



K21U 1852

Reg. No. :

Name :

III Semester B.Sc. Degree CBCSS (OBE) Reg./Sup./Imp.

Examination, November 2021

(2019 – 2020 Admission)

CORE COURSE IN STATISTICS

3B03 STA : Probability Distributions and Limit Theorems

Time : 3 Hours

Max. Marks : 48

Instruction : Use of calculators and statistical tables are permitted.

PART – A
(Short Answer)

Answer **all** questions.

(6×1=6)

1. Give the cumulant generating function of a binomial distribution.
2. Define a Bernoulli trial.
3. Give the m.g. f. of a continuous uniform distribution over (a, b).
4. Let $X \sim N(\mu, \sigma^2)$. Evaluate $P(\mu - \sigma \leq X \leq \mu + \sigma)$.
5. Give the c.d.f. of an exponential distribution with mean θ .
6. Define Cauchy distribution.

PART – B
(Short Essay)

Answer **any 7** questions.

(7×2=14)

7. If $X \sim b(6, p)$ such that $9P(X = 4) = P(X = 2)$, then find the value of p .
8. Find the mode of a Poisson distribution with mean 6.
9. If a random variable X is uniformly distributed with mean 1 and variance $\frac{4}{3}$. Find $P(X < 0)$.
10. Find the median of a normal distribution.

P.T.O.