7ᵗʰ Semester Regular / Back Examination 2015-16
PROTEIN ENGINEERING
BRANCH:BIOTECHNOLOGY
Time: 3 Hours
Max marks: 70
Q Code: T199
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   Answer the following questions: (2 x 10)
  a)   What is shielding?
  b)   What is cotton effect?

  c)   What are super secondary structures?
  d)   Explain methods for crystallography.

  e)   What is native structure?
  f)   Explain protein domain with example.

  g)   Explain fluorescence.

  h)   Explain hyperfine splitting.

  i)   Explain hydrogen interaction.

  j)   What is application of hydrogen deuterium exchange?

Q2   a)   Explain viscosity. Describe different viscometers   (5)

    b)   Name the molecular interactions in protein structure.   (5)

Q3   a)   Explain different methods for XRD   (5)

    b)   Describe fluorescent spectroscopy.   (5)

Q4   (a)   Describe different components of mass spectroscopy with proper diagram.   (5)
    (b)   Explain role of hydrophobic interactions in protein stability.   (5)

Q5 a) Differentiate between CD and ORD.   (5)

    b) Explain secondary structures of protein.   (5)

Q6 a) Explain homology modeling.   (5)

    b) Explain different methods of mutagenesis with suitable diagram.   (5)

Q7 a) Explain any modification of enzyme with protein engineering.   (5)

    b) Explain Ramachandran plot.   (5)

Q8   Write short note on any two: (5 x 2)

    a) Gyromagnetic ratio

    b) Name the groups in classification of protein domains

    c) What is peptide plate?

    d) Rational design