Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.PHARM/SEM-4/PT-404/2012

2012

PHARMACEUTICAL CHEMISTRY (Bio-Chemistry)

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

i) In anerobic conditions, pyruvic acid is converted to

a) $CO_2 + H_2O$ b) Lactic acid

c) Acetyl CoA d) Succinyl CoA.

ii) Which ketone body is not energy yielding ?

a) Acetone b) Acetoacetate

c) β-hydroxybutyrate d) α-hydroxybutyrate.

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iii) The term 'standard free energy' is represented by

a) ΔG b) ΔH

c) ΔS d) $\Delta G°$.

iv) The only membrane bound enzyme of ETC is

a) Complex 1 b) Complex 2

c) Complex 3 d) Cytochrome oxidase.

v) The fluidity of biological membrane is due to the presence of

a) Phospholipids b) Cholesterol

c) Integral proteins d) Sphingolipids.

vi) Complete degradation of triacylglycerol to glycerol and free acid is known as

a) Lipolysis b) Glycolysis

c) Thiophorase d) Starvation.

vii) In gluconeogenesis process, which is the major substrate ?

a) Amino acids b) Glycogen

c) Sucrose d) Maltose.

viii) Enzyme responsible for the synthesis of Leukotrienes is

a) COX-I b) COX-II

c) LOX d) Isomerase.

ix) Which of the following is not a sulphur containing Amino acid ?

a) Cysteine b) Cystine

c) Methionine d) Serine.

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x) TAC cyde takes place mainly in

a) Mitochondria b) Cytoplasm

c) Ribosome d) None of these.

xi) The pathway considered as an alternative in Glycolysis and Krebs cycle is

a) Glycogenesis b) Glycogenolysis

c) Neoglucogenesis d) HMP shunt.

xii) Galactosemia is a genetic disease, due to deficiency of which enzyme ?

a) Glucose-2-phosphate transferase enzyme

b) Galactose-1-phosphate-uridylyl transferase enzyme

c) Galactokinase enzyme

d) Phosphoglucomutase enzyme.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Write a short note on cholesterol biosynthesis.
3. Explain the role of sugar in nucleotide biosynthesis.
4. a) Why do proline and glycine not fit into the α-helix ?

   b) Define fibrous protein and globular protein with example. 2 + 3
5. Write in short about denaturation of proteins.
6. Write a short note on the biosynthesis of the prostaglandins and leukotrienes.

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GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) Write a note on current concept of cell membrane structure.

   b) Discuss various types of transport system across plasma membrane. 7 + 8

8. What do you mean by E.C. number of an enzyme ? Derive Michaelis. Menten equation and describe enzyme kinetics briefly with proper plots. Briefly discuss about the enzyme and isoenzyme used in clinical diagnosis. Write down the effect of activators on enzyme activity. 2 + 6 + 2 + 5

9. Write down the ketogenesis pathway. How are ketone bodies utilized ? What is the basic difference between fatty acid biosynthesis and fatty acid degradation ? How does transport of fatty acids occur in beta oxidation into mitochondria through carnitine shuttle ? 5 + 3 + 3 + 4

10. a) Discuss on the various factors contributing to the large decrease in free energy during a biochemical reaction.

    b) Why is TCA cycle considered as an open cycle ?

    c) Schematically represent TCA cycle. 8 + 2 + 5

11. a) Schematically represent the Electron Transport chain depicting the sites for ATP synthesis.

    b) Explain why conversion of NADH to NAD^+ yields 3 molecules of ATP while that of FADH to FAD^+ yields only 2.

    c) Name the inhibitors of ETC.

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