Exam.Code:0437
Sub. Code: 3483

2022

M. Sc. (Biotechnology) Third Semester

MBIO-305: Advances in Genomics and Proteomics

Time allowed: 3 Hours Max. Marks: 80

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

1. Write short notes on the following:-
   a) What are neural networks?
   b) Explain Bridge PCR.
   c) What kind of database Ensembl is?.
   d) What are the genetic basis of drug response in different individuals?
   e) What is repeatmasker?
   f) How can you digest the protein?
   g) Explain MUMMER.
   h) Phylogenetic footprinting
   i) Role of SDS in Protein gel electrophoresis.
   j) How the gene tags such as HIS-tag, FLAG -tag are added to genes? (10x1.6)

Unit I

2 (a) How the large scale genome sequencing and analysis will help in understanding complex traits in higher organisms? give examples.

(b) Discuss any two homology based methods of gene prediction from genome in eukaryotes?

3 (a) Why the genome sequencing coupled with transcriptome is beneficial for identification of gene and gene structures?

(b) What are protein microarrays? Explain its principle and methodology.

8 x 2 =16

Unit II

4 (a) What do you understand by pharmacogenomics and personalized medicine?

(b) Explain BLASTZ and AVID in details.

5 (a) UCSC is one of genome repertoire, Discuss its features and how you can access data from UCSC?

(b) What is comparative genomics? How this can lead to evolution studies.

8 x 2=16

P.T.O.

Unit III

6 (a) How can you isolate and study the proteome of cell?

(b) What is SAGE and why it is not a very popular method of expression analysis compared to other available methods?

7 (a) How the yeast one and two hybrid system helps in studying the protein interactions?

(b) Explain the principle and working 2DE of proteins? 8 x 2=16

Unit IV

8 (a) Explain STRING and GRID databases?

(b) What is chromatin immunoprecipitation helps in genome wide interaction studies?

9 (a) How the proteome analysis helps in drug designing?

(b) What is phylogenetic profiling? 8 x 2=16

x-x-x