Exam.Code:0432
Sub. Code: 3448

1059

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

Time allowed: 3 Hours Max. Marks: 60

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

x-x-x

I. Attempt the following:-

a) Differentiate between lipoproteins and nucleoproteins.

b) What are the functions of lectins?

c) Define oxidative phosphorylation.

d) Explain the effect of UV radiations on DNA.

e) Define competitive enzyme inhibition with suitable example.

f) List the function of thiamine pyrophosphate.

g) What is Operon concept?

h) Explain vectors and liposomes with examples. (8x1½)

UNIT – I

II. a) Elaborate the following:-
i) Different classes and function of polysaccharides
ii) Structure of porphyrins and their importance in biological systems

b) Define gangosides and cerebrosides. (10,2)

III. a) Discuss the forces maintaining secondary and tertiary structure of proteins.

b) Give a brief account of the followings:
i) Triacylglycerol phospholipids and proteoglycans
ii) Criteria of protein purification (6,6)

UNIT – III

IV. a) Give one method of isolation of RNA.

b) Differentiate between the structure of Z-DNA and B-DNA.

c) Describe the inhibitors of nucleotide biosynthesis. (3x4)

V. a) Elaborate the various steps involved in the Krebs cycle.

b) Discuss the followings in brief:
i) Hypo and hypercromaticity (DNA)
ii) Urea cycle (6,6)

P.T.O.

UNIT – III

VI. a) Describe the structure and function of coenzymes NAD, lipoic acid and biotinyl coenzyme-A.

b) Explain the followings:
i) Michelis-Menton equation and its significance
ii) Enzyme based biosensors (6,6)

VII. a) Explain immobilized enzymes. Give any two methods of enzyme immobilization. Also list their applications in brief.

b) With any suitable example, discuss the mechanism of enzymatic catalysis (8,4)

UNIT – IV

VIII. Write a short note on the following:-

a) Role of various types of RNA and enzyme induction

b) Fluid mosaic model of membrane structure (6,6)

IX. a) Describe ionophores and their applications.

b) Discuss the insertion of foreign DNA into cells and polymerase chain reaction. (6,6)

x-x-x