PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(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 numerically measured and plotted in a _____ control chart.
   (a) X bar   (b) P chart
   (c) C chart   (d) np chart

2. The control chart for fraction nonconforming is also called _____.
   (a) u chart   (b) c chart
   (c) p chart   (d) R chart

3. Acceptance sampling can be used as _____.
   (a) Incoming inspection activity
   (b) Outgoing inspection activity
   (c) Both, incoming and outgoing inspection activity
   (d) Neither incoming nor outgoing inspection activity

4. Which is most economical method?
   (a) Single sampling plan   (b) Double-sampling plan
   (c) Multiple-sampling plan   (d) 100% sampling

5. Identify in a life-testing sampling plans that are terminated when a pre-assigned number of failures occur in the sample are _____.
   (a) Failure-terminated   (b) Time-terminated
   (c) Operation-terminated   (d) Sequential

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks   (5 x 3 = 15)

6. (a) Prepare a short note on Shewhart control charts and its applications.
            (OR)
   (b) Classify between Process and Product control with examples.

7. (a) Narrate short note on Moving Average Charts.
            (OR)
   (b) Describe group control charts.

8. (a) Describe the AOQL Tables in sampling plans.
            (OR)
   (b) Bring out the need of MIL-STD-105D sampling plans.

9. (a) Develop a short note on determination of parameters in sampling plans.

(OR)

(b) Illustrate the concept of double sampling plan by variables.

10. (a) Compare about IFR and DFR distribution in reliability.

(OR)

(b) State life time distributions. Give a real time examples.

SECTION -C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)

11. (a) Classify $\overline{X}$ bar and σ chart in process control.

(OR)

(b) Discuss in detail about the OC and ARL curve of control charts.

12. (a) Elucidate elaborately about one sided CUSUM control charts.

(OR)

(b) Highlight the need of construction of V mask in CUSUM chart.

13. (a) Trace the operating procedure of CSP – 1 and how it differ from CSP -2 & CSP – 3?

(OR)

(b) Enumerate the single and double sampling plans based on AOQL.

14. (a) Illustrate about the single sampling plan for variables.

(OR)

(b) Elucidate sequential sampling plan by variables.

15. (a) Illustrate the Weibull models in life time distributions.

(OR)

(b) Explain in detail about Life distribution with examples.

Z-Z-Z   END