# **col LOGO outline**

Register Number:

DATE: 14-03-2022

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-560027**

**B. Sc. STATISTICS - V SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2021**

**(Examination conducted in March 2022)**

 **ST 5218 - Statistical Methods for Quality Management**

**Time: 2 ½ hrs Max: 70 Marks**

This question paper has **TWO** printed page and **TWO** parts

**SECTION – A**

**I Answer any FIVE of the following: 5 x 3 = 15**

1. What is Control Chart? Discuss the role of Control Charts in product control.
2. List down the control limits for $\overline{X }$ and R ControlCharts.
3. Write a note on control charts for attributes.
4. Write note on applications of C-Chart.
5. DefineControl limits.
6. Explain advantage of Double sampling over single sampling in a lot.
7. Mention the advantages of sequential sampling.

**SECTION – B**

**II Answer any FIVE of the following: 7 x 5 = 35**

1. Explain any three quality control tools.
2. Explain the construction and interpretation of $\overline{X }$chart and S chart.
3. What is the need to study process capability of a production process? Explain$C\_{p }$and$C\_{pk}$.
4. Define specification limits. Explain the relationship between natural tolerance limits and specification limits using appropriate chart.
5. Explain the role of sampling plans. Write note on Acceptance-Rejection and Acceptance-Rectifying inspection plans.
6. Obtain AOQ and ATI for the single sampling plan.
7. Explain concept SPRT and give operational definition.

**SECTION – C**

**III Answer any TWO of the following: 7 x 5 = 35**

1. A) Derive p and np chart. (7)

B) State optimality property of SPRT (3)

1. A)Determine the probability limit 0.1 for $\overline{X }$ and R chart assuming the parent population is N (1,2). (8)

B) Define OC function. (2)

17. A) Explain any four criteria for detection of lack ofcontrol in control charts with neat diagram. (5)

B) Obtain OC curve for double sampling plan

 (5)

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