

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: MTECH/PRE-PHD  
BRANCH: BIOTECH

SEMESTER : I  
SESSION : MO/2022

SUBJECT: BE517 PROTEIN ENGINEERING

TIME: 3:00 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1 Describe the forces responsible for protein folding and maintaining its functional structure. [10]
- Q.2(a) How the X-ray crystallography and NMR are useful for protein structure prediction. [5]  
Q.2(b) Describe the principle and application of circular dichroism. [5]
- Q.3 How the protein denaturation processes affects its functionality. Describe the different factors and its effects. [10]
- Q.4 Describe in brief, the type of protein modifications and also how you will identify if a protein is modified. [10]
- Q.5 What different techniques are used for engineering of proteins and how it will improve the protein functionality. [10]

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