

Faculty of Science
B.Sc (Statistics) III-Year, CBCS-V Semester Backlog
Examinations –June/July, 2022
Paper-EI: Statistical Quality Control and Reliability

Time: 3 hours

Max Marks: 60

Section-AI. Answer any **Three** of the following questions (3x5=15 Marks)

1. Define 3σ control limits
2. Explain Shewhart control charts
3. Define process capability index
4. Write the control limits for U-chart with constant 'n'
5. Define Producer's risk
6. Define Hazard rate function

Section-B

II. Answer the following questions (3x15=45 Marks)

7. (a) Explain the statistical basis for control charts in detail.
(OR)
(b) Explain the procedure in constructing the Mean and Range charts.
8. (a) Construct the Natural tolerance and specification limits for C-chart.
(OR)
(b) Construct an Appropriate chart to the given data and comment on process

SAMPLE	1	2	3	4	5	6
NO: OF DEFECTS PER UNIT	10	5	13	20	8	15

- 9.(a) Define sampling plan. construct oc curve for single sampling plan
(OR)
(b) Define Reliability function and Explain the exponential model

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PAPER-V: Sampling Theory, Index Numbers and Demand Analysis

Time: 3 hours

Max Marks: 60

Section-A

I. Answer any **Three** of the following questions (3x5=15 Marks)

1. Explain the types of sampling.
2. Explain the Non-sampling errors.
3. Define the optimum allocation.
4. Explain the models in time series.
5. Explain the concept of demand function.
6. Define the concept of splicing.

Section-B

II. Answer the following questions (3x15=45 Marks)

7. (a) Explain the principle steps in conducting the sample survey.
(OR)
(b) Under SRSWOR find the variance of sampling mean.
8. (a) With usual notations show that $V_{opt} \leq V_{pro} \leq V_{ra}$.
(OR)
(b) Define systematic sampling. Explain its advantages and disadvantages.
9. (a) Explain the Pigou's method in determining the demand curve from time series data.
(OR)
(b) Explain the problems involved in constructing the index numbers.
