Probability

STUDENT NAME: Ashith.S.K		TOTAL MARKS OBTAINED
CLASS: 12 B	SUBJECT: Maths	
ROLL NO.: 3.	DATE: 11.11.2025	

(i) (c) The outcome must be continuous

(ii) (c) $\Sigma x_i p_i$

(iii) (a) np

(iv) (b) $1/3$

(v) (c) is standard deviation above the mean

(vi) (c)

(vii) (c)

(viii)

x	0	1	2	3
$P(x)$				

$P(0) = \frac{\quad}{5}$

(ix)

Y	0	1	2	3
P(Y)	0.2	0.3	0.4	0.1

$$E(Y) = \frac{P}{0+1+2+3} = 0.2$$

$$\frac{P}{5} = 0.2 \qquad P = 1.0$$

$\therefore E(0) = 1$

$$E(1) = \frac{P}{5} = 0.3$$

$\therefore E(1) = 1.5$

$$E(2) = \frac{P}{5} = 0.4$$

$\therefore E(2) = 2.0$

$$E(3) = \frac{P}{5} = 0.1$$

$\therefore E(3) = 0.5$

(x) $P(A) = 0.5 \quad P(B) = 0.5$

$n = 6 \qquad r = 4$

$$^{n}C_{r} p^{r} q^{n-r} = P(x)$$

$$\frac{6!}{4!-2!} \cdot (0.5)^4 \cdot (0.5)^{6-4}$$

$$\frac{\overset{3}{\cancel{6}} \cdot 5}{2} \cdot (0.5)^4 \cdot (0.5)^2$$

~~15 · 0.00625 · 0.17~~ $15 \cdot 0.0003125 \cdot 0.125$

$15 \cdot 0.0003906 22$

15×0.000390622

$= 0.004859330$

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13) $\begin{bmatrix} x \\ P(x) \end{bmatrix} \begin{bmatrix} 0 & 1 & 2 & 3 & 4 \\ 0.1 & K & 2K & K & 0.2 \end{bmatrix}$

(a) $1 = 0.1 + K + 2K + K + 0.2$

$1 = 0.3 + 4K$

$0.7 = 4K$

$K = \frac{0.7}{4}$ $\quad \boxed{K = 0.175}$

$4 \overline{)0.7}$ → 0.175; 0, 7, 4, 30, 28, 20, 20

(b) $P(x \geq 2)$

$x = 2 + 3 + 4$

$= 2K + K + 0.2$

$= 0.350 + 0.175 + 0.200$

$P(x \geq 2) = 0.725$

$0.175 \times 2 = 350$

(c) $E(x) = \text{mean} = 10$

14) You use

iii) $P(\text{getting correct ans}) = 1/4 = 0.25$

$P(\text{getting 7 ans correct}) = \frac{7}{10} \cdot 0.25$

$= 0.175$

iii) ${}^{n}C_{y} (0.25)^{1} (0.75)^{10}$

$\frac{10!}{1!-9!} (0.25) \cdot 0.$

14) i) Use, Bernoulli Trials

ii) $^{n}C_{7} (0.25)^7 \cdot (0.75)^3$

$\frac{10!}{7!3!} (0.00006) \cdot 0.422$

$\frac{10 \cdot 9 \cdot 8}{3 \cdot 2} .00002532$

$= 0.00273840$

iii) $\frac{10!}{1!9!} (0.25)^1 \cdot (0.75)^{10}$

$10 \cdot 0.25 \cdot 0.0563$

$= 0.15075$