STATISTICS TEST

S. P Dharaneesh
19BCS4024

1) S = 52 Cards

13 cards are drawn without replacement.

- P [are diamond, are heart, are spade]

= P [diamond] × P [heart] × P [spade]

$= P(13/52) \times P(13/51) \times P(13/50)$

$= \frac{13^{1}}{52_{4}} \times \frac{13}{51} \times \frac{13}{50} = 0.0165$

2) P(action movies) = 42/100

P(Comedy movies) = 54/100

P(drama movies) = 36/100

P(horror movies) = 12/100

Either action or drama movies = 42/100 + 36/100

= 78/100

= 0.78

either comedy or horror movies = 54/100 + 12/100

= 66/100

= **0.66**

3) Bag A = 3 red, 5 black

Bag b = 4 white, 7 black

$P(A) = P(B) = 1/2$

$P(B/A)$ = probability of black ball from bag A

$= 5/8$

$P(B/B) = 7/11$

$P(B/B)$ = probability of black ball from bag b

$$= \frac{P(B) \times P(B/B)}{P(A) \times P(B/A) + P(B) \times P(B/B)}$$

$$= \frac{1/2 \times 7/11}{1/2 \times \frac{5}{8} + 1/2 \times 5/8} = \frac{7/22}{5/16 + 5/16}$$

$$= \frac{7}{22} \times \frac{16}{10} = \frac{28}{55}$$

$= 0.509$

4) Given:

450 application in 1 hour

By poisson distribution.

a) $\lambda = \frac{15}{\frac{60}{2}} \times 450$

$\lambda = 15/2$, $x = 10$

$$P(x = x) = \frac{e^{-15/2} \cdot (15/2)^{10}}{10!}$$

$$= 0.0858$$

b) $$P(X = x) = \frac{e^{-15/2} \cdot (15/2)^{17}}{17!}$$

$$= 0.6321$$

c) $$Z = \frac{x - \mu}{\sigma}$$

$$0.675 = \frac{x - 350870}{12405}$$

$$x = 350870 + (0.675 \times 12405)$$

$$X = 359237.045$$

75th percentile = 359237.045