19U519 (Pages: 2) Name: .....

Reg.No: .....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS - UG)

CC19U ZOL5 B09 - METHODOLOGY IN SCIENCE, BIOSTATISTICS AND BIOINFORMATICS

(Zoology - Core Course)

(2019 Admission - Regular)

Time : 2.5 Hours Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

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

1. Differentiate between simulations and virtual testing.
2. Explain the principles of experimental design.
3. List the different sources of scientific information. Explain primary sources.
4. Explain bar diagrams.
5. Explain Ogives.
6. Explain mean and median with a note on its merits and limitations.
7. Explain mean deviation and Range.
8. Calculate standard deviation for the data given below.

Class boundaries	10-20	20-30	30-40	40-50	50-60	60-70
No. of leaves	6	4	2	5	2	1

9. What is Chi square test?
10. Explain repeated measures of ANOVA.
11. Differentiate between the key biosequences in molecular biology.
12. Explain PAM and BLOSSUM.
13. Define FASTA.

14. Differentiate between Quadrupole mass analyzers and Triple Quadrupole.

15. Explain the Molecular Docking in Drug Design.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

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

16. Explain scientific temper with a note on scientific attributes.

17. Describe different types of hypothesis. Explain the thought processes from which scientifc hypotheses originate.

18. Define the term statistics.

19. Elucidate the merits and limitations of sampling.

20. Explain relative frequency table.

21. What are the different possibilities to search SRS database.

22. Explain the relation between evolution and phylogenetics.

23. What is metabolomics and its applications?

(Ceiling: 35 Marks)

Part C (Essay questions)

Answer ***all*** questions. Each question carries 10 marks.

24. Write an essay on diagramatic represenation of data.

25. Describe in detail protein databases and secondary databases.

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

27. Discuss in detail about Sanger's method of DNA sequencing.

(2 × 10 = 20 Marks)

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