

Seat No. : _____

MN-138

March-2019

M.Sc., Sem.-IV

**509 : Organic Chemistry
(Bio-organic Chemistry)**

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) (i) Derive Henderson – Hasselbalch equation, discuss its application in the behaviour of weak acid and buffers. 7
- (ii) Discuss absorption, transport, mobilization and biochemical function of Vitamin-B₆. 7

OR

- (i) Giving example discuss the interaction of water on the structure of biomolecules.
- (ii) Discuss absorption, transport, mobilization and biochemical function of Vitamin-A.
- (B) Answer in **one** or **two** lines any **four** out of **six**. 4
- (i) Define : Buffer solution.
- (ii) Define : Vitamins with examples.
- (iii) Write definition of water.
- (iv) Write structure of Biotin.
- (v) Define : pH scale.
- (vi) Write structure of Vitamin-C.

2. (A) (i) Define and classify peptides. Discuss Edman degradation for the determination of N-terminal amino acid with its significance. 7
- (ii) What is enzyme inhibition ? Give an account of competitive and non-competitive enzyme inhibitors with suitable example. 7

OR

- (i) What is polypeptide linkage ? In a polypeptide, what does the trans N-terminal and C-terminal refer ? Discuss how Sangers' method is useful to identify the N-terminal residue.
- (ii) Give classification of Enzyme. Giving diagram, discuss activation energy with reference to catalyst.

- (B) Answer in **one** or **two** lines any **four** out of **six**. **4**
- (i) Write definition of protein.
 - (ii) What is Enzymes ?
 - (iii) What is Sanger's reagent ?
 - (iv) Give rules for nomenclature of Enzyme.
 - (v) Write name of Edman reagent.
 - (vi) Define : Enzyme inhibition.
3. (A) (i) Give complete classification of Carbohydrate and its general nomenclature. **7**
- (ii) What are nucleic acids ? Give various hydrolysis reactions of nucleic acids and their corresponding products. **7**
- OR**
- (i) Define polysaccharides and describe the structure of three homopolysaccharides.
 - (ii) Describe the structure of DNA and its replication.
- (B) Answer in **one** or **two** lines any **three** out of **five**. **3**
- (i) Define Mutarotation.
 - (ii) Give inter-conversion of Cytosine to Uracil.
 - (iii) What are reducing and non-reducing sugar ?
 - (iv) Give name and structure of two purine bases present in DNA.
 - (v) Give the source of Carbohydrates.
4. (A) (i) Write a note on Phospholipids and Sphingolipids. **7**
- (ii) Discuss biosynthesis of Fatty acid. **7**
- OR**
- (i) What are lipids ? Give classification of lipids giving examples of each class.
 - (ii) How will you check purity of fats and oils with different parameters ?
- (B) Answer in **one** or **two** lines any **three** out of **five**. **3**
- (i) Define : Iodine number.
 - (ii) Define : amphipathic lipid.
 - (iii) What is rancidity ?
 - (iv) Give functions of essential fatty acids.
 - (v) What is Fats ?
-