

FACULTY OF SCIENCE

B.Sc. V – Semester (CBCS) Examination, November / December 2019

Subject: Statistics

**Sampling Theory, Time Series,
Index Numbers and Demand Analysis
Paper – V**

Time: 3 Hours

Max.Marks: 60

**PART – A (5x3 = 15 Marks)
(Short Answer Type)**

Note: Answer any FIVE of the following questions. Each question carries 3 marks.

- 1 Write about principles of sampling
- 2 What is subjective sampling? Explain. Give an example.
- 3 Define stratified random sampling.
- 4 Explain about growth curves.
- 5 What are Index Numbers? State their uses.
- 6 Define the terms Demand, Supply and Price elasticity of demand.
- 7 Explain time reversal test.
- 8 Explain additive model of time series.

**PART – B (3x15 = 45 Marks)
(Essay Answer Type)**

Note: Answer all the following three questions. Each question carries 15 marks.

- 9 a) Write about sampling and non-sampling errors. Write about sources of the same.
OR
b) In SRSWOR, show that sample mean square is an unbiased estimator for population mean square.
- 10 a) Define systematic sampling procedure. Prove that
$$v(\bar{y}_{sys}) = \frac{k-1}{nk} S_{wst}^2 [1 + (n-1) \rho_{wst}]$$
OR
b) Explain link relatives procedure for determination of seasonal indices.
- 11 a) Explain Pigou's method for estimating demand function, stating assumptions. Also mention its limitations.
OR
b) Explain base shifting, forward and backward splicing procedures with examples.