

### **Assignment**

1. Write the marginal pdf of X in a bivariate normal distribution.
2. Write the marginal pdf of Y in a bivariate normal distribution.
3. Derive the conditional distribution of X for fixed Y of bivariate normal distribution.
4. Write the mean and variance of conditional distribution of X for fixed Y in a bivariate normal distribution.
5. Obtain the conditional distribution of Y for fixed X of bivariate normal distribution.
6. Write the mean and variance of conditional distribution of Y for fixed X in a bivariate normal distribution.
7. What happens when  $\rho=0$  in conditional distribution of Y given X?
8. If X and Y are independent standard normal variates, obtain the mgf of XY.