POSSESION OF MOBILES IN EXAM IS UFM PRACTICE.

Name jiitsimplified jiitsimplified Enrollment No. jiitsimplified

Jaypee Institute of Information Technology, Noida
T1 Examination, 2015
B.Tech IV Semester

Course Title: Probability Theory and Random Processes **Maximum Time: 1 Hr.**
Course Code: 10B11MA411 **Maximum Marks: 20**

Note: All Questions carry equal marks.

Q1: A bag contains six balls of different colours and a ball is drawn from it at random. A speaks truth thrice out of 4 times and B speaks truth 7 times out of 10 times. If both A and B say that a red ball was drawn, find the probability of their joint statement being true.

Q2: The number of calls coming per minute into a hotel's reservation counter is a Poisson random variable with mean 3. jiitsimplified

(a) Find the probability that no calls come in given one minute period.

(b) Assume that the number of calls arriving in two different minutes is independent. Find the probability that at least two calls will arrive in a given two minute period.

Q3: Consider the joint distribution function of two random variables X and Y as

$$F(x,y)=\begin{cases}(1-e^{-2x})(1-e^{-2y}), & x\geq 0,\ y\geq 0\\ 0 & \text{, otherwise}\end{cases}$$

(i) Find $E(X/Y=y)$.

(ii) Are X and Y independent? jiitsimplified

Q4: If the Moment Generating Function (MGF) of a random variable X is given by $M_X(t)=\frac{3}{1-2t}$, $t\neq\frac{1}{2}$, find first three moments of X about its mean.

Q5: Find mean and variance of Binomial distribution through characteristic function.