Exam.Code:04341
Sub. Code: 3506

1127

M.Sc. (Bio-Informatics)Third Semester

MBIN-8014: Structural Biology

Time allowed: 3 Hours Max. Marks: 60

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

x-x-x

I. Attempt the following:-

a) Define resolving power of a microscope.

b) What are the applications of dark field microscope?

c) Briefly explain how microheterogeneity of proteins is determined by MS

d) What information is present in PDB?

e) Define R-factor in X-ray crystallography.

f) Briefly explain spin coupling? (6x2)

UNIT – I

II. a) Discuss the general design and working principle of SEM.
b) What are the applications of confocal microscopes? (8,4)

III. Write notes of the following:-

a) Fluorescence microscope and its applications

b) Any two TEM grids and their applications (2x6)

UNIT – II

IV. Discuss the technique of peptide mass fingerprinting.

V. What is the principle and equipment used in MS analysis? (2x6)

VI. Discuss analysis of any one post translational modification using MS.

VII. Write notes on the following:-
i) Structure determination using MS
ii) Applications of GC/MS technique (2x6)

P.T.O.

UNIT – III

VIII. a) Compare and contrast NMR and X-ray crystallography.

b) How is a protein structure found in a database? (8,4)

IX. a) How is NMR used for structure determination?

b) What are the disadvantages of X-ray crystallography in protein structure determination? (8,4)

x-x-x