2111N802

B.Sc Sem.-5 Examination

CC 301

Statistics

November-2024

Candidate's Seat No : _____

Time : 2-30 Hours] [Max. Marks : 70

Q-1 (A) Find out standard error of sample raw moment. (7)

(B) Write a short note on probable error. (7)

OR

Q-1 (A) Derive the covariance of sample variance. (7)

(B) Explain standard error of sampling correlation coefficient. (7)

Q-2 (A) State and prove invariance property of consistent estimator. (7)

(B) State and prove Fisher Neyman theorem on sufficiency. (7)

OR

Q-2 (A) Write statement of Cramer- Rao inequality theorem with assumptions. (7)

(B) If T_1 and T_2 are two unbiased estimators of $\gamma(\theta)$, with variances σ^2_2, σ^2_2 correlation ρ. what is the best unbiased linear combination of T_1 and T2 and what is the variance of such a combination ? (7)

Q-3 (A) Write assumptions of obtaining maximum likelihood estimator. (7)

(B) Find MLE for θ for random sample $x_1, x_2 \_ \_ \_ x_n$ drawn from rectangular distribution with range 0 to θ. (7)

OR

Q-3 (A) Write a short note on method of moments. (7)

(B) Obtain the estimates for parameters n and p for binomial distribution by method of moments. (7)

(P.T.O.)

Q-4 (A) Define parameter and statistic. State the general problem of parameter estimation. (7)

(B) Write a short note on Pivotal Quantity Method. (7)

OR

Q-4 (A) Explain in brief the construction of confidence interval by maximum likelihood estimator method. (7)

(B) Obtain 100 (1- α) % confidence limits (λ for large samples) for the parameter of Poison distribution. (7)

Q-5 ATTEMPT ANY SEVEN OUT OF TWELVE. (14)

(1) What is standard error?

(2) Write formula of probable error of correlation coefficient.

(3) Write formula of second and fourth central moments.

(4) Write the criteria which should be satisfied by good estimator.

(5) Define parametric space and Estimator

(6) Give the full form of BLUE AND MLE.

(7) What are the two methods to find MVU Estimator?

(8) What do you mean by confidence interval estimate?

(9) Explain when to use method of scoring?

(10) Write any two assumptions are to be made for obtaining MLE

(11) Define likelihood function of data.

(12) What is the value of $Z_{\alpha/2}$ for 95% and 99% confidence level?