SEMESTER EXAMINATION-2021
CLASS – B.Sc. (Hons) Biomedical Science-V SUBJECT: Biophysics (Theory)
PAPER CODE: BMS-C501

Time: 3 hours **Max. Marks: 70**
Min. Pass: 40%

Note: Question Paper is divided into two sections: **A and B.** Attempt both the sections as per given instructions.

SECTION-A (SHORT ANSWER TYPE QUESTIONS)

Instructions: Answer any five questions in about 150 words each. Each question carries six marks. (5 X 6 = 30 Marks)

Question-1. Define entropy, enthalpy, free energy change, heat capacity.
Question-2. Define Sedimentation and discuss the physical basis of centrifugation
Question-3. Define Viscosity and give any one methods of measurement of viscosity.
Question-4. Describe in detail about Flow Cytometry
Question-5. Explain Beer Lambert law, light absorption and its transmittance.
Question-6. Explain how exchangeable hydrogen, number of hydrogen bonds, tautomeric forms are identified by infra-red spectroscopy
Question-7. Give a comparison between differential and density gradient centrifugation
Question-8. Give the theory involved in fluorescence spectroscopy
Question-9. How the secondary structure of proteins is analyzed using Circular dichroism.
Question-10. What are the forces involved in biomolecular interactions with examples, Discuss?

SECTION-B (LONG ANSWER TYPE QUESTIONS)

Instructions: Answer any FOUR questions in detail. Each question carries 10 marks. (4 X 10 = 40 Marks)

Question-1. Write a note on Magnetic resonance spectroscopy. Give the medical applications of NMR.
Question-2. Write a note on Mass spectrometry
Question-3. Write a note on protein misfolding and aggregation
Question-4. Write a note on theory of infra-red spectroscopy
Question-5. Write a review of electronic structure of molecules.
Question-6. Write a short note on fluorescent probes used in the study of protein and nucleic acids.
Question-7. Write a short note on fractionation of cellular components using centrifugation with examples.
Question-8. Define the following Colloidal solution, Micelles, reverse micelles