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Total number of printed pages – 2

B. Tech  
PEBT 5401

**Seventh Semester Examination – 2013**

**PROTEIN ENGINEERING**

**BRANCH : BIOTECH**

**QUESTION CODE : C-262**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory and any **five** from the rest.*

*The figures in the right-hand margin indicate marks.*

1. Answer the following questions : 2×10
- (a) Write Bragg law.
  - (b) What is molar ellipticity ?
  - (c) Which type of cuvette is used in UV spectroscopy ?
  - (d) What is gyromagnetic ratio ?
  - (e) What is Faraday cup ?
  - (f) Explain cotton effect.
  - (g) What is the wavelength of NMR origin ?
  - (h) Explain London force.
  - (i) What is velocity gradient ?
  - (j) What is module shuffling ?
2. (a) Describe different secondary structures. Differentiate between motif and domain. 5
- (b) Differentiate between rational designing and directed evolution. 5



P.T.O.

3. (a) Explain different characteristics those can be altered using protein engineering. 5
- (b) How molecular interactions contribute towards maintaining stability and function of the protein ? 5
4. Explain the principle of mass spectrometry. Describe different methods of ionization and mass analysers. 10
5. (a) What is NMR? How can the phenomenon be used for analyzing biomolecules? 5
- (b) Describe different viscometers. 5
6. (a) What do you mean by shielding and deshielding in NMR spectrometry ? How will you measure the effect ? 5
- (b) Describe contribution of various components of protein towards absorbance in UV range. 5
7. (a) What do you mean by fluorescence ? Explain the principle and instrumentation of fluorescence spectroscopy. 5
- (b) Differentiate between CD and ORD. 5
8. Write short notes on any **two** : 5×2
- (a) Hyperfine splitting
- (b) MALDI-TOF
- (c) Peptide plate
- (d) Electron multipliers.

