PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION – MAY 2023
(Second Semester)

Branch - **BIOTECHNOLOGY**

BIOINFORMATICS

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (5 x 1 = 5)

1   The information retrieval tool of NCBI Genbank is
   (i) Entrez   (ii) STAG
   (iii) Sequin   (iv) text search

2   Which of the following is not a variant of BLAST?
   (i) BLASTN   (ii) BLASTP
   (iii) BLASTX   (iv) TBLASTNX

3   Genome wise gene expression analysis is performed using
   (i) Northern analysis   (ii) Real time PCR
   (iii) DNA microarrays   (iv) Protein arrays

4   Which one of the following tool uses comparative modeling method to predict the three-dimensional structure of a protein?
   (i) Rosetta   (ii) Threader
   (iii) CASP   (iv) Modeller

5   MaTDB is a model organism database for
   (i) *Escherichia coli*   (ii) Mouse
   (iii) *Arabidopsis thaliana*   (iv) Humanbeing

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6   a   Expand and explain the RDBMS.
                         OR
    b   Briefly explain the databases for EST and STS.

7   a   Outline the types of sequence alignment with special emphasis on BLAST.
                         OR
    b   Explain the Neigbour joining method and how it is used in constructing phylogenetic tree?

8   a   Write a short note on Genome annotation.
                         OR
    b   Comment on ORF Prediction

9   a   Explain briefly about the SCOP.
OR
b   Outline the steps involved in threading.

10 a   Write about cell designer and cytoscape.
OR
b   Enlist the model organisms used in bio-informatics.

SECTION -C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)

11 a   Classify the biological databases with special reference to nucleic acid databases.
OR
b   Contrast between scripting language and markup language.

12 a   Outline the five stages of phylogenetic analysis and mention some important tools.
OR
b   Describe the FastA and write about their importance in disease diagnosis.

13 a   Describe in detail about PCR primer and probe designing softwares.
OR
b   Outline the concept and applications of Vector screening.

14 a   Enlist the two major concepts behind homology modeling?Add a note on its applications and limitations.
OR
b   List out the molecular visualization tools and its importance.

15 a   Describe in detail about the recent trends about the drug designing.Add a note on the current scenario of this technology against COVID19.
OR
b   Elaborate the Intellectual Property Rights and explain how it is used in bioinformatics?

Z-Z-Z   END