(STA N 2306)
B.Sc. Degree (CBCS) Examinations
OCTOBER - 2021
EXAMINATION AT THE END OF II SEMESTER
PART - II STATISTICS
PROBABILITY THEORY AND DISTRIBUTION

TIME : Three hours | Maximum : 60 Marks

SECTION-A

Answer any five of the following questions 5 x 4= 20 marks

1. State and Prove Multiplication theorem for two events.
2. Explain Mathematical definition of Probability
3. Define discrete and Continuous random variables
4. Define Joint distribution function of continuous random variable
5. Explain Cauchy Schwartz inequality
6. Define Properties of Mathematical Expectation
7. Derive mean and Variance using M.G.F of Poisson distribution.
8. State and Prove memoryless property of Geometric distribution.
9. Write the importance of Normal distribution
10. State and Prove additive property of gamma distribution.

SECTION-B

Answer ALL the following questions . Each question carries eight marks. 5 x 8= 40 marks

11a) State and Prove Boole's inequalities

(OR)

b) State and prove Baye's theorem

12a) Explain the properties of distribution function

(OR)

b) For th e following density function

$f(x) = C x^2(1 - x)$, $0 < x < 1$ find constant C and mean

13a) Define M.G.F and write the properties of M.G.F

(OR)

b) Define P.G.F and write the properties of P.G.F

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14a) Show that Poisson distribution is a limiting case of Binomial distribution.

(OR)

b) Define Negative Binomial distribution and find its mean and Variance.

15a) Define beta distribution of first kind and find its mean and variance

(OR)

b) Explain Normal distribution and its area property.

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