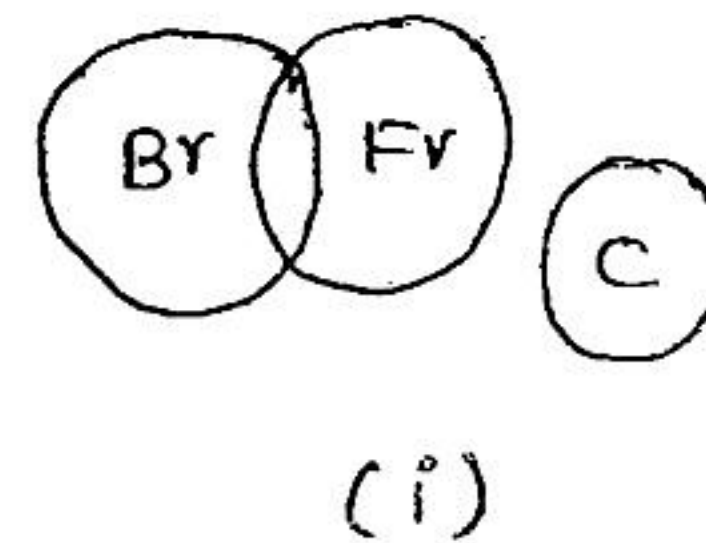
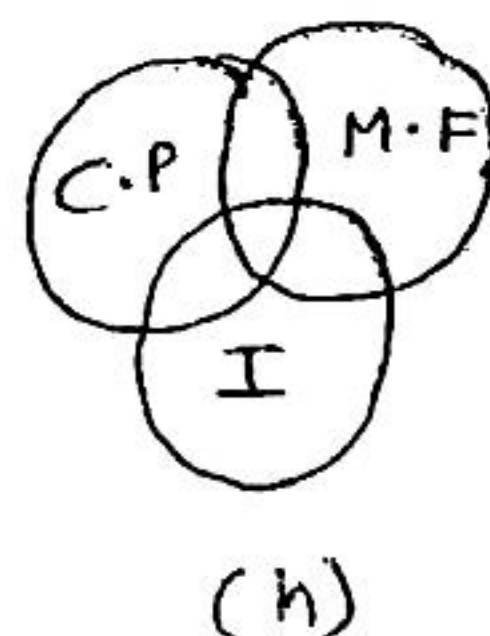
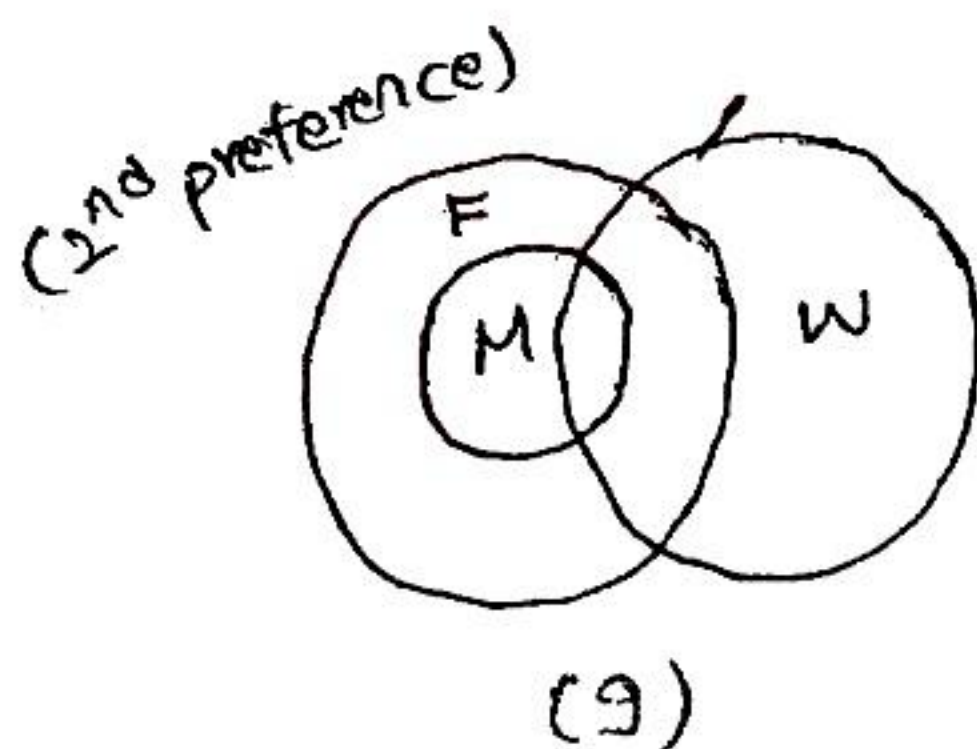
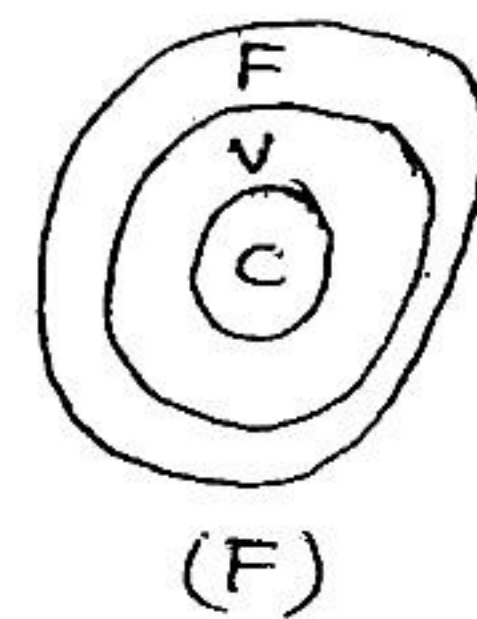
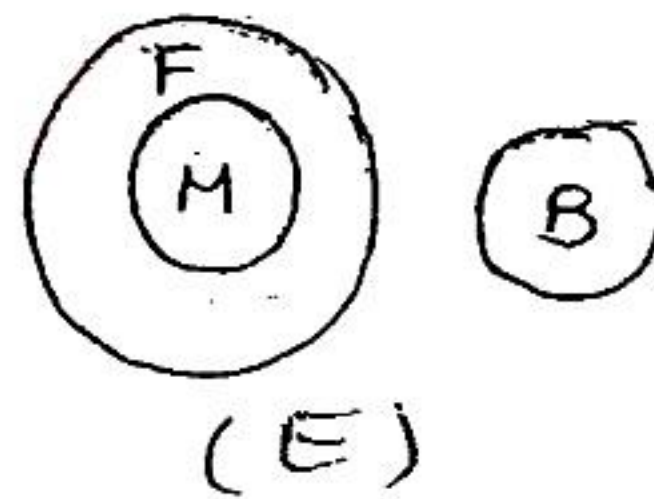
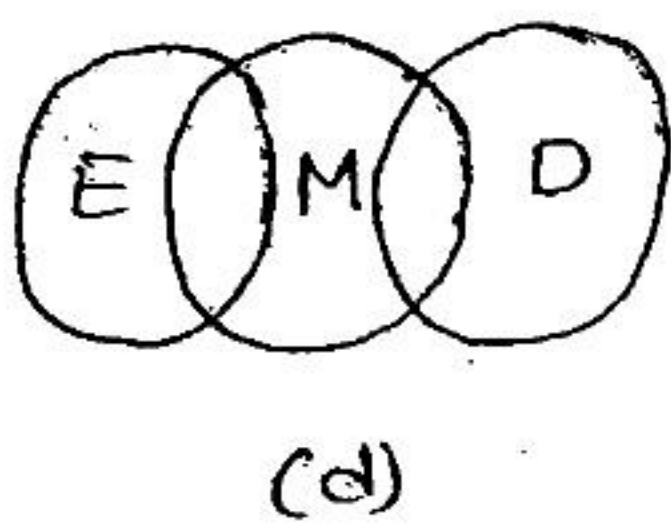
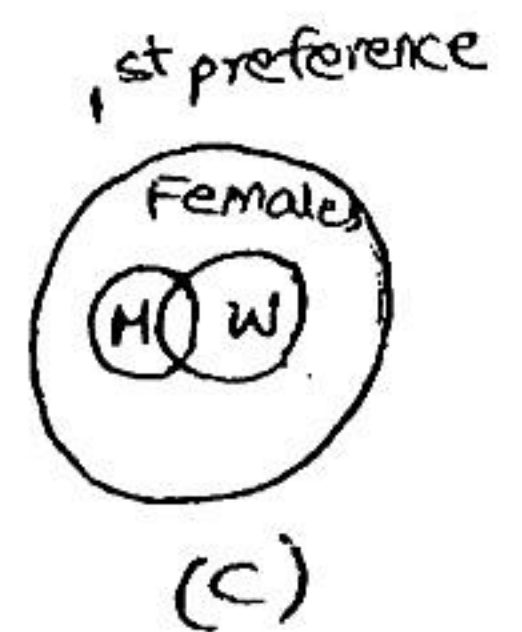
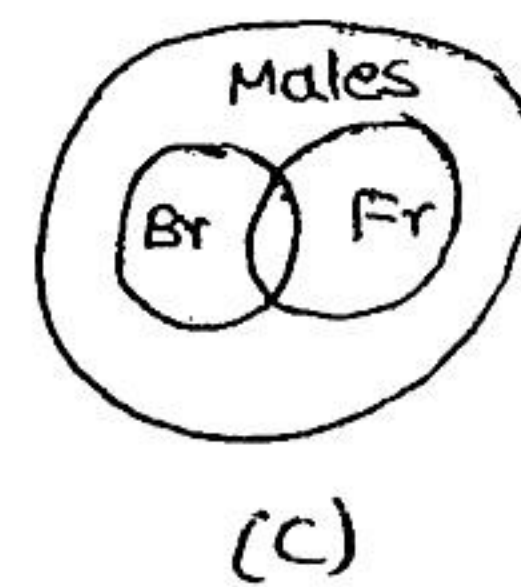
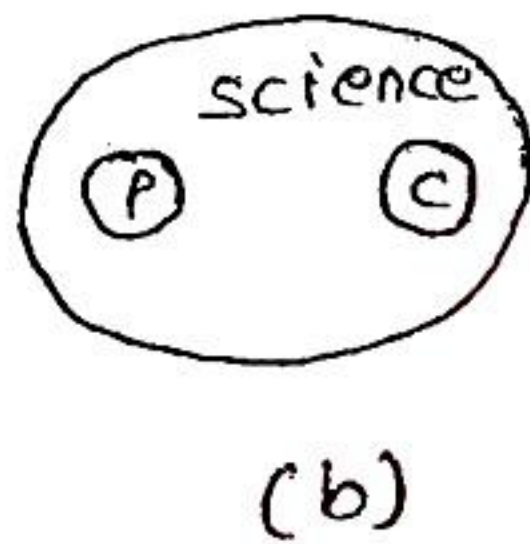
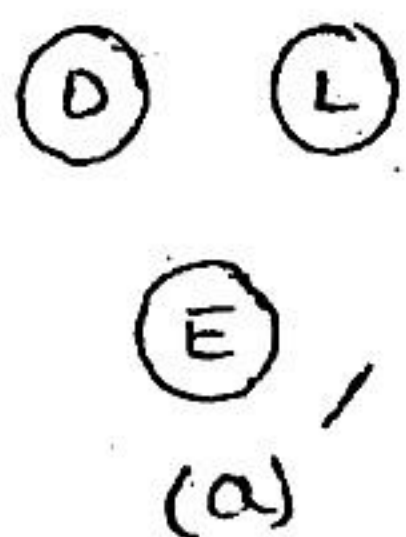
18



Logical venn diagrams :-

1. Statements to diagrams :-

In each of the following questions three items are given and that follows some possible diagram then choose correct alternative with respect to the given above.



- a) Doctors, Lawyers and Engineers
 c) Brothers, males and fathers
 b) Science, physics and chemistry

h) cricket players, match fixers, Indians.

f) carrots, vegetables and food

c) Mothers, widows and Females, (9) $\rightarrow$ 2nd preference (widow and widower are same & go to this of

h) cricket players, tennis fans, Indians

j) Mothers, married people and women

d) Males, doctors, Engineers

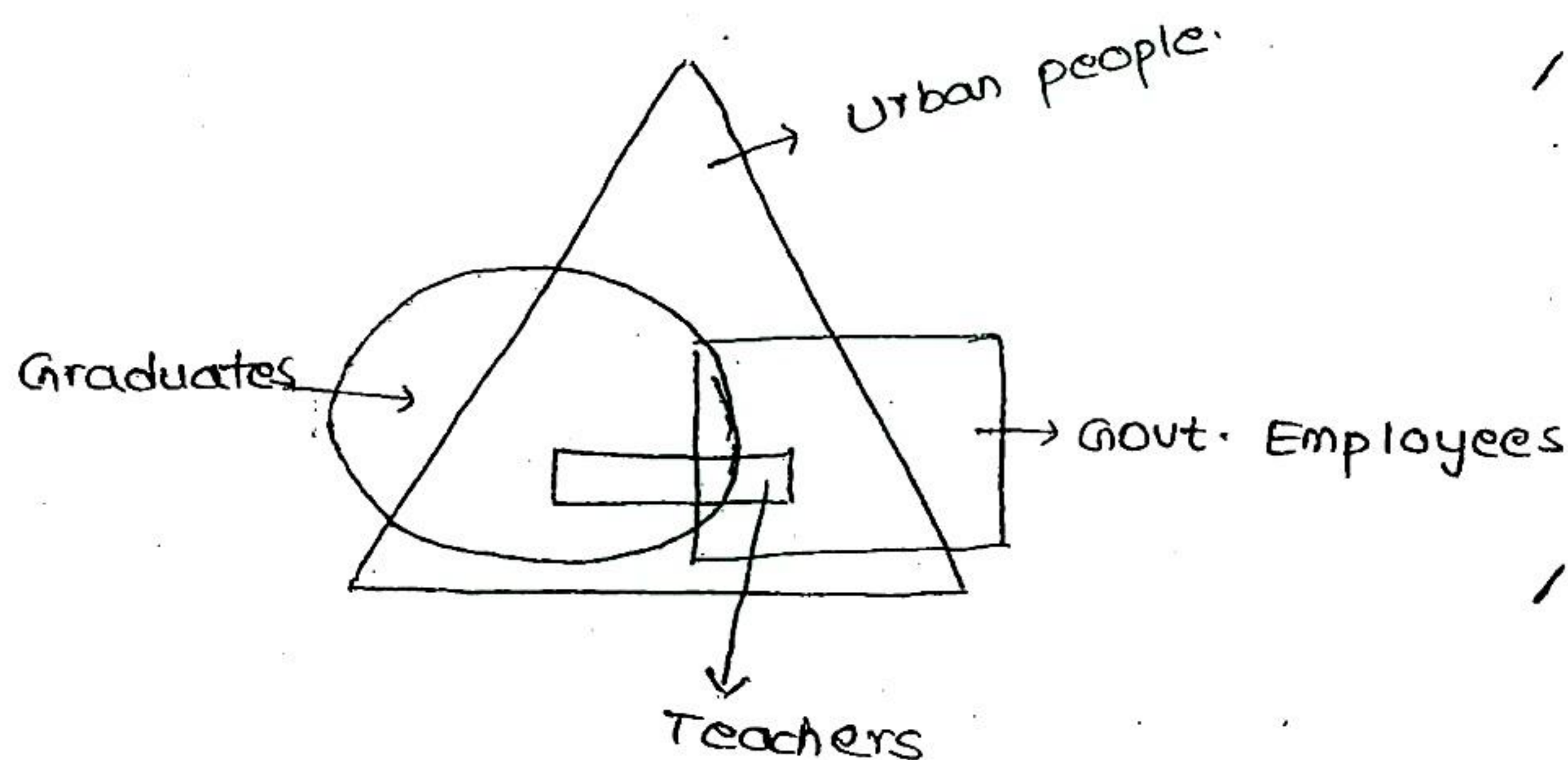
e) Mothers, females, Books

g) Fathers, males and Engineers

i) Brothers, Fathers and cars

2. Diagram to statement:-

Study the following diagram carefully and answer the question that follows.



1. At which of the following statements are definitely true. [d]

- A) All graduates are urban people
- B) All government employees are urban people
- c) All urban peoples are teachers
- d) All teachers are urban people.

2. which of the following statements are not correct [e]

- A) some graduates are from urban residency
- B) some govt. employees are not from urban residency
- c) some urban peoples are neither graduates nor govt. employees
- d) some teachers are govt. employees.
- e) All the above

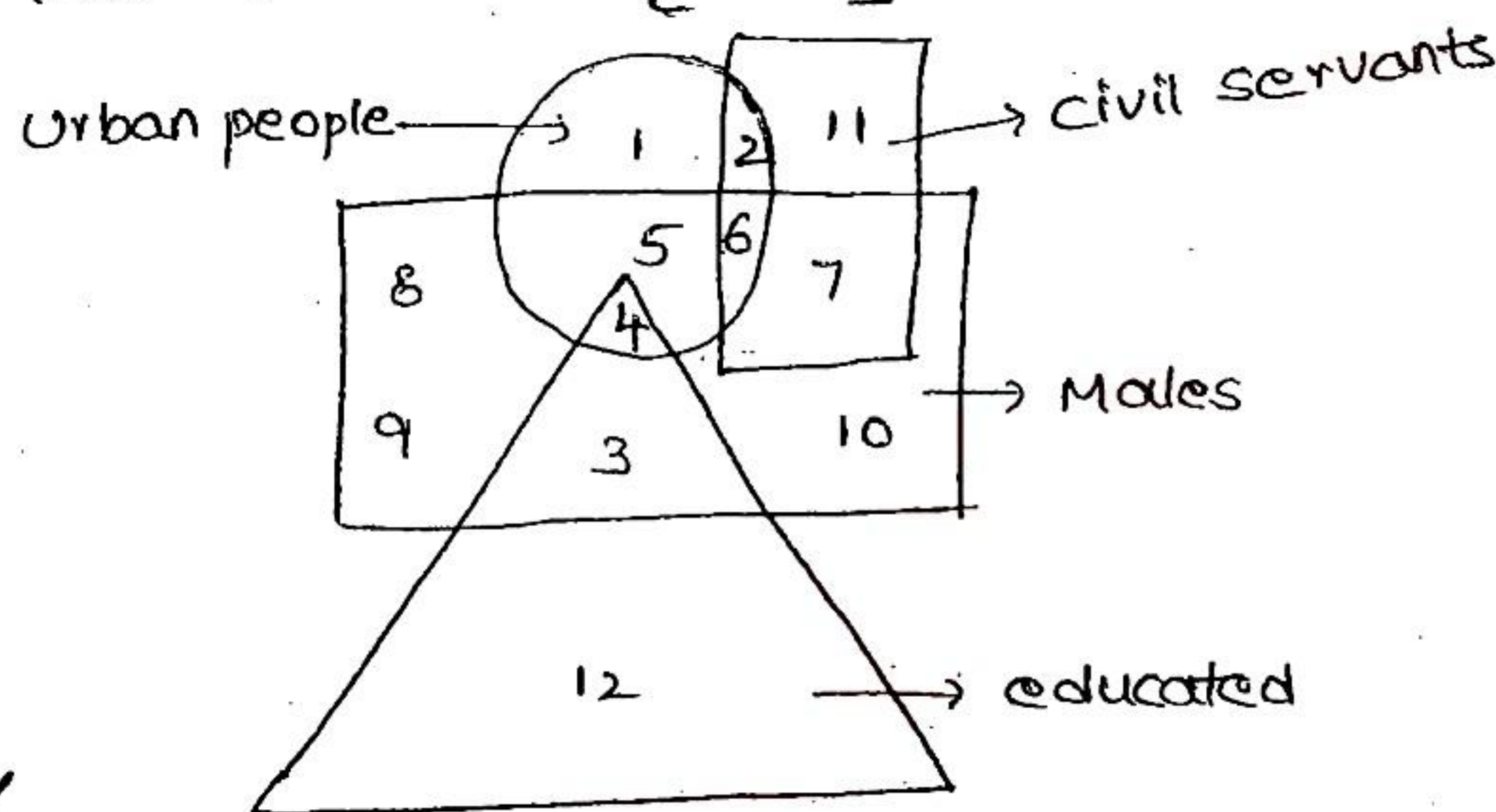
3. Which of the following statements are false [0]

- A) Some graduates are not from urban residency
- B) Some govt. employees are from rural residency
- C) Some teachers are graduates and govt. employees
- D) Some teachers are from urban residency

4. Which of the following statements are not false []

- A) All govt. employees are graduates
- B) All graduates are from rural residency
- C) Some urban graduates are govt. employees and teachers
- D) All the above.

8. Study the following diagram carefully and answer the question/ that follows: [3]



1. Urban uneducated male but not civil servant are represented by 5
2. Urban educated male but not civil servant are represented by 4
3. Urban uneducated male civil servant are represented by 6
4. Rural educated male but not civil servant are represented by 3
5. Urban uneducated women civil servant is represented by 2
6. Rural uneducated male civil servant are represented by 7
7. Urban uneducated women but not civil servant are represented by 1
8. Rural educated women but not civil servant are represented by 12