



Reg. No. :

Name :

Fourth Semester M.Sc. Degree Examination, July 2018
Branch : BOTANY
BO 241 : Bioinformatics
(2013 Admission Onwards)

Time : 3 Hours

Max. Marks : 75

I. Write short notes on the following :

- 1) Local Alignment algorithms.
- 2) Muscle.
- 3) Gen bank.
- 4) PDB.
- 5) Metabolomics.
- 6) Phylogram.
- 7) Sequin.
- 8) Tree View.
- 9) Homology modeling.
- 10) Swiss-Prot.

(10×1=10 Marks)

II. Answer the following in **not** more than **50** words.

11) a) Compare and contrast global and local sequence alignment.

OR

b) What are the different sequence databases ?

12) a) Write a brief note on BLAST and its variants.

OR

b) Briefly explain the algorithm of FASTA.

13) a) Briefly explain the steps involved in searching Nucleotide database through ENTREZ taking human papillomavirus 13 as an example.

OR

b) Briefly explain the common format of sequence data input files of FASTA, NEXUS and MEGA.

P.T.O.



14) a) What are the main constraints encountered in Multiple sequence Alignments ?

OR

b) How do you test the node reliability of a phylogenetic tree ?

15) a) What are microarrays ? How do they help in functional genomics ?

OR

b) What are paralogous and orthologs ?

(5×2=10 Marks)

III. Answer the following questions in **not** more than **150** words.

16) a) What are the different Docking Tools ?

OR

b) What are the advantages and disadvantages involved in computer aided drug design ?

17) a) What is meant by a gene tree ? How does it differ from a species tree ? Explain the tree building softwares MEGA, PAuP* and Rax ML briefly.

OR

b) What are the constraints, advantages, disadvantages and applications of molecular phylogeny in comparison with traditional taxonomy ?

18) a) What are the different types of repetitive sequences found in eukaryotic genome ?

OR

b) What are somatic hybrids ? How do they aid in functional genomics ?
What are DNA microarrays ?

19) a) What are the different techniques for a tertiary structure prediction ?

OR

b) How do protein databases help in proteomics and comparative genomics ?

20) a) What are secondary databases ?

OR

b) What are the applications of computational biology ?



21) a) What are the different tools for searching a databases ?

OR

b) Briefly explain Ras Mol.

22) a) What are the applications of Linux in bioinformatics ?

OR

b) What are the applications of Bio-Perl in Bioinformatics ? (7×5=35 Marks)

IV. Answer the following questions in **not** more than **250** words.

23) a) Briefly explain the applications of Bioinformatics.

OR

b) What are the different DNA sequence evolution models for phylogeny ?

24) a) What are the applications of proteomics ?

OR

b) Briefly explain the significance of HGP on the growth of Bioinformatics.

(2×10=20 Marks)

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