

R09

Code No: C0307**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****M.Tech I - Semester Examinations March/April-2011****BIOCHEMICAL AND BIOPHYSICAL TECHNIQUES
(BIOTECHNOLOGY)****Time: 3hours****Max.Marks:60****Answer any five questions
All questions carry equal marks**

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- 1.a) Explain the structure of bio membranes and propagation of impulses?
b) Explain in detail about the electro chemical properties of bio membranes. [6+6]
2. Write short note on:
a) Capillary array electrophoresis
b) Isoelectric focusing
c) Capillary zone electrophoresis
d) Electro osmotic flow. [3+3+3+3]
- 3.a) Describe electrophoresis technique and the principles to estimate the molecular masses of proteins and nucleic acids.
b) You have been given a sample containing mixtures of proteins; protein A(Mol. Mass 20 kDa, net charge-2), protein B(Mol. Mass. 20 kDa, net charge -6) and protein C(Mol. Mass 20 kDa, net charge - 15). Theoretically how many protein bands do you expect in the native PAGE and in SDS-PAGE? Explain the reason. [6+6]
- 4.a) Describe the principle of ascending and descending paper chromatography.
b) Discuss the choice of filter paper in paper chromatography
c) Describe the methods employed for locating spots in paper chromatography. [4+4+4]
5. Write short note on:
a) Theoretical principles underlying in different chromatographic techniques
b) Theories of chromatography (plate theory, Rate theory) [6+6]
- 6.a) Why is a high vacuum maintained through out the mass spectrometer?
b) Explain in detail about the general rules for interpretation of the mass spectra. [6+6]
7. Write short note on:
a) Structural diagnosis by NMR (qualitative analysis)
b) Quantitative analysis of NMR. [6+6]
8. Explain in detail principle and working of fluorescence activated cell sorter and its applications? [12]

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