18.4

TM244255Q

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV - Applied Statistics and Data Analytics ELECTIVE COURSE

ST4E02TM - Statistical Quality Control

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. What is the difference between specification limit and control limit?
2. State Thump rule.
3. Define warning limits. what they are used for?
4. What is V mask?
5. What are the advantages of acceptance sampling?
6. Define Consumers risk.
7. Define Producers risk.
8. Explain the risk associated with acceptance sampling.
9. Define Average Outgoing Quality Limit.
10. Distinguish between Process control and process control.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Write a short note on revision of control limits.
12. Explain the functioning of S chart for monitoring the process spread.
13. Describe the criteria for detecting lack of control in p chart and np chart.
14. Explain the construction of modified control chart.
15. Explain the method of construction of the O. C. curves for a DSP.
16. Explain rectifying inspection and Average outgoing quality.
17. Design the acceptance sampling plan by variable to get protection for mean values of normally distributed lots with known standard deviation when lots with moderate means are preferred.
18. Derive the varying sampling plan when we have two specifications.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. (a) Discuss Type I and Type II errors relative to the control chart. What practical implications in terms of process operation do these two types of errors have? (b) What is meant by the statement that a process is in a state of statistical control?
20. Explain EWMA control charts. Show that it has non uniform memory.
21. Derive the ASN and ATI functions for a SSP and draw their general shapes.
22. Compare Single sampling plan and double sampling plan. Explain its merits and demerits. Explain the construction of OC curve for single sampling plan.

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