Related Problem with Solution :

Q) The mean and variance of Binomial Distribution are 4 and 2 respectively, then the probability of success is

Soln :

$$\text{Given } np = 4 \text{ and } npq = 2, q = \frac{npq}{np} = \frac{2}{4} = \frac{1}{2} \text{ so } p = 1 - \frac{1}{2} = \frac{1}{2}$$

$$\text{Now } npq = 2$$

$$\therefore n = 8$$

$$\therefore \text{BD is given by}$$

$$P(X = r) = {}^{8}C_r p^r q^{n-r} \therefore P(X = r = 2) = {}^{8}C_2 \left(\frac{1}{2}\right)^8 = \frac{28}{256}$$