

Seat No. : \_\_\_\_\_

**AI-107**

**April-2015**

**M.Sc., Sem.-IV**

**Chemistry**

**CHE (O) 509 : (Bio-organic Chemistry)**

**Organic Chemistry**

**Time : 3 Hours]**

**[Max. Marks : 70**

- Instructions :** (1) All questions are compulsory.  
(2) Figures to the right indicate full marks.

1. Answer the following :

- (A) Giving examples discuss the role of functional group in biological system. **7**

**OR**

What is buffering ? Discuss Henderson-Hasselbalch equation to check behavior of weak acid and buffers.

- (B) Discuss absorption, transport, mobilization and biochemical function of folic acid. **7**

**OR**

Discuss absorption, transport, mobilization and biochemical function of Pyridoxine.

2. Answer the following :

- (A) What are peptides ? Discuss Edman and Sanger method for the determination of N-terminal amino acid with significance. **7**

**OR**

Giving classification of enzymes discuss the catalytic activity of enzyme with suitable example.

- (B) What is enzyme inhibition ? Give an account of competitive and non competitive enzyme inhibitors with suitable example. **7**

**OR**

What is the active site of enzyme ? Give a brief account on enzymatic reaction of lysozyme.

3. Answer the following : 7
- (A) Name the components present in nucleotide and giving example show the order in which they are linked together. 7
- OR**
- What are nucleic acids ? Give various hydrolysis reactions of nucleic acid & their corresponding products.
- (B) Giving differences in DNA & RNA, discuss the structure of DNA and its replication. 7
- OR**
- Give complete classification of carbohydrate and its general nomenclature.
4. Answer the following : 7
- (A) Name any three essential fatty acids. Discuss biosynthesis of fatty acids. 7
- OR**
- Enlist methods for qualitative analysis of oils. Discuss any two methods to check purity of fats & oils.
- (B) What are lipids ? Give general classification of lipids and discuss their biological importance. 7
- OR**
- Give a brief account on the biological functions of phospholipids and sphingolipids.
5. Answer the following : 14
- (i) Give name and structure of vitamers of retinol.
  - (ii) Give one biological function of Vit-E.
  - (iii) Give the name and structure of at least two Vit-K groups.
  - (iv) Show how oxidized flavin is converted to reduced flavin.
  - (v) Giving equation show conversion of  $\text{NAD}^+$  to  $\text{NADH}$  and its significance.
  - (vi) Give rules for nomenclature of enzyme.
  - (vii) How l (+) lactic acid is converted to l (+) alanine ?
  - (viii) How cytosine is converted to Uracil ?
  - (ix) Give name and structure of two purine bases present in DNA.
  - (x) What is induced dipole moment ?
  - (xi) Draw the structure of milk sugar in Haworth projection.
  - (xii) Give structures of TAG, DAG and MAG with reference to glycol.
  - (xiii) What is meant by hydrolytic rancidity and oxidative rancidity ?
  - (xiv) Differentiate wax and other lipids on the basis of their structural unit.