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Code No. 7036

**FACULTY OF SCIENCE**  
**B.Sc. II-Semester (CBCS) Examination, May / June 2018**  
**Subject : Statistics**

Time : 3 Hours

Paper – II : Probability Distributions

Max. Marks: 80

**PART – A (5 x 4 = 20 Marks)**  
**(Short Answer Type)**

**Note : Answer any FIVE of the following questions.**

- 1 Define uniform distribution. Obtain its mean.
- 2 Define Poisson distribution. State its reproductive property.
- 3 From a consignment, 15 record players are selected at random, one by one, and examined. Those examined are not put back. What is the probability that 9<sup>th</sup> record examined is the third and the last defective.
- 4 State the memory less property of geometric distribution.
- 5 The mean of a normal distribution is 60 and 6% of the values are greater than 70. Find the standard deviation.  $P[0 < z < 1.56] = 0.44$
- 6 Obtain the mean and variance of exponential distribution.
- 7 Define Beta distribution of first kind and find its mean.
- 8 Define Cauchy distribution. Give its applications.

**PART – B (4 x 15 = 60 Marks)**  
**(Essay Answer Type)**

**Note: Answer all the questions.**

- 9 (a) Define Binomial distribution. Derive its mean and mode.  
**OR**  
(b) Obtain  $\beta_1$  &  $\beta_2$  for a Poisson distribution. Also comment on its skewness and kurtosis.
- 10 (a) Define hypergeometric distribution. Derive its mean and variance.  
**OR**  
(b) Derive Poisson distribution as a limiting case of negative Binomial distribution.
- 11 (a) Derive standard deviation, mean deviation about mean and quartile deviation for normal distribution.  
**OR**  
(b) Show that normal distribution is a limiting case of Binomial distribution.
- 12 (a) Define Gamma distribution. Obtain its moment generating function and hence find its mean and variance.  
**OR**  
(b) Derive moment generating function of Exponential distribution. Show that the sum of exponential random variables is a gamma random variable.

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