



Name :

Roll No. :

Invigilator's Signature :

**CS/B.PHARM (O)/SEM-4/PT-404/2010
2010**

PHARMACEUTICAL CHEMISTRY (Biochemistry)

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)

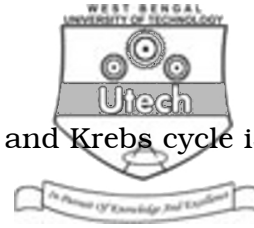
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

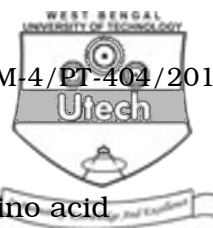
- i) Sulphur containing amino acid is
- a) Methionine b) Leucine
c) Valine d) Asparagine.
- ii) The principal site of glucose production in the human body is the
- a) blood b) liver
c) muscle tissue d) pituitary gland.
- iii) Mitochondria contains
- a) Cytochrome oxidase
b) Succinic acid oxidase
c) Cytochrome C
d) all of these.

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[Turn over



- iv) An alternative pathway for Glycolysis and Krebs cycle is
- a) Glycogenesis
 - b) Glycogenolysis
 - c) Neoglucogenesis
 - d) Pentose phosphate pathway.
- v) In the term Cyt b₅₆₂, 562 refers to
- a) molecular weight
 - b) density
 - c) absorption maxima
 - d) specific gravity.
- vi) In an exergonic reaction, ΔG value is
- a) +ve
 - b) -ve
 - c) zero
 - d) unity.
- vii) Which of the following is not an amino acid ?
- a) Glutamic acid
 - b) Aspartic acid
 - c) Glutamine
 - d) Palmitic acid
 - e) Leucine.
- viii) The unique sequence of amino acids denotes the structure of protein.
- a) secondary
 - b) primary
 - c) quaternary
 - d) tertiary.
- ix) Human brain requires glucose per day
- a) 122 gm
 - b) 121 gm
 - c) 120 gm
 - d) 130 gm.



- x) Each turn of α -helix contains
- a) 3.2 amino acid b) 3.3 amino acid
c) 3.6 amino acid d) 3.4 amino acid.
- xi) Fatty acid oxidation in human is mediated by
- a) Coenzyme A b) Tryptophan
c) Amylase d) Glucuronidase.
- xii) The number of peptide bonds present in decapeptide is
- a) 10 b) 9
c) 8 d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Write down the diagnostic importance of enzymes.
3. Briefly describe synthesis of Leukotrienes.
4. Explain Michaelis-Menten equation with graphical representation. Define K_m value. 4 + 1
5. Write short note on Fluid Mosaic Model.
6. a) Calculate the ΔG value for the following reactions :
 - i) $\text{Acetate} + 2\text{H}^+ + 2e^- \rightarrow \text{Acetaldehyde} + \text{H}_2\text{O}$
 - ii) $\text{Acetaldehyde} + 2\text{H}^+ + 2e^- \rightarrow \text{Ethanol}$

Given, for reaction (i) $E_0 = -0.468$ at pH 7

for reaction (ii) $E_0 = -0.163$ at pH 7 $2 \frac{1}{2}$
- b) Define α , β and ω -oxidation of fatty acids. $2 \frac{1}{2}$



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Enumerate the influence of temperature, pH and substrate concentration on Enzyme activities with graph. Explain isoenzymes with suitable example. 6 + 4
- b) Mention various classes (types) of enzymes as per I.U.B., their functions and one example of each. 5
8. Describe the secondary structure of a protein. What do you mean by protein denaturation ? Explain it with example. 5 + 10
9. Discuss the essential features of Krebs cycle. Name the various enzymes and co-enzymes, that are involved in the aerobic oxidation of glucose. State the significance of Krebs cycle towards body metabolism. 6 + 4 + 5
10. Explain Beta-oxidation process of Palmitic acid and energetics associated with it. What is the structure of Cholesterol. 9 + 4 + 2
11. Write short notes on any *three* of the following : 3 × 5
- a) Respiratory chain
 - b) Concept of free energy
 - c) Effect of amino acid sequence on the stability of an α -helix
 - d) Gluconeogenesis.