

Assignment

①

i) 4, 7, 9, 9, 11, 15, 18, 18, 18, 25

$$\begin{aligned} \text{Mean} &= \frac{134}{10} \\ &= \underline{\underline{13.4}} \end{aligned}$$

$$\begin{aligned} \text{Median} &= \frac{10+1}{2} = \frac{11}{2} = 5.5^{\text{th}} \text{ term} \\ &= \underline{\underline{13}} \end{aligned}$$

$$\text{Mode} = \underline{\underline{18}}$$

- Interquartile range = $Q_3 - Q_1$

$\begin{aligned} Q_3 &= 3\left(\frac{n+1}{4}\right)^{\text{th}} \text{ term} \\ &= 3\left(\frac{10+1}{4}\right) \\ &= 3\left(\frac{11}{4}\right) \\ &= \frac{33}{4} = 8.25^{\text{th}} \\ &= \underline{\underline{18.25}} \end{aligned}$	$\begin{aligned} Q_1 &= \frac{n+1}{4}^{\text{th}} \text{ term} \\ &= \frac{11}{4} \\ &= 2.75^{\text{th}} \text{ term} \\ &= \underline{\underline{8.5}} \end{aligned}$
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$$\therefore 18.25 - 8.5 = \underline{\underline{9.75}}$$

ii) Mean =

x_i	f_i	$x_i f_i$
0	5	0
1	11	11
2	26	52
3	15	45
4	3	12

$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$$

$$= \frac{120}{60} = 2$$

~~Mode = $L + h \frac{f_m - f_1}{f}$~~

$$L + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times h$$

+ $h = 1$

- Mode = 2

- Median = $\frac{n}{2} = \frac{60}{2} = 30$

M = 2

Interquartile range = $Q_3 - Q_1$

x_i	f_i	cf
0	5	5
1	11	16
2	26	42
3	15	57
4	3	60 = N

$$Q_1 = \left(\frac{N+1}{4} \right)^{\text{th}} \text{ term}$$

$$= \frac{60+1}{4} = 15.25^{\text{th}} \text{ term}$$

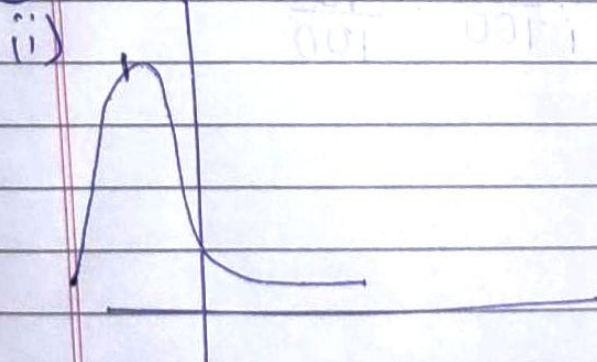
$$Q_3 = 3 \left(\frac{N+1}{4} \right)$$

$$= 3(15.25)$$

$$= 45.75^{\text{th}} \text{ term}$$

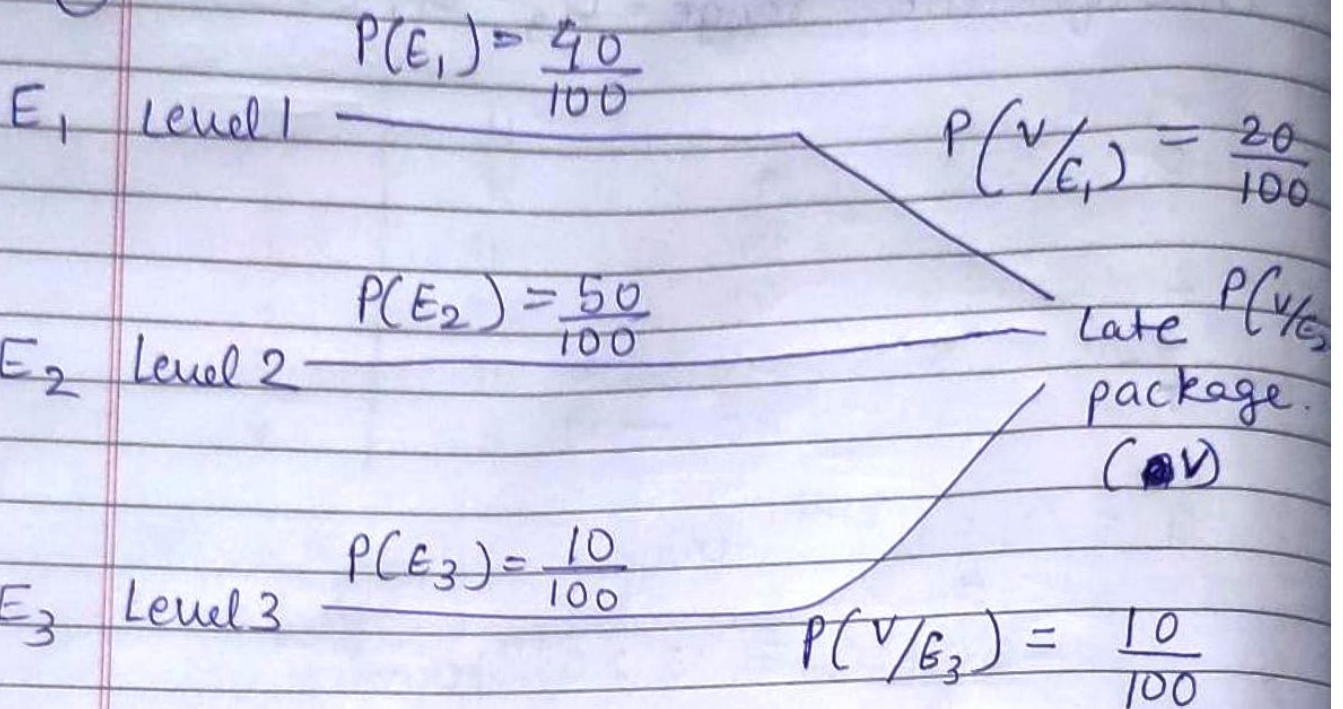
~~52~~ Question is wrong.

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iii) $F_X(x) = P(0 < X^2 < \infty)$

⑤



- Bayes theorem:

$$P(E_2/V) = \frac{P(E_2) \times P(V/E_2)}{P(V)}$$

$$= \frac{50}{100} \times \frac{40}{100}$$

$$\frac{40 \times 20}{100 \times 100} + \frac{50 \times 40}{100 \times 100} + \frac{10 \times 10}{100 \times 100}$$

$$= \frac{1}{5}$$

$$\frac{2}{25} + \frac{1}{5} + \frac{1}{100}$$

$$= \frac{1}{5}$$

$$\frac{29}{100}$$

$$= \frac{100}{29 \times 5}$$

$$= \frac{100}{145}$$

$$= \frac{20}{29}$$

④ E: qualified females.
F: atleast one female.

$P(E/F)$:

$$P(E) = 7/18$$

$$P(F) = 8/18$$

$$\therefore \underline{\underline{7/8}}$$

⑦

ii) $E(X) =$

$$(1 \times 0.05) + (2 \times 0.15) + (3 \times 0.35) + (5 \times 0.05) + (4.04 \times 4)$$

$$= \underline{\underline{3.25}}$$

i) $P(X=1) = 0.05$

$P(X=2) = 0.15$

$P(X=3) = 0.35$

$$= 0.05 + 0.15 + 0.35$$

$$= 0.55$$

0.55