18CBA17

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – **COMMERCE (BUSINESS ANALYSTICS)**

STATISTICAL QUALITY CONTROL

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 The important statistical tools in statistical quality control are
(i) Shewhart chart (ii) Bar chart
(iii) Pie chart (iv) Multiple bar chart

2 If μ and σ are the process mean and standard deviation, then the control limits $\mu \pm 3\ \sigma$ are known as
(i) Modified control limits (ii) Specified control limits
(iii) Natural control limits (iv) Diaster control limits

3 The probability of accepting a lot with fraction defective p_t is known as
(i) Consumer's risk (ii) Producer's risk
(iii) Type I Error (iv) Type II Error

4 A curve showing the probability of accepting a lot of quality 'p' is known as
(i) Gompert Z curve (ii) A.S.N curve
(iii) Power curve (iv) OC curve

5 CMM stands for
(i) Capability risk model (ii) Capability monitoring model
(iii) Capability measuring model (iv) Capability matching model

6 ISO stands for
(i) International standard organisation (ii) Income standard organisation
(iii) Internation statistics organisation (iv) Income statistics organisation

7 _____ is the measure of process capability.
(i) Sample standard deviation (ii) Six-sigma spread
(iii) Process mean (iv) Process standard deviation

8 Standard deviation is the measure to find _____.
(i) Matching model (ii) Process capability
(iii) Measuring mode (iv) Production capability

9 The constant-hazard model takes the form
(i) $z(t) = \lambda$ (ii) $z(t) = 1/\lambda$
(iii) $z(t) = \lambda^2$ (iv) $z(t) = 1/\lambda^2$

10 The earlier failure rate of a component is given by
(i) $z(t) = e^{-bt}$ (ii) $z(t) = e^{-t}$
(iii) $z(t) = ae^{-bt}$ (iv) $z(t) = \frac{1}{a}e^{-bt}$

Cont...

SECTION - B (35 Marks)

Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 7 = 35)

11 a Explain the procedure for construction of control charts for $\overline{X}$.

OR

b Explain the interpretations of p-chart.

12 a Describe double sampling plan.

OR

b What is Average Sample Number and Average of Total Inspection(ATI).

13 a Explain TQM models.

OR

b Discuss the need for quality improvement in Industries.

14 a Explain process capability index in Process Control.

OR

b Write short notes on quality improvement in SQC.

15 a Explain hazard rate and cumulative hazard rate with an example.

OR

b Discuss the role of exponential distribution in reliability theory.

SECTION - C (30 Marks)

Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 The number of defects on 20 items are given below:

Item No.:	1	2	3	4	5	6	7	8	9	10
No. of defects :	2	0	4	1	0	8	0	1	2	0

11	12	13	14	15	16	17	18	19	20
6	0	2	1	0	3	2	1	0	2

17 Write the operating procedure for Single Sampling plan.

18 Explain ISO 9001 : 2001 series in quality control.

19 Define PCI and explain how will you interpret PCI statistical process control.

20 What is of reliability and Durability?

Z-Z-Z END