QP CODE: 24803629

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Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, JUNE 2024

Fifth Semester

INTEGRATED MSC BASIC SCIENCE-STATISTICS

CORE - IST5CR04 - STATISTICAL QUALITY CONTROL

2020 Admission Onwards

182EB7DE

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write down the modern definition of quality.
2. SQC helps in which type of variation?
3. Define 3sigma limits.
4. If $\bar{X}_1 = 32.5$, $\sigma_1 = 2.5$ and n = 5. Write down the control limits for $\bar{X}$ and R – charts.
5. The following are the figures of defectivs in 22 lots each containing 2000 rubber beds 425 ,430,216,341,225,322,280,306,337,305,356,402,216,264,126,409,193,326,280,389,451,420. Find control limits for p chart.
6. Draw OC curve.
7. Mention any few disadvantages of acceptance sampling plan.
8. Define average outgoing quality limit.
9. What does average total inspection mean?
10. What do you mean by Single and Double Sampling Plans?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What are the limitations of statistical quality contol?
12. Briefly explian seven magnificient tools of statistical process control.

13. Distinuish between specification limit and tolerance limit.

14. Explain variable control chart.

15. Fifteen boxes of electric bulbs each containing 20 bulbs were randomly selected from a lot of bulb boxes and inspected for the number of defects per box.The number of defects per box were as follows:

Box No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.of defects	12	13	9	14	17	16	8	6	11	10	15	23	19	14	21

Draw the control chart for number of defectives and make conclusion.

16. Fifteen boxes of electric bulbs each containing 20 bulbs were randomly selected from a lot of bulb boxes and inspected for the number of defects per box.The number of defects per box were as follows:

Box No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.of defects	12	10	9	14	17	16	5	6	11	10	17	23	19	14	21

Calculate 3-sigma limits for C-chart and draw conclusion.

17. What are Defects and Defectives? Give an example for a defect & defective.

18. Write a note on acceptable and objectionable quality levels.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. What is meant by statistical process control? And also explian seven magnificient tools of statistical process control problem solving tools.

20. Explain R chart.

21. The following data refer to the number of defective in 10 sample of 100 item each, construct an apropriate control chart and interpret in control chart.

Sample no	1	2	3	4	5	6	7	8	9	10
No.of defectives	4	8	11	3	11	7	16	12	5	8

22. Describe designing of the single sampling plan.

(2×5=10 weightage)