

**FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023****(Regular/Improvement/Supplementary)****ZOOLOGY****GZOL5B09T: METHODOLOGY IN SCIENCE, BIOSTATISTICS AND BIOINFORMATICS****Time: 2 ½ Hours****Maximum Marks: 80****SECTION A: Answer the following questions. Each carries *two* marks.****(Ceiling 25 Marks)**

1. Define hypothesis. Mention the purpose.
2. What are metabolite databases? Provide examples.
3. Comment on the importance of peer review.
4. Write a note on scientific temper.
5. Define empiricism.
6. What are CLUSTAL X and CLUSTAL W?
7. What is FASTA? Mention its uses in genomics.
8. Mention any two methods to improve the accuracy of experimental results.
9. Give four disadvantages of sampling method.
10. Give short notes on standard error.
11. What is Range?
12. Describe the steps of ANOVA.
13. What are the methods of phylogenetic tree construction?
14. Describe primary source of scientific information.
15. What is metagenomics?

**SECTION B: Answer the following questions. Each carries *five* marks.****(Ceiling 35 Marks)**

16. What are Microarrays? List out its uses in biological research.
17. What are the objectives of experiment? Describe the four kinds of experiment.
18. Give an account on Null hypothesis and Alternative hypothesis.
19. What is transcriptomics? Mention the goals of transcriptome studies.
20. Describe the primary sequence databases with suitable examples.
21. What is meant by sequence alignment? Mention the types and methods of sequence alignment.
22. Differentiate between Cladistics and Ontology.
23. Write notes on,  
A) Pyrosequencing                      b) Single molecule sequencing

**SECTION C: Answer any *two* questions. Each carries *ten* marks.**

24. Write a detailed account on the scope and limitation of statistics in life science.
25. Discuss the Constitution of India Article 51A(g).
26. Explain the graphic and diagrammatic representation of data with suitable examples.
27. Elaborate the different databases search engines.

**(2 x 10 = 20 Marks)**