

EEC-13

**Bachelor's Degree Programme
(BDP)**

ASSIGNMENT

Course Code: EEC-13

Title of Course: Elementary Statistical Methods and Survey Techniques

(2024-25)



**School of Social Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110 068**

EEC-13
ELEMENTARY STATISTICAL METHODS AND SURVEY TECHNIQUES
2024-25

Dear Student,

As explained in the Programme Guide for BDP, you will have to do one assignment for this elective course in Economics (EEC -13). This is a Tutor Marked Assignment (TMA) and carries 100 marks.

It is important that you write answers to all the questions in your own words. The TMA is designed to enable you to answer different categories of questions. Here evaluation is made keeping in view your ability to present your answer in a systematic, precise, and coherent manner.

The assignment is divided into three sections. Remember that all questions are compulsory. Section A comprises two long answer questions of 20 marks each. Section B comprises four medium answer questions of 10 marks each while in Section C you have to answer two questions of 15 marks each.

Submission

Completed assignments should be submitted to the **Coordinator of your Study Centre** by:

For students appearing in December 2024 Term End Exam:	30.09.2024
For students appearing in June 2025 Term End Exam:	31.03.2025

**EEC-13: ELEMENTARY STATISTICAL METHODS AND SURVEY
TECHNIQUES**

Programme Code: BDP

Course Code: EEC-13

Assignment Code: EEC-13/AST/TMA/2024-25

Maximum Marks: 100

Answer all the questions.

A. Long Answer Questions

20 x 2 = 40 marks

- 1) Probability of two events, A and B , are given by

$$P(A) = \frac{1}{2}, P(\bar{A} \cap B) = \frac{1}{6} \text{ and } P(A \cap B) = \frac{1}{3}. \text{ Find } P(B),$$

$P(A \cup B)$, $P(A/B)$, $P(B/A)$, $P(\bar{A} \cup B)$ and $P(\bar{A} \cap \bar{B})$. Also examine whether A and B are

- a) Equally likely
 - b) Exhaustive
 - c) Mutually exclusive
 - d) Independent.
- 2) (a) Explain the concepts of level of significance and rejection region using suitable diagram of a standard normal curve.
- (b) Explain the concept of standard error through a suitable example. What are its implications?
- (c) How do you construct confidence interval for a statistic? What are its implications?

B. Medium Answer Questions

10 x 3 = 30 marks

- 3) For a binomial experiment, show that the probability of x successes $p(x)$ is given by
- $${}^n C_x p^x (1-p)^{n-x}$$
- 4) Calculate index numbers using Paasche's method and Fisher's method from the following data.

Commodity	p_1	q_1	p_0	q_0
A	5	14	3	8
B	8	18	6	25
C	3	25	1	40
D	15	36	12	48
E	9	14	7	18
F	7	13	5	19

- 5) Explain how the normal equations for a regression model can be derived.

C. Short Answer Questions

15 x 2 = 30 marks

- 6) Write short notes on the following:
- (a) Concept of a random variable
 - (a) Properties of standard normal distribution
 - (b) Coefficient of variation
- 7) Differentiate between the following:
- (a) Systematic random sampling and Stratified random sampling
 - (b) Various methods of primary data collection
 - (c) Estimator and Estimate