

**PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)**

Branch – STATISTICS

**STATISTICAL QUALITY CONTROL**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Quantities that can be numerically measured, can be plotted on a \_\_\_\_\_ control chart.  
(i) X bar                      (ii) P chart                      (iii) C chart                      (iv) np chart
2. Which of these is a reason, why the Cusum charts are better than the Shewhart control charts?  
(i) Because they are having information about only one sample  
(ii) Because the quantity plotted on the Shewhart control charts is variable  
(iii) Because the quantity plotted on the Cusum chart contains information about more than one sample  
(iv) Because the quantity plotted on the Cusum control charts is containing information about a single sample
3. Acceptance sampling can be used as \_\_\_\_\_  
(i) Incoming inspection activity  
(ii) Outgoing inspection activity  
(iii) Both, incoming and outgoing inspection activity  
(iv) Neither incoming nor outgoing inspection activity
4. In sequential sampling plan  
(i) Maximum 02 samples are taken  
(ii) Maximum 03 samples are taken  
(iii) Maximum 04 samples are taken  
(iv) Samples are accumulated at each stage till the decision of accepting or rejecting a lot is taken
5. What does the graph of 'bathtub curve' represent?  
(i) Failure rate versus Mean                      (ii) Failure rate versus Time  
(iii) Failure rate versus Distance                      (iv) Failure rate versus Velocity

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. (a) Write the scope of SQC?  
OR  
(b) What do you mean by process capability analysis?
7. (a) Define Geometric moving average control chart.  
OR  
(b) Give any two basic principles of CUSUM control chart.

Cont...

8. (a) Explain Sequential sampling plans for attributes.  
OR  
(b) Define Producer's risk.
9. (a) Write the advantages of variable sampling plan.  
OR  
(b) What is OC curve?
10. (a) Explain the concept of reliability.  
OR  
(b) Describe Weibull distribution.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. (a) Describe various statistical basis for control charts.  
OR  
(b) Give a note about specification, tolerance and warning limits.
12. (a) Explain the concept of V-mask with one and two sided procedures.  
OR  
(b) Explain sloping control charts.
13. (a) Find ASN,ATI,AOQ and LTPD for single plan.  
OR  
(b) Explain CSP and its OC curve.
14. (a) Construct the procedure for sampling inspection by variables for known sigma.  
OR  
(b) Write notes on MIL STD 414 tables.
15. (a) Elaborate on time dependent hazard models.  
OR  
(b) Estimate reliability for k out of n systems.

Z-Z-Z

END