Exam.Code:0432
Sub. Code: 3448

2053

**M.Sc. (Applied Chemistry/Pharmaceutical) Second Semester**
**Paper – 202: Bio-Organic Chemistry**

**Time allowed: 3 Hours** **Max. Marks: 60**

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.*

x-x-x

1. (a) Explain plasmalogens.
(b) Distinguish between gangosides and cerebrosides.
(c) What is the effect of UV radiations on DNA?
(d) Describe oxidative-phosphorylation.
(e) Define zymogens.
(f) Depict the function of tetrahydrofolic acid conjugates.
(g) What do you understand by plasmids?
(h) Explain polymerase chain reaction. (8 × 1.5)

## UNIT-I

2. (a) Write a short note on bacterial polysaccharides, cardiolipids and metalloproteins.
(b) Discuss the structure of porphyrins and their importance in biological systems. (6, 6)

3. (a) Depict the forces maintaining secondary and tertiary structure of proteins.
(b) Illustrate the structure and functions of lectins. (6, 6)

## UNIT-II

4. (a) Diagrammatically represent the tricarboxylic acid cycle (Krebs cycle) with specific enzyme-coenzyme combinations.
(b) Discuss the uncouplers of oxidative phosphorylation. (8, 4)

5. (a) Give a brief account of B-DNA and Z-DNA structure.
(b) Elaborate the mechanism of ATP synthesis.
(c) Explain glyconeogenesis. (5, 5, 2)

## UNIT-III

6. (a) Elaborate the structure and function of following coenzymes:
(i) NAD & NADP (ii) Thiamine pyrophosphate
(b) With suitable examples, discuss the enzyme based biosensors. (6, 6)

7. Explain the followings:
(i) Significance of $K_m$ & $V_{max}$ of enzymes
(ii) Competitive and non-competitive enzyme inhibition
(iii) Characteristics of immobilized enzymes (4, 4, 4)

P.T.O.

## UNIT-IV

8. Describe the followings:
   (i) Recombinant DNA technology and genetic engineering
   (ii) Operon concept and membranes channels **(6, 6)**

9. (a) Explain ionophores and give their applications.
   (b) Discuss protein synthesis and role of various types of RNA. **(4, 8)**

*x-x-x*