ST JOSEPH'S UNIVERSITY, BENGALURU -27
M.Sc. (STATISTICS) – III SEMESTER
SEMESTER EXAMINATION: OCTOBER 2023
(Examination conducted in November /December 2023)
ST 9323 – STATISTICAL QUALITY CONTROL
(For current batch students only)

Time: 2 Hours   **Max Marks: 50**
This paper contains ONE printed pages and ONE part

PART-A

I.   Answer any **FIVE** of the following

1. a) Write a short note on concept of rational subgroups?   (2)
    b) Discuss about different dimensions of quality.   (3)
    c) Brief about the process capability and its measures with neat diagrams. (5)

2. a) Derive 3σ control limits for S chart when standards are known and unknown. (5)
    b) Derive an expression for OC function and ARL for $\bar{X}$ chart   (5)

3. a) Explain the construction and operation of tabular method in CUSUM chart. (5)
    b) Give a short account on Hotelling's T^2-control chart.   (5)

4. a) Discuss appropriate settings for using a modified control chart   (5)
    b) Write short note on acceptance sampling and its advantage and disadvantage (5)

5. Describe the operation of double sampling plan and obtain the expression for OC, ASN and ATI functions.   (10)

6. a) Discuss about Dodge-Romig and military standards sampling plans.   (4)
    b) Mention the advantages of sequential sampling   (2)
    c) Explain concept SPRT and give operational definition   (4)

7. a) State optimality property of SPRT   (3)
    b) Derive an expression for OC and ARL function of SPRT   (7)