 N – 1392

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2022

First Degree Programme Under CBCSS

Statistics

Core Course – IX

ST 1641 – DESIGN OF EXPERIMENTS AND VITAL STATISTICS

(2014 & 2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** carries **1** mark.

1. Large number of replications be taken if experimental units are _____.
2. The ratio of births to deaths in a year is called _____.
3. Define a stable population
4. If Net reproduction rate(NRR) > 1, the population of a country will very likely _____.
5. If there is a single missing observation in a randomized block design with 4 blocks and 5 treatments, the error degrees of freedom will be
6. The error degrees of freedom for a Latin square design with 4 rows is _____
7. The number of times a treatment is repeated in an experiment is called its _____.
8. The most commonly used experimental design is _____.

9. Define crude birth rate

10. What is standard population?

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions. **Each** question carries **2** marks.

11. Define estimability of a parametric function.

12. Define relative efficiency of a design with respect to other.

13. What is the role of randomization in design of experiments?

14. Mention the advantages of a Randomised block design over CRD.

15. Explain ANOVA.

16. What is a Randomized block design?

17. How can you calculate the specific death rate for a specific section of population?

18. What is crude death rate?

19. What is total fertility rate?

20. Define GMFR.

21. Define a stationary population.

22. List three uses of life tables.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. **Each** question carries **4** marks.

23. Explain Gauss -Markov set up.

24. Explain briefly the basic principles of experimentation.

25. Discuss the efficiency of Randomized block design over Completely randomized design.

26. Explain the procedure of obtaining the estimate of one missing observation in Latin square design.

27. Explain the procedure to collect vital statistics through registration system.

28. Explain how specific death rates are better than crude death rates.

29. Describe force of mortality. What is graduation of mortality rates.

30. Explain how the principle of local control is adopted in Latin Square design.

31. What improvement is brought out by net reproduction rate over gross reproduction rate?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks.

32. Describe the analysis of a randomized block design.

33. State and prove Gauss Markov theorem.

34. What are the various components of a complete life table. Also mention the various uses of life tables.

35. What is Latin square design? Write down the model for its analysis and also the ANOVA table. Obtain the relative efficiency of LSD compared to RBD treating columns as blocks.

(2 × 15 = 30 Marks)
