

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 :

(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 :

(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 :

(i) Give name and structure of vitamins 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  $\text{L}(+)$  lactic acid is converted to  $\text{L}(+)$  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

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