Department of Biochemical Engineering and Biotechnology
Indian Institute of Technology Delhi

Physical and Chemical properties of Biomolecules (BEL311)

Major Test, IInd Semester 2009-2010

Marks 40

Time 2 hrs

1. Explain with appropriate example and diagram, (I) How to know using fluorescence Spectroscopy whether a tryptophan residue is near or at the active site? (II). How to interpret, if addition of a ligand causes change in fluorescence intensity, although tryptophan is not at the active site of the protein? (5 + 5)= [10]

2. How do intrinsic, extrinsic and fluorescence Energy transfer experiments can be used to study the mechanism of a protein denaturation process? Explain with proper experimentation and diagram. [10].

3. (a) Explain with proper experimental information and diagram, how the mechanism of refolding process of a protein can be studies using CD spectroscopy? (5).
   (b) How the reversibility of an unfolding refolding transition can be experimentally verified? (5) [10]

4. Depict and explain a structure- function relationship study of a protein using various spectroscopic, biochemical and biophysical tools. [10].