

2024/TDC (CBCS)/EVEN/SEM/
STSHCC-403T/079

TDC (CBCS) Even Semester Exam., 2024

STATISTICS

(4th Semester)

Course No. : STSHCC-403T

(Statistical Quality Control and Index Number)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

UNIT—I

1. Answer any *two* from the following questions : 2×2=4

(a) Explain the terms 'chance cause of variation' and 'assignable cause of variation'.

(b) What are control charts?

(c) Explain the basic principles underlying the control charts.

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(Turn Over)



(2)

2. Answer any *one* from the following questions : 6
- (a) (i) Explain process control and product control in industry. 3
- (ii) What are the uses of control charts? 3
- (b) (i) What are the major parts of control charts? Briefly explain. 3
- (ii) What is meant by rational subgrouping? Explain. 3

UNIT—II

3. Answer any *two* from the following questions : 2×2=4
- (a) Discuss the advantages of control chart for attributes.
- (b) Briefly explain control chart for fraction defective.
- (c) Explain the usefulness of R-chart.
4. Answer any *one* from the following questions : 6
- (a) Describe the \bar{X} -chart and R-chart. How the control limits are set for these charts?
- (b) Give an example of defects for which the C-chart is applicable. How do you calculate control limits for C-chart?

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(Continued)

(3)

UNIT—III

5. Answer any *two* from the following questions : 2×2=4
- (a) Briefly explain ASN and ATI.
- (b) What are the differences between AQL and AOQL?
- (c) Define producer's risk and consumer's risk.
6. Answer any *one* from the following questions : 6
- (a) (i) Describe the single-inspection plan. 3
- (ii) How do you determine producer's and consumer's risk in a single-inspection plan? 3
- (b) Explain double sampling inspection plan in quality control and discuss its merits and demerits. 6

UNIT—IV

7. Answer any *two* from the following questions : 2×2=4
- (a) What is index number? Give an example.
- (b) "Index number's are economic barometers." Explain the statement.

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(c) How the base year of an index number is selected?

8. Answer any one from the following questions : 6

(a) (i) Prove that Marshall-Edgeworth index number lies between Laspeyre's and Paasche's index number. 4

(ii) Explain time reversal and factor reversal tests. 2

(b) Define the following index numbers and discuss their merits and demerits : 6

(i) Laspeyre's index number

(ii) Paasche's index number

(iii) Fisher's index number

UNIT—V

9. Answer any two from the following questions : 2×2=4

(a) State two limitations of index numbers.

(b) Show that Fisher's index number satisfies factor reversal test.

(c) Discuss the advantages of chain-base method over fixed-base method.

10. Answer any one from the following questions : 6

(a) What is consumer price index number? Describe the main steps involved in the construction of consumer price index number.

(b) What are chain-base index numbers? Describe the steps involved in the construction of chain-base index numbers. How are chain-base indices converted to fixed-base indices?
