22U525 (Pages: 2) Name: .....

Reg.No: .....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U ZOL5 B09 - METHODOLOGY IN SCIENCE BIOSTATISTICS AND BIOINFORMATICS

(Zoology - Core Course)

(2019 Admission onwards)

Time : 2.5 Hours Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Define science. What are its features?
2. Define scientific experiment? Explain the objectives and variables in experiments.
3. What is a statistical data? Explain its importance and types.
4. Describe systematic sampling with a note on merits and limitations.
5. What are the rules for constructing diagrams. Mention different types of diagrams.
6. Illustrate any two graphs of frequency distribution.
7. Explain mean and median with a note on its merits and limitations.
8. What is standard deviation?
9. Narrate the procedure for the hypothesis testing in Biostatistics.
10. Differentiate between paired t-test and unpaired t-test.
11. What is PIR and PDB?
12. Give an account on scoring matrices with an example.
13. Explain UPGMA.
14. Compare MALDI – TOF and MALDI QqTOF.
15. PubChem.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

Answer ***all*** questions. Each question carries 5 marks.

16. Explain the importance of models, simulations and virtual testing
17. Explain auxiliary and Ad hoc hypothesis with the help of examples

18. Give a brief overview of standard format of a scientific paper

19. Describe the concept of three ‘R’

20. Construct a frequency table

21. Define the term Bioinformatics. Explain the history and scope of bioinformatics

22. Explain the steps in working with FASTA

23. Discuss in detail about structural Genomic and Functional Genomic.

(Ceiling: 35 Marks)

Part C (Essay questions)

Answer any ***two*** questions. Each question carries 10 marks.

24. Explain measures of dispersion.

25. Explain database search engines.

26. Give a detailed account on working with BLAST and its output.

27. Explain Metagenomics and its applications.

(2 × 10 = 20 Marks)

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