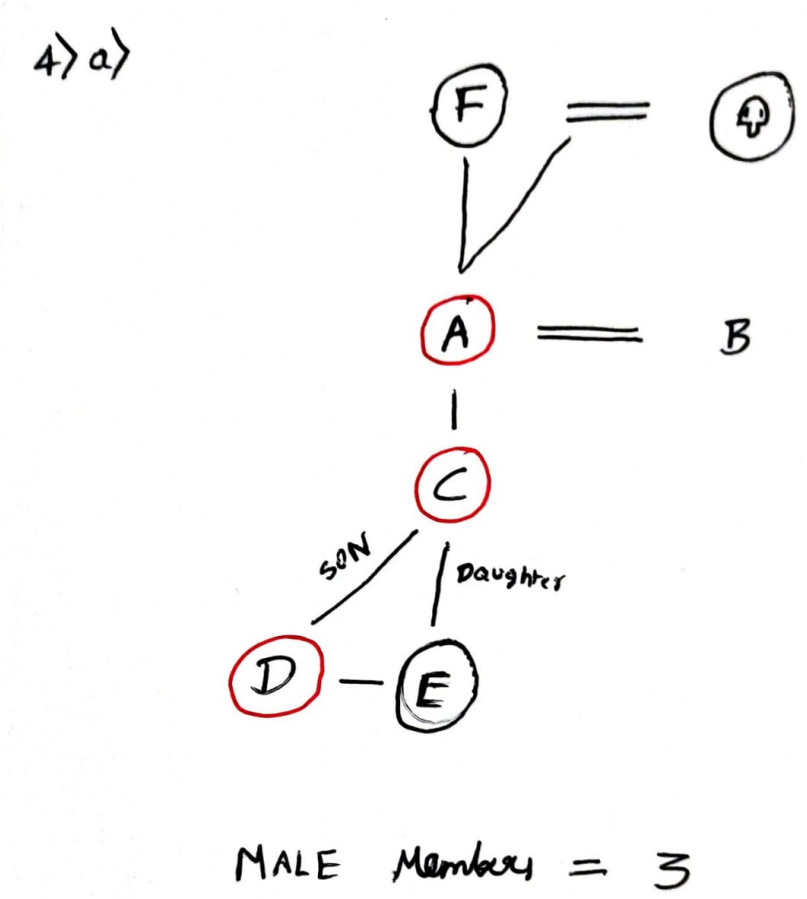
PSD

4	a	In a family, there are six members A, B, C, D, E and F. A and B are a married couple, A being the male member. D is the only son of C, who is the brother of A. E is the sister of D. B is the daughter-in-law of F, whose husband has died. How many male members are there in the family? Justify.	04

A and B are a married couple, with A being the male member.
C is the brother of A. Since A is male, C is also male.
D is the only son of C, making D male.
E is the sister of D, meaning E is female.
B is the daughter-in-law of F, who is a widow (her husband has died).

From this, we can summarize the male members = 3



b	Statement: "You are hereby appointed as a programmer with a probation period of one year and your performance will be reviewed at the end of the period for confirmation" – A line in an appointment letter. Assumptions: The performance of an individual generally is not known at the time of appointment offer. Generally an individual tried to prove his worth in the probation period. *A*: Only assumption I is implicit *B*: Only assumption II is implicit *C*: Either I or II is implicit *D*: Neither I nor II is implicit *E*: Both I and II are implicit Justify your answer	04

E: BOTH I and II are implicit

Assumption I: "The performance of an individual generally is not known at the time of appointment offer."

Assumption II: "Generally an individual tries to prove his worth in the probation period."

6	a	Twelve friends are sitting in two rows parallel to each other such that they are at equal distance. In row *A*: *AB*, *CD*, *EF*, *GH*, *IJ*, *KL* are seated facing South Direction. In row *B*: *PQ*, *RS*, *TU*, *VW*, *XY*, *ZA* are seated facing North Direction. GH sits third right to *CD*, either *GH* or *CD* sits at the end of the row. The one facing *CD* sits second right to *XY*. Two people sit between *RS* and *ZA*, neither *RS* nor *ZA* sits at the end of the row. The immediate neighbor of *RS* is facing the person who sits third left to *AB*. *EF* and *IJ* are immediate neighbors. *TU* sits second left to *PQ*. *IJ* is not facing the immediate neighbor of *VW*. How many people are seated between *KL* and *EF*? Justify with a diagram.	04

6) a) ↓ A C E G I K

↑ P R T V X Z

i) -- G O O C --

ii) a Q O O C O O

b O O Q O O C

iii) a - - - C - - } Two people b/w R and Z
O X O O O O ⇒ a is invalid

b - - - - - C
O O O X O O

iv) O O G O O C
O R O X Z O

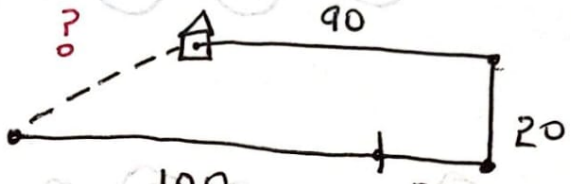
invalid

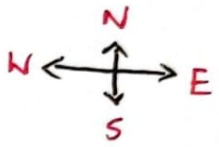
(a) A I II III C
O O Q E I
T Z P X R V

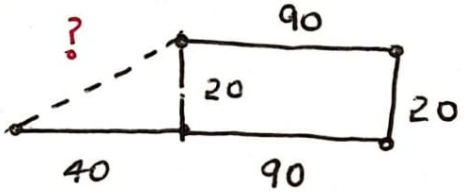
v) A K G I E C
K I II E
T Z P X R V

PEOPLE b/w K and E = 2

6) b)







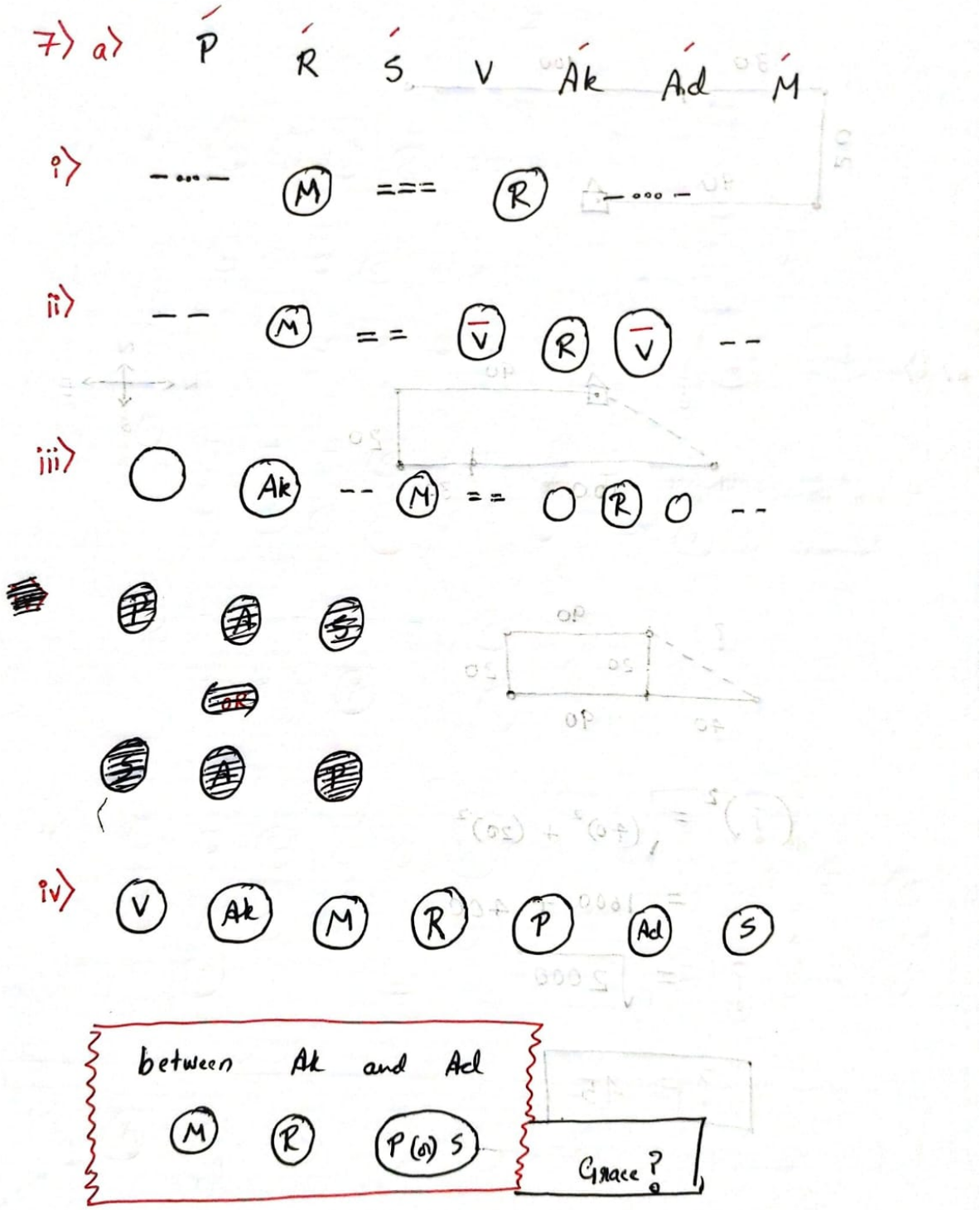
$$(?)^2 = (40)^2 + (20)^2$$

$$= 1600 + 400$$

$$? = \sqrt{2000}$$

$$\boxed{? = 45}$$

7	a	7 men standing in a row to be selected for a competition. Their names are Peritosh, Rajiv, Suresh, Vaibhav, Akshat, Aditya and Mahesh. Mahesh is standing left to Rajiv. Rajiv is not next to Vaibhav. Only one person is on left of Akshat Aditya is standing in the middle and between Peritosh and Suresh. Who is standing between Aditya and Akshat? Justify.



The teacher is testing a student's proficiency in arithmetic and poses the following question. 1/3 of a number is 3 more than 1/6 of the same number. What is the number? Can you help the student find the answer? Explain it properly.

$$\frac{1}{3}x = \frac{1}{6}x + 3$$

Step 1: Eliminate the fractions

To get rid of the fractions, multiply the entire equation by 6 (the least common denominator):

$$6 \times \left(\frac{1}{3}x\right) = 6 \times \left(\frac{1}{6}x + 3\right)$$

This simplifies to:

$$2x = x + 18$$

Step 2: Solve for x

Subtract x from both sides:

$$2x - x = 18$$

$$x = 18$$

2 b.	A 3- digit number consists of 9,5 and one more number. When these digits are reversed and then subtracted from original number the answer yielded will be consisting of the same digits arranged yet in a different order. What is the other digit?	4

2) b) THREE Digits = a, b, c

↓ ↓ ↓

9 5 c

$900 + 50 + 1c$

$\boxed{950+c}$ — (1)

REVERSE = c b a

$100c + 50 + 9$

$\boxed{59 + 100c}$ — (2)

ORIGINAL − REVERSE = $(2^3 - 1)$ order of a, b, c

$[950+c] - [100c + 59]$

$950 + c - 100c - 59 = \boxed{891 - 99c}$

$c = 1 \Rightarrow 891 - 99 = 792$

$c = 4 \Rightarrow 891 - 396 = \underline{4}\ \underline{9}\ \underline{5}$

c a b

3 c.	How many 4 digit numbers are there divisible by 11?Explain it properly. 818

3) c) How many 4 digit number divisible by 11

* Range : 1000 9999

* Find 1st and Last number % 11

$a_1 = 1001$.

$a_n = 9999$

d = difference = 11

$$a_n = a_1 + (n-1)d$$

$9999 = 1001 + (n-1)\ 11$

$818 = n - 1$

$n = 819$

SS