

NTK/KW/15 –5837

Third Semester B. Sc. Examination

BIOCHEMISTRY

Paper – I

(Macromolecules)

Time : Three Hours]

[Max. Marks : 50

- N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw well labelled diagram wherever necessary.

1. Describe the following reactions of amino acids :—

- (a) Edman's reaction.
(b) Ninhydrin reaction. 10

OR

Describe the Merrifield-Gutt method of peptide synthesis in detail. 10

2. (a) Describe the α -helical structure of proteins. 5

- (b) Describe the structure and biological function of collageh. 5

OR

Write short notes on the following :—

- (c) β -pleated sheet structure of proteins. 5

NTK/KW/15 –5837

Contd.

(d) Quaternary structure of proteins. 5

3. Describe the double helical model of DNA proposed by Watson and Crick. Write the chemical structure of A-T and G-C pairs. 10

OR

- (a) What are Chargaff's rules ? $2 \frac{1}{2}$
 (b) How does native DNA differ from the B-DNA model of Watson and crick ? $2 \frac{1}{2}$
 (c) Describe DNA dehaturation. $2 \frac{1}{2}$
 (d) Write a note on A-DNA. $2 \frac{1}{2}$

4. Describe DNA sequencing method of Sahger. 10

OR

- (a) Describe the cloverleaf model of tRNA. 5
 (b) Describe the structure of Eucaryotic mRNA. 5

5. Answer any ten of the following :—

- (I) Write the names of any two unusual amino acids.
 (II) Write the chemical structure of glycine
 (iii) The bond formed between the α -NH₂ group of one amino acid and the α -COOH group of a second amino acid is commonly known as_____

- (IV) What is meant by a subunit in quaternary structure of a protein? 1
- (v) A disulphate bond is formed between which two amino acids ? 1
- (vi) “All proteins do not have a quaternary structure? Why? 1
- (vii) DNA is a left-handed helix. 1
- (viii) Base stacking is a type of ____ interaction. 1
- (ix) The phosphodiester bond in nucleotides connects the ____ carbon atom of a sugar to the ____ carbon atom of another sugar. 1
- (x) Repetitive base sequences are present in ____ DNA. 1
- (xi) Chemical cleavage method of DNA sequencing is also called ____ . 1
- (xii) DNA Renaturation is done at a temperature 20–25⁰C lower than the _____. 1