

2071

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. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Attempt the following:-

- a) Define lectins with its important function.
- b) What are metalloproteins?
- c) What is the effect of UV radiations on DNA?
- d) Explain Hypo and hyperchromaticity (Nucleic acid).
- e) Define allosteric enzyme with example.
- f) Depict the structure and the function of thiamine pyrophosphate.
- g) What is polymerase chain reaction?
- h) Explain recombinant DNA technology.

(8x1½)

UNIT - I

II. Describe the following:-

- a) Mucopolysaccharides and bacterial polysaccharides
- b) Importance of porphyrins in biological systems

(2x6)

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

- b) Explain 1 triacylglycerol phospholipids, cardiolipids and gangosides.

(2x6)

UNIT - II

IV. a) Briefly discuss the different methods of isolation of RNA.

- b) Elaborate the general reactions of amino acid metabolism.

(2x6)

V. a) Depict the various steps involved in the Glycolysis.

- b) Write a short note on uncouplers of oxidative phosphorylation.

(2x6)

UNIT - III

VI. a) Discuss the structure and function of following coenzymes:

- i) Lipoic acid
- ii) FAD

P.T.O.

(2)

- b) Explain immobilized enzymes and list their characteristics.
c) How will you determine K_m & V_{max} of enzymes? (5,4,3)

VII. Give a brief account of the following:-

- a) Kinetics of competitive and non-competitive enzyme inhibition
b) Enzyme based biosensors and applications of immobilized enzymes (5,7)

UNIT - IV

- VIII. a) Discuss micro RNA and its functions. Also list the inhibitors of protein synthesis.
b) Elaborate one important method to study gene expression. (7,5)

IX. a) Define the followings terms:

- i) Membrane channels
- ii) Liposomes
- iii) Vectors
- iv) Plasmids
- v) Gene cloning

- b) Describe membrane fluidity and mechanism of organic solute transport. (5,7)

x-x-x