Worksheet-6

1. If the p.d.f of a two dimensional R.V (x,y) is given by $f(x,y)=x+y$, $0 \leq (x,y) \leq 1$. Find the p.d.f of $U=XY$.

2. In a partially destroyed lab record only the lines of regression and variance of X are available. The regression equations are 8x -10y +66 =0, 40x -18y=214 and the variance of X =9. Find the correlation coefficient between Y and X, Find the mean of X and Y as also the variance of Y.

3. The life time of a certain brand of an electric bulb may be considered as a random variable with mean 1200 h and standard deviation 50 h. Find the probability using central limit theorem that the average lifetime of 60 bulbs exceeds 1250 hours

4. 20 dice are thrown. Find the approximate probability that the sum obtained is between 65 and 75 using central limit theorem.

5. A certain brand of tires has a mean life of 25,000 miles with a standard deviation of 1600 miles. What is the probability that the mean life of 64 tires is less than 24,600 miles?