

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2023
(Third Semester)

Branch – BIOCHEMISTRY

MAJOR ELECTIVE COURSE – I :
BIOINFORMATICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Which of the following does not describe local alignment algorithm?
 - (i) In traceback step, beginning is with the highest score, it ends when 0 is encountered
 - (ii) First row and first column are set to 0 in initialization step
 - (iii) Score can be negative
 - (iv) Negative score is set to 0
- 2 Which of the following scientists created the first Bioinformatics database?
 - (i) Dayhoff
 - (ii) Pearson
 - (iii) Richard Durbin
 - (iv) Michael.J.Dunn
- 3 Which of the following tools is used for the identification of motifs?
 - (i) BLAST
 - (ii) COPIA
 - (iii) PROSPECT
 - (iv) Pattern hunter
- 4 Which of the following is not one of the requirements for implementing algorithms for sequence database searching?
 - (i) Speed
 - (ii) Size of the dataset
 - (iii) Sensitivity
 - (iv) Specificity
- 5 Which of the following is not correct about the Coils and Loops?
 - (i) They are irregular structures
 - (ii) If the connecting regions are completely irregular, they belong to random coils
 - (iii) They are regular structures
 - (iv) The loops are often characterized by sharp turns or hairpin-like structures

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. a. Write a short note on GCG database.
OR
b. List the characteristics of schrodinger.
7. a. Mention the uses of structural database.
OR
b. What are annotations databases?

Cont...

8. a. Elucidate the isoelectric point analysis.
OR
b. Give an account on dot plot alignment.
9. a. What is structure based drug design? Explain.
OR
b. Describe on the computer tools involved in gene mapping.
- 10.a. Mention the importance of NMR structure analysis.
OR
b. Evaluate on the 3D prediction of protein structure.

SECTION -C (30 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 6 = 30)

- 11.a. Discuss the general review of LINUX operating system.
OR
b. Write a detail note on HTML basics.
- 12.a. Elaborately discuss science search engine of PubMed.
OR
b. Organize a specialized organism database and its applications.
- 13.a. Write an essay on phylogenetic tree analysis.
OR
b. Compare and contrast between FASTA and BLAST.
- 14.a. Describe the E-cell medical bioinformatics.
OR
b. Enumerate the nucleic acid structure and function analysis.
- 15.a. Derive the calculation of conformational energy for macromolecules.
OR
b. State the salient features of protein structure databases.

Z-Z-Z

END