

Name :
Roll No. :
Invigilator's Signature :

CS / B.PHARM (OLD) / SEM-4 / PT-404 / 2011

2011

**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) A component of coenzyme A is
- | | |
|---------------------|----------------|
| a) inosine | b) thiamine |
| c) pantothenic acid | d) riboflavin. |
- ii) The complete oxidation of glucose yields
- | | |
|-----------|------------|
| a) 32 ATP | b) 36 UTP |
| c) 40 GTP | d) 38 ATP. |
- iii) Glutathione peroxidase contains
- | | |
|-----------|--------------|
| a) sodium | b) vanadium |
| c) nickel | d) selenium. |

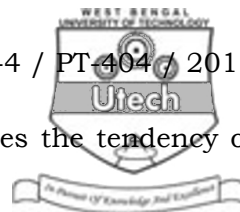
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[Turn over



- iv) Entry of activated fatty acid is mediated by
- a) carnitine shuttle
 - b) malate shuttle
 - c) creatine shuttle
 - d) glycerophosphate shuttle.
- v) Which of the following enzymes is not involved in Krebs cycle ?
- a) Aconitase
 - b) Isocitrate dehydrogenase
 - c) Succinate dehydrogenase
 - d) Aldolase.
- vi) In the final step of electron transport chain, electron is accepted by
- a) NAD^+
 - b) CoQ
 - c) Cytochrome oxidase
 - d) Oxygen.
- vii) A symporter
- a) moves solute molecules in opposite directions
 - b) moves solute molecules in the same direction
 - c) depends on energy
 - d) moves only one solute molecule.
- viii) Under wellfed condition highest amount of glycogen is stored in
- a) brain
 - b) skeletal muscle
 - c) liver
 - d) kidney.
- ix) Catalase breaks down
- a) water
 - b) hydrogen peroxide
 - c) superoxide
 - d) hypochlorite.

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- x) High negative redox potential indicates the tendency of the redox pair to
- a) release electrons more readily
 - b) accept electrons more readily
 - c) accept hydrogen
 - d) none of these.
- xi) The level of serum Lipase is increase in
- a) myocardial infarction b) renal failure
 - c) acute pancreatitis d) diabetes.
- xii) Elevation of blood uric acid levels tends to produce
- a) Dizziness b) Dyspnea
 - c) Hypertension d) Gout.

GROUP - B

(Short Answer Type Questions)

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

2. Briefly explain the role of sugar in nucleotide biosynthesis.
3. Write about oxidative phosphorylation.
4. What are Ketone bodies ? Write about the biological significance of these and their metabolism. 2 + 3
5. Write with examples how competitive enzyme inhibitors are important from drug designer's point of view.
6. Define iso-enzyme and explain their clinical significance.

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GROUP – C

(Long Answer Type Questions)

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

7. a) Define Bioenergetics. What is Gibb's Free energy concept ? Express free energy as a function of entropy and enthalpy. 2 + 3
- b) At equilibrium, what is the relationship between free energy change and equilibrium constant ? How does ATP act as a link between exergonic and endergonic biochemical reactions. Name four high energy compounds of biochemic system. 4 + 4 + 2
8. Define active transport and glucose transport. Discuss about transport processes across biological cell membrane. 2 + 2 + 11
9. a) Describe the steps of β -oxidation of saturated fatty acid with even number of carbon atoms. 10
- b) Write about the energetic of the above process. 5
10. What are the different levels of structural organization of proteins ? How does Ramachandran's plot help in explaining the conformational restriction of a protein ? 10 + 5
11. Write about different factors influencing the rate of an enzyme catalyzed reaction. Explain Michael's Menten Plot and Line weaver Burk plot in the context of enzyme kinetics. 10 + 5

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