# বিদ্যাসাগর বিশ্ববিদ্যালয়
# VIDYASAGAR UNIVERSITY

## Question Paper

## B.Sc. Honours Examinations 2021
**(Under CBCS Pattern)**
## Semester - III
## Subject: ECONOMICS
**Paper: C 7-T**
**(Statistical Methods For Economics)**

**Full Marks : 60**
**Time : 3 Hours**

*Candiates are required to give their answer in their own words as far as practicable.*
*The figures in the margin indicate full marks.*



### Group - A

Answer any ***four*** questions : 12×4=48

1. (a) Define mean square deviation.

   (b) If $d^2$ = mean square deviation about an arbitrary value $X_o$ such that $Xo - \bar{X} = a$ and if $\sigma^2$ is the variance of a set of values, show that $d^2 = \sigma^2 + a^2$. Use this relation to esatblish the relation between the 2nd order central moment and the raw moments of the 1st and 2nd order. 2+5+5

2. (a) What is Binomial distribution ?

(b) Under what situation is this distribution applied ?

(c) Suppose $X$ is the Bi (n, p) where symbols have their usual meanings. The mean and variance are respectively 4 and 4/3. Find the value of n. 2+4+6

3. Define 'Normal Distribution. Explain the important properties of this distribution ? 3+9

4. Prove that the 'correlation coefficient' lies between (–1) and (+1). Show that the 'correlation co-efficient' is independent of the changes of origin and scale of a data set. 5+7

5. (a) What do you mean by sampling ?

(b) Discuss the different methods of sampling.

(c) Mention the properties of SRSWR. 2+8+2

6. Discuss various steps involved in the construction of Index Number. Mention briefly the time reversal test, factor reversal test and circular test of index numbers. 6+6

7. (a) State the properties of a good estimator.

(b) Show that for SRSWR the sample mean $(\bar{X})$ is the minimum variance unbiased estimator (MVUE) of the population mean$(\mu)$ 4+8

8. (a) State the density function of a Rectangular distribution.

(b) Find out expectation and variance of it. 2+10

**Group - B**

9. Answer any ***six*** questions from the following : 2×6=12

(a) What do you mean by kurtosis of a distribution ?

(b) Distinguish between Parameter and Statistic.

(c) Distinguish between 'primary data' and 'secondary data' with relevant examples.

(d) Mention two uses of cost of living index number.

(e) What is standard normal variable ?

(f) What is a symmetric distribution.

(g) What do you mean by point of inflection of a curve ?

(h) Mention two properties of the Poisson distribution.

(i) What is point estimation ?

(j) Define an unbiased estimator.

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