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ROLL NO: 53
Panel: A

Tutorial-4 (PS)

1) Total no. of possible outcomes $= 2^3 = 8$

Combinations are HHH, HHT, HTT, TTT, THH, THT, HTH, TTH.

H	0	1	2	3
P(H)	1/8	3/8	3/8	1/8

Prob. of getting atleast 2 Heads is $= \frac{3}{8} + \frac{1}{8} = \frac{1}{2}$

2) 6R
4W
5B

Total $= 6 + 4 + 5 = 15$ balls

$$\text{Prob} = \frac{\text{Favourable outcomes}}{\text{Total outcomes}}$$

$$\text{Prob (not Red)} = 1 - \text{Prob (Red)}$$
$$= 1 - \frac{6}{15}$$
$$= \frac{9}{15}$$
$$= \frac{3}{5}$$

$\therefore$ P(not red) $= \frac{3}{5}$

3) Range of prob = $0 \le P(x) \le 1$

$\therefore \Sigma p_i = 1$

$\Rightarrow \frac{5}{K} + \frac{7}{K} + \frac{9}{K} + \frac{11}{K} = 1$

$K = 32$

4) $P(a \le x \le b) = \int_a^b f(x)\,dx$

5)

x	1	2	3	4
$P(x)$	1/10	1/5	3/10	2/5

$$E(x) = \frac{\Sigma p_i x_i}{\Sigma p_i} = \Sigma p_i x_i \quad [\because \Sigma p_i = 1]$$

$$\Rightarrow E(x) = 1\times\frac{1}{10} + 2\times\frac{1}{5} + 3\times\frac{3}{10} + 4\times\frac{2}{5}$$

$$= \frac{1}{10} + \frac{2}{5} + \frac{9}{10} + \frac{8}{5}$$

$$E(x) = \frac{30}{10} = 3 = \mu$$

$\therefore E(x) = 3$