

Undergraduate Semester -V End Examinations, 2021

Subject: ECONOMICS

Course ID: 51611

Course Code: UG/ECO/501/C-11

Course Title: Statistical Methods For Economics -II

Full Marks: 40

Time: 2 hours

The figures in the margin indicate full marks

Answer all the questions.

UNIT I

Q1) Answer any five questions: 2×5

All questions carry equal marks.

- a) What do you mean by mutually exclusive events?
- b) State Bayes' Theorem.
- c) Mention two importances of Normal Distribution in Statistics.
- d) Distinguish between a parameter and a statistic.
- e) State the properties of a good estimator.
- f) Define a random variable with an example.
- g) Define a Chi-square distribution.
- h) Distinguish between Type-I and Type-II errors in Statistics.

UNIT II

Q2) Answer any four questions: 5×4

- a) What is the probability of getting 3 white balls in a draw of 3 balls from a box containing 5 white and 4 black balls?
- b) A coin is tossed 3 times and x is a random variable denoting the number of heads occurring. Determine the mathematical expectation of x .
- c) State and prove the product law of expectation. (2+3)
- d) What are the different methods of drawing a simple random sample from a population?
- e) The mean life of a sample of 100 electric bulbs produced by a company is found to be 1570 hours with a standard deviation of 120 hours. If μ is the mean life time of all the bulbs produced by the company, then test the hypothesis $\mu = 1600$ hours against the alternative hypothesis $\mu \neq 1600$ hours, using a level of significance of $\alpha = 0.05$.
- f) Do you think that Normal Distribution is a continuous theoretical distribution? Write down the probability mass function of a Poisson Distribution. (3+2)

UNIT III

Q3) Answer any one question: 10×1

- a) Determine the mean and standard deviation of a Binomial Distribution with parameters n and p .
 - b) Define simple random sampling. Distinguish between simple random sampling with replacement (SRSWR) and simple random sampling without replacement (SRSWOR). from a finite population. What is standard error of a statistic? (2+6+2)
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