

(b) Discuss all the constraints that effect the stability of a-helix.

(c) Mention the role of following in protein chemistry:

(i) Dansyl chloride

(ii) Urea

(iii) High temperature (6,6,3)

5. Differentiate between the following:

(i) Motifs and Domains

(ii) a-helix and β -pleated sheets

(iii) Globular and Fibrous proteins

(iv) Concerted and Sequential model for oxygen binding to hemoglobin (2, 5, 3, 5)

6. (a) Write short notes on the following:

(i) Diseases due to protein misfolding

(ii) Structure and function of silk fibroin

(b) Write the role of the following:

(i) Carboxypeptidase A

(ii) Cynogen bromide

(iii) Trypsin

(iv) Chymotrypsin

(v) Pepsin (10,5)

(200)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5818

K

Unique Paper Code : 2492011102

Name of the Paper : Proteins (DSC)

Name of the Course : **B.Sc. (Hons.) Biochemistry**

Semester : I (NEP)

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are **six** questions.
3. Attempt any **four** questions.
4. **All** questions carry equal marks.
5. Question no. 1 is compulsory.

P.T.O.

5818

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1. (a) State whether true or false with justification :
- (i) Primary structure of a protein determines its function.
 - (ii) Waving of hair is a biochemical process.
 - (iii) Hemoglobin is a monomeric protein.
 - (iv) UniProt is a sequence database.
 - (v) Peptide bond is non-planar.
 - (vi) Protein folding is a random process.
- (b) Give an example of each of the following :
- (i) Metalloprotein
 - (ii) Biologically active peptide
 - (iii) Reagent used to break disulfide bond
 - (iv) Membrane protein
 - (v) Transport protein
 - (vi) Protein chaperone

(12,3)

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2. (a) Explain Ramachandran Plot and its significance.
Why more dihedral angles are permitted for glycine as opposed to isoleucine.
- (b) Discuss various forces stabilizing protein structure.
- (c) Explain protein sequencing by Edman degradation method. (15)
3. (a) Discuss the effect of following on oxygen binding curve of hemoglobin :
- (i) 2,3-BPG
 - (ii) CO_2
 - (iii) H^+
- (b) What is Levinthal's paradox? Describe the role of molecular chaperones in protein folding.
- (c) Give the significance of protein structure databases with suitable examples. (6,5,4)
4. (a) Describe all the steps required for the synthesis of Ala-Arg using Merrifield's solid phase peptide synthesis.

P.T.O.