

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2018
(Sixth Semester)**

Branch - STATISTICS

STATISTICAL QUALITY CONTROL - II

Time : Three Hours

Maximum : 75 Marks

SECTIONS (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 What are the three fundamental concepts of quality management?
- 2 Define total quality management.
- 3 Define control chart.
- 4 What are the control limits for \bar{x} -chart based on standard deviation of the population.
- 5 What are the situations that can be used, if the number of characteristics is too large in control chart technique?
- 6 Define c -chart.
- 7 What are the three basic uses of cause and effect diagram?
- 8 What is meant by Quantile - Quantile plot?
- 9 Define conditional failure rate.
- 10 State the failure rate of Weibull distribution.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

11a Discuss the results of total quality.

OR

b Briefly explain the concept of process model in ISO 9001 - 2000 standard.

12 a What are the factors of production and discuss it?

OR

b Discuss the uses of SQC.

13 a Construct the control limits for mean chart based on population S.D.

OR

b Discuss the proportion of range chart based on mean of range.

14 a Discuss the methods of calculating process capability.

OR

b Briefly explain the basis of process capability study.

15 a Discuss the concept of availability.

OR

b Briefly explain the concept of system reliability with components connected in series.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Explain the concept of TQM.
- 17 Explain the construction of R and \bar{x} -charts.
- 18 What are the applications of C -chart? How to construct the control limits for the same.
- 19 A sub-group of 5 items each are taken, from a manufacturing process at a regular interval. A certain quality characteristic is measured and \bar{x} and R values computed. After 25 groups it is found that $\bar{\bar{x}} = 357.50$ and $\bar{R} = 8.80$. If the specification limits are 14.40 ± 0.40 and if the process is in statistical control. What conclusions can you draw about the ability of the process to produce items within specification.