Exam.Code:0432
Sub. Code: 2958

1056

M.Sc. (Applied Chemistry/Pharmaceutical) Second Semester
Paper-202: Bioorganic 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) What are lectins?

b) State criteria of protein purification.

c) Differentiate native B-DNA and Z-DNA.

d) What are uncouplers of oxidative phosphorylation & how do they act?

e) Define zymogens, isozymes and co-enzymes.

f) State function of any three co-enzymes.

g) State characteristics of genetic code.

h) What are vectors? Name one to insert about 300-kb of DNA. (8x1½)

UNIT – I

II. a) Write notes on mucopolysaccharides and blood group substances.

b) Draw structural formulae and name one compound from each of the following lipids:

phosphoglyceride, plasmalogen, cerebroside, ganglioside, triacylglycerol and sphingomyelin. (6,6)

III. a) Write a note on lipoproteins and glycoproteins.

b) What are porphyrins? State their biological significance. (8,4)

UNIT – II

IV. a) Write structure of B-DNA. Show effect of temperature on it.

b) State significance of glyoxylate and HMP pathways.

c) Write only redox reactions of Kreb's cycle. (4,4,4)

V. a) Differentiate fatty acid biosynthesis and beta-oxidation.

b) Write transamination and oxidative deamination of amino acids.

c) Draw in sequence components of electron transport chain. (4,4,4)

UNIT – III

VI. a) Classify enzymes with examples.

b) Discuss structure and function of NAD, FAD & thiamine pyrophosphate. (6,6)

VII. Derive Michaelis-Menten equation. How are Km and Vmax determined? What are various types of inhibitors? Also define allosteric enzymes with one example. (12)

UNIT – IV

VIII. Write DNA replication and polymerase chain reaction. (12)

IX. Describe mechanisms of transport across cell membranes. (12)

x-x-x