

(6 pages)

Reg. No. :

Code No. : 6511

Sub. Code : ZMBM 31

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022

Third Semester

Microbiology – Core

BIOINFORMATICS AND BIostatISTICS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is an example of homology and similarity tool?
 - (a) BLAST
 - (b) RasMol
 - (c) EMBOSS
 - (d) PROSPECT

2. In which year did the SWISSPROT protein sequence database begin?
 - (a) 1988
 - (b) 1985
 - (c) 1986
 - (d) 1987
3. In laboratory work using computers and computer generated models generally offline is referred to as
 - (a) In silico
 - (b) Dry lab
 - (c) Wet lab
 - (d) All of the above
4. The procedure of aligning two sequences by searching for patterns that is in the same order in the sequences.
 - (a) Sequence alignment
 - (b) Pair wise alignment
 - (c) Multiple sequence alignment
 - (d) All of these
5. Sequence alignment helps scientists,
 - (a) To trace out evolutionary relationships
 - (b) to infer the functions of newly synthesized genes
 - (c) To predict new members of genes families
 - (d) All of these

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6. Alignment method suitable for aligning closely related sequence is,
 - (a) Multiple sequence
 - (b) Pair wise alignment
 - (c) Global alignment
 - (d) Local alignment
7. Fly base is a
 - (a) Biodiversity database
 - (b) Model organism database
 - (c) Literature database
 - (d) Biomolecular database
8. The statistical approach which helps the investigator to decide whether the outcome of the study is a result of factors planned within design of the study or determined by chance is called,
 - (a) Descriptive statistics
 - (b) Inferential statistics
 - (c) Normal distribution
 - (d) Standard deviation
9. A measure of central tendency influenced by extreme scores and skewed distribution is;
 - (a) Mean
 - (b) Median
 - (c) Mode
 - (d) Range

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10. A measure of central tendency in which is calculated by number arranging in numerical order is:
 - (a) Standard deviation
 - (b) Range
 - (c) Median
 - (d) Mode

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the computer age in biological world.

Or

 - (b) Define public biological databases, and add a note on available biological databases
12. (a) Define genomics and add a note on its analysis.

Or

 - (b) What is phylogenetic alignment? add a note on the types of alignment in bioinformatics

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[P.T.O.]

13. (a) Define proteomics, Illustrate the protein databank

Or

(b) Give a brief account on protein modelling.

14. (a) List out the methods of collecting and presentation of data

Or

(b) Distinguish the features of skewness and kurtosis

15. (a) Define inferential statistics, and add a note on its types with examples

Or

(b) Differentiate correlation from regression

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the computational approaches in Biology

Or

(b) What is an operating system, add note on the five different operating system?

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17. (a) Write an essay about the BLAST and FASTA analysis.

Or

(b) Explain the general principles of gene bank, add note on its need and importance.

18. (a) Describe the determination of secondary structure prediction.

Or

(b) Write an essay about the protein modelling

19. (a) Describe the measures of central tendency with suitable example

Or

(b) Explain the measures of dispersion with suitable example.

20. (a) Explain ANOVA with suitable example.

Or

(b) Explain Chi-square test, add suitable example.

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