

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022
(Third Semester)

Branch – BIOCHEMISTRY

DISCIPLINE SPECIFIC ELECTIVE – 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 Applications of bioinformatics include
(i) data storage and management (ii) drug designing
(iii) understand relationship between organism (iv) all the above
- 2 Each record in a database is called an
(i) entry (ii) file
(iii) record (iv) ticket
- 3 Which of the Below-Given Names is an Example of a Homology and Similarity Tool?
(i) BLAST (ii) EMBOSS
(iii) PROSPECT (iv) RasMol
- 4 The identification of drugs through the genomic study is called _____
(i) Genomics (ii) Pharmacogenomics
(iii) Pharmacogenetics (iv) Cheminformatics
- 5 _____ is the name of homologous proteins of similar function present in the same organism.
(i) Xenologs (ii) Paralogs
(iii) Orthologs (iv) Homologs

SECTION - B (15 Marks)

Answer ALL Questions

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

- 6 a Enumerate on scripting language –Perl.
OR
b What is bioinformatics? What are the branches, scope and aim of bioinformatics?
- 7 a Brief note on HGP.
OR
b Narrate the importance of Specialised Organism Database.
- 8 a What do you understand by sensitivity and specificity in BLAST?
OR
b Comment on pattern and motif analysis.
- 9 a Compute the tools for gene mapping.
OR
b Give the applications of bioinformatics in drug discovery, QSAR.
- 10 a Sketch out any one secondary structure prediction of proteins.
OR
b How will you calculate conformational energy for macromolecules using bioinformatics tools?

Cont...

SECTION -C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Write short notes on (i) Commercial software (ii) EMBOSS.
OR
b Give an outline on markup language HTML and XML.
- 12 a Explain specialized organism database.
OR
b What is Entrez? How will you retrieve biological information through Entrez system?
- 13 a Compare PAM & BLOSUM matrices.
OR
b Illustrate Global alignment with suitable example.
- 14 a How will you design primer and probe for PCR?
OR
b Compare and contrast between structural & functional genomics.
- 15 a We often use Hidden Markov Models to predict genes, exons or introns. Outline how a Hidden Markov Model can be used as a binary classifier in such an application. What metrics can be used to evaluate its performance?
OR
b Comment on X-ray and NMR in structural analysis.

Z-Z-Z

END