B.Sc. DEGREE EXAMINATION, APRIL 2018.

II YEAR III SEMESTER

Allied II-Paper I - MATHEMATICAL STATISTICS - I

Time : 3 Hours Max. Marks : 60

SECTION A – (10 × 1 = 10 marks)

(Q. No. 1-12)Answer any *TEN* questions

1. What is meant by mutually exclusive events?
2. Give the axioms of probability.
3. Define distribution function.
4. List out any two properties of continuous distribution function.
5. State the uniqueness theorem of moment generating function.
6. Define mathematical Expectation.
7. If ), What is V(X)2.
8. Define Beta Distribution of II Kind.
9. Give any two instances where poisson distribution can be applied.
10. Give the m.g.f of normal distribution.
11. Define gamma, distribution.
12. Give examples for independent events.

SECTION B – (5 × 4 = 20 marks)

(Q. No. 13-19)Answer any *FIVE* questions

1. Explain classical approach of probability.
2. State and prove addition theorem of probability.
3. Find the mean of the distribution given the p.d.f

F(x) = K x2 e-x, .

1. A bag contains 'a' white and 'b' black balls. 'c' balls are drawn at random. Find the expected value of the number of white balls drawn.
2. Prove the multiplication theorem of expectation.
3. Prove (i) E[Cx] = CE(x)

(ii) E[ax+b] = aE(x) +6

1. Give the physical conditions of binomial distribution.

SECTION C – (3 × 10 = 30 marks)

(Q. No. 20-24)Answer any *THREE* questions

1. State and prove Bayes theorem.
2. Describe in detail joint density function and marginal density function.
3. State and prove Chebychev's inequality.
4. Find the m.g.f. of poison distribution.
5. Derive the m.g.f. of binomial distribution.