62106

Reg. No. | | | | | | | | |

I Semester M.Sc. Degree Examination, March/April - 2025

PHYSICS

Techniques in Biophysics

(CBCS New Scheme 2019-2021)

Paper : PHY108

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates: All Parts are Compulsory

PART - A

I. Answer any Six questions. **(6×5=30)**

1. Explain briefly the hydration of macromolecules.
2. Explain the method of determination of molecular mass of liquid by viscosity measurement.
3. Discuss the principle of ultraviolet visible spectroscopy.
4. Give a brief review of geometrical optics.
5. Discuss the fluorescence microscopy.
6. Explain briefly the working principle of Atomic force Microscope.
7. Explain the seven crystal systems using lattice parameters.
8. What are point groups? Mention the point groups in cubic and tetragonal systems.
9. Mention any five applications of NMR Spectroscopy in Biophysics.

PART - B

II. Answer any FOUR questions. **(4×10=40)**

10. Explain the method of determination of molecular weight of macromolecules by light scattering technique.
11. Explain a) Raman spectroscopy and b) Electron spin resonance spectroscopy
12. Discuss the principle and working of compound microscope.
13. Explain the construction and working of scanning electron microscope.
14. Explain the x-ray diffraction method for data collection and refinement of structures.
15. a) Discuss the theory of Chemical Shift in NMR Spectroscopy.
    b) Describe the spin-spin coupling and relaxation parameters in NMR spectroscopy.
