MAKING BY SULMAN ALI
BIO401 3RD ASSIGNMENT

Question No 1 (Marks=5)

Find E(X), S.D (X) and E (X + 4).

X	1	2	3	4	5	6
P(X)	0.05	0.4	0.1	0.25	0.05	0.15

Solution

Expected Value Table		
x	P(x)	x * P(x)
1	0.05	0.05
2	0.4	0.8
3	0.1	0.3
4	0.25	1
5	0.05	0.25
6	0.15	0.9
∑ xi = 21	∑ P(xi) = 1	∑ xi * P(xi) = 3.3

$E(X) = \mu X = \sum [xi * P(xi)]$

E(X) = (1) * (0.05)+(2) * (0.4)+(3) * (0.1)+(4) * (0.25)+(5) * (0.05)+(6) * (0.15)

E(X) = (0.05)+(0.8)+(0.3)+(1)+(0.25)+(0.9)

E(X) = 3.3

S.D (X)

SOLUTION

$$S.D\ /\ \sigma = \sqrt{\sum x^2.p(\mathrm{x}) - \mu^2}$$

$$\sigma^2 = \sum x^2.p(\mathrm{x}) - \mu^2$$

$$\sigma^2 = (1-3.3)^2 \times 0.05 + (2-3.3)^2 \times 0.4 + (3-3.3)^2 \times 0.1 + (4-3.3)^2 \times 0.25 + (5-3.3)^2 \times 0.05 + (6-3.3)^2 \times 0.15$$

$$S.D = \sqrt{2.31}$$

$$S.D = 1.5199$$

S.D=1.5199

E (X + 4).

SOLUTION:

Now we will find :

$$E\ (X\ +\ 4) = E\ (X) + 4$$

$$= 3.3 + 4$$

$$= 7.3$$

E(X+4)

Question No 2:

A ball is selected at random from a bag containing 2 red, 8 black and 3 white balls. What is the probability that it is:

a. Red ball
b. White ball

Solution:

Total no. of balls = 2R + 8B + 3W

= 13

Total no. of red balls = 2

Total no. of Black balls = 8

Total no. of White balls = 3

a) Probability of getting red balls = $\frac{\text{Red balls}}{\text{Total balls}}$

$= \frac{2}{13}$

b) Probability of getting white balls = $\frac{\text{White balls}}{\text{Total balls}}$

$= \frac{3}{13}$

probability of red and white balls

$$= \frac{2}{13} + \frac{3}{13}$$

$$= \frac{2+3}{13}$$

$$= \frac{5}{13}$$