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SIIIS - 198 B-17

B.Sc. III Semester Degree Examination

Mathematical Statistics

(Statistical Quality Control And Demographic Methods)

Paper : III

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates :

Statistical tables and graph sheets will be supplied on request.

SECTION - A

I. Answer the following : **(15×1=15)**

1. Control charts are developed by

a) A. Wald b) Dr. W. A. Shewart

c) R.A. Fisher d) Dodge and Romig

2. Variation in the quality because of some unknown reasons is due to

a) Chance causes b) Assignable causes

c) Mixed causes d) None

3. Number of specification limits are

a) 2 b) 3 c) 4 d) 5

4. Average outgoing quality limit is determined from the curve of

a) AOQ b) OC c) ASN d) ATI

5. Which of the following is a control chart for attributes?

a) R b) $\overline{X}$ c) s d) d

6. Probability of producer's risk is denoted by

a) $1-\alpha$ b) $1-\beta$

c) α d) β

7. Which of the following is vital event ?

a) Migration b) Death

c) Disease d) All of these

8. A population decreases due to

a) Immigration b) Death

c) Birth d) None

9. Over past few decades, CDR in India has.

a) Increased b) Decreased

c) Remaind stable d) None

10. Life table expresses the pattern of

a) Death over ages b) Migration over ages

c) Births over age of mothers d) None

11. The device used to detect lack of process control is called _____.

12. _____ inspection plan reduces the cost of inspection.

13. Control chart for fraction defective is called _____.

14. CBR incates average number of birth among every _____ persons.

15. History of deaths among a hypothetical population is represented by _____.

SECTION - B

II. Answer any **Five** of the following. **(5×5=25)**

16. Distinguish between process control and product control.

17. Explain the construction of control charts for number of defects.

18. Explain i) Natural tolerance limits ii) Specification limits.

19. Define the terms : i) LTPD ii) Producer's risk iii) ASN function.

20. Define vital statistics and state its uses.

21. Explain IMR and GFR state their merits.

22. Define a life table state its objectives.

SECTION - C

III. Answer any **Four** of the following **(4×10=40)**

23. Discuss the criterion for detecting lack of control in $\bar{X}$ and R charts.

24. Explain construction of p - chart and give its interpretation.

25. Explain single sampling plan and discuss the determination of n and c.

26. Describe the methods of obtaining vital statistics with their merits and demerits.

27. Explain ASFR and TFR with their merits and limitations.

28. Describe :

    i) Stable Population

    ii) Central mortality rate

    iii) Force of mortality