R-19

Code: 4301/R

Faculty of Science
B.Sc (Biotechnology) II-Year, CBCS –IV Semester
Regular Examinations –June/July, 2022
PAPER: Bioinformatics and Biostatistics

Time: 3 Hours Max Marks: 80

Section-A

I. Answer any *eight* of the following (8x4=32 Marks)

1. NCBI
2. SWISS-PROT
3. DDBJ
4. BLOSUM
5. Dot matrix
6. BLAST
7. Histogram
8. Concept of Probability
9. Binomial distribution
10. Hypothesis testing
11. t- test
12. ANOVA

Section-B

II. Answer the following (4x12=48 Marks)

13.(a) Define Bioinformatics. Explain its scope and applications in the field of life sciences.

(OR)

(b) What are Biological databases? Give its classification with their significance.

14.(a) Write on types of sequence alignment and their applications.

(OR)

(b) Explain the methods used to construct phylogenetic trees.

15.(a) What is Biostatistics? Explain the kinds of data and variables used based on nature and source used for biostatistics analysis.

(OR)

(b) Describe the measures of central tendencies with their merits and demerits.

16.(a) What is Chi-square test? Write its potential applications.

(OR)

(b) What is correlation and write its significance in the field of Biostatistics.

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PAPER: Bioinformatics and Biostatistics

Time: 3 Hours Max Marks: 80

Section-A

I. Answer any *eight* of the following questions (8x4=32 Marks)

1. ExPASy
2. KEGG
3. PROSITE
4. Scoring matrix- PAM
5. Dot matrix
6. Phylogeny
7. Mean
8. Standard deviation
9. Poisson distribution
10. Z-test
11. Chi-square test
12. Correlation

Section-B

II. Answer the following questions (4x12=48 Marks)

13. (a) What are different Bioinformatics web portals? Explain their significance in the development of life sciences.

(OR)

(b) Write notes on NCBI and SWISS-PROT with significance.

14. (a) Describe sequence alignment and their significance in sequence comparison studies.

(OR)

(b) Explain pair-wise sequence similarity search by BLAST and FASTA.

15. (a) What are data tabulations and its representation methods?

(OR)

(b) Explain the concept of Probability and its significance in the field of Biostatistics.

16. (a) What is student's t-test? Explain its significance for analysis of small samples.

(OR)

(b) Describe ANOVA. Write on its significance and applications.

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