Exam.Code:0437
Sub. Code: 3483

2021

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

I. Explain the following:-

a) ePCR

b) Nanopore sequencing

c) BLASTz

d) Pharmacogenomics

e) Drug clearance

f) Stacking gel vs Running gel

g) Hybrid proteins

h) Gene fusion (8x2)

UNIT – I

II. a) Describe the various approaches to find genes in genomic DNA.

b) What are Protein Chips? Explain the concept of protein microarray. (8,8)

III. a) Explain Illumina Next Generation Sequencing method. Give its advantage over conventional sequencing methods.

b) Write principle and working of cDNA microarray. (8,8)

UNIT – II

IV. a) What are genome browsers? Write note on UCSC genome browser.

b) Write short note on the following:-
i) MUMMER
ii) LAGAN (8,8)

V. a) Explain the role of genomics & proteomics in molecular medicine.

b) Explain the genetic basis of variability in drug response. (8,8)

P.T.O.

UNIT – III

VI. a) Give principle and operational procedure of 2D Electrophoresis

b) What is the SAGE? Give application of SAGE in genomic studies. (8,8)

VII. a) Write various advantage and applications of proteome analysis.

b) Explain the concept of protein-protein interaction using yeast two hybrid system. (8,8)

UNIT – IV

VIII. a) Write short note on:-

i) BIND

ii) STRING

b) What do you mean by genome-wide protein interaction studies? Explain. (8,8)

IX. a) Explain the concept of gene neighborhood in predicting protein interactions.

b) Write note on Phylogenetic profiles. (8,8)

x-x-x