

AQ - 1014

Third Semester M.A. / M. Sc. (Statistics)
Examination

INDUSTRIAL STATISTICS

Paper - XII (E I / II : 2)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

Note : Solve either A OR B from each question.

1. (A) (a) Define the following :—

(i) Consumer's risk

(ii) Producer's risk

(iii) O.C. Function.

(iv) ARL

(b) Obtain Cu-sum control chart using V-masks technique. 8+8

OR

(B) (i) What is moving average ? Explain moving average control chart.

(ii) What are the chance cause and assignable cause of variability ? Explain its role in the operation and interpretation of control chart. 8+8

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2. (A) (a) Explain single sampling plan for attribute inspection.
- (b) Explain Dodge-Roming continuous sampling plan. 8+8

OR

- (B) (i) Explain the procedure for double sampling inspection plan.
- (ii) Discuss mil standard plan. 8+8

3. (A) (a) Explain with illustration, How design of experiments can be used in statistical process control ?
- (b) Write a note on fractional factorial design. 8+8

OR

- (B) (i) Clearly distinguish between the principles of confounding and fractionalization.
- (ii) Explain factorial experiment. How can it be used in statistical process control ? 8+8

4. (A) (a) What is process capability analysis ? Define the following process capability indices C_p index and C_{pk} index.
- (b) Define and discuss capability index C_{pm} . 8+8

OR

- (B) (i) What is multivariate control chart ? Explain chi-square control chart.
- (ii) Compare C_p and C_{pk} index. 8+8

5. (A) (a) What do you understand by ISO standards ? Give outstanding features of ISO-9000 series of standards.
- (b) Explain the basic concept of six-sigma quality approach. What is the difference between 3σ and 6σ approach ? 8+8

OR

- (B) (i) Give various definitions of total quality management. Give Deming's approach to TQM.
- (ii) Explain the need of quality assurance system in Industries. 8+8