Exam.Code:0441
Sub. Code: 3506

1129

M.Sc. (Bio-Informatics)Third Semester

MBIN-8014: Structural Biology

Time allowed: 3 Hours **Max. Marks: 60**

NOTE: Attempt five 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) SEM

b) Microheterogeneity in proteins

c) PDB

d) Principle of NMR

e) Folding transition states

f) Electron sources used in EM

g) Spin Spin Coupling

h) Leviathan Paradox in protein folding (8x1½)

UNIT – I

II. a) Explain the principle and application of light microscopy?

b) Give brief account of components of fluorescence microscope along with the ray diagram of image formation. (2x6)

III. a) Give general design and working principle of TEM.

b) Write a detailed note on confocal microscopy and its advantage over fluorescence microscope? (2x6)

UNIT – II

IV. a) Explain the principle and instrumentation of LC/MS spectroscopy?

b) How tandem MS/MS is employed in protein sequencing? (2x6)

V. a) Explain how MS is used for determining microheterogeneity in proteins?

b) Explain the methods employed for sample ionization in MS? (2x6)

P.T.O.

UNIT – III

VI. a) Explain Bragg's law in detail and what importance does it has in structure elucidation of protein?

b) Write a short note on chemical shift and spin coupling in NMR? (2x6)

VII. a) Explain the method of structure determination of proteins using NMR?

b) Write note on PDB macromolecular database. (2x6)

x-x-x