

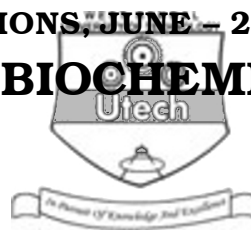
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ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE - 2009
PHARMACEUTICAL CHEMISTRY (BIOCHEMISTRY)
SEMESTER - 4



Time : 3 Hours]

[Full Marks : 70

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) Which is not an essential amino acid ?

- | | |
|--------------|---------------|
| a) Threonine | b) Tryptophan |
| c) Valine | d) Glutamine. |

ii) Which substance yields the largest number of calories per gram ?

- | | |
|-------------|------------------|
| a) Fats | b) Carbohydrates |
| c) Proteins | d) Vitamins. |

iii) Aerobic oxidation of carbohydrate is mediated via

- | | |
|-------------------|-----------------------------|
| a) Urea cycle | b) Tricarboxylic acid cycle |
| c) E.M.P. Pathway | d) Pentose phosphate shunt. |

iv) Acetyl CoA is converted to Malonyl CoA by the enzyme

- a) Acetyl S-enzyme
- b) Acyl malonyl enzyme
- c) B-ketoacyl-ACP reductase
- d) Acetyl CoA Carboxylase Biotin.

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

a) ΔG

b) ΔH

c) ΔS

d) ΔG°



vi) Biotin is a/an

a) Enzyme

b) Vitamin

c) Isoenzyme

d) Coenzyme.

vii) Ninhydrin reaction is given by

a) amino acids

b) GABA

c) ALA

d) DOPA.

viii) The two final products in the β -oxidation of odd chain fatty acids are

a) Acetyl CoA & Malonyl CoA

b) Acetyl CoA & Acetyl CoA

c) Acetyl CoA & Propionyl CoA

d) Acetyl CoA & Succinyl CoA.

ix) Glycogenesis takes place mainly in

a) pancreas

b) intestine

c) spleen

d) liver.

x) In man, the major nitrogenous excretion product is

a) Ammonia

b) Urea

c) Amino acid

d) Purine & Pyrimidines.



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xi) Which of the following is not a Sulphur containing Amino Acid?

- a) Cysteine
- b) Cystine
- c) Methionine
- d) Serine.



xii) Enzyme responsible for the synthesis of Leukotrienes is

- a) COX-I
- b) COX-II
- c) LOX
- d) Isomerase.

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GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. Write a note on oxidative phosphorylation and its control.
3. What do you mean by protein denaturation ? Explain it with example.
4. Describe how polysaccharides are converted to glucose-1 phosphate.
5. Write a short note on the EMP Pathway.
6. Explain schematically how various Eicosanoids are biosynthesized from membrane phospholipid mentioning the various enzymes responsible.

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GROUP – C**(Long Answer Type Questions)**Answer any *three* of the following.

3 × 15 = 45

7. a) What is redox potential ?
- b) Describe briefly the different oxidation reactions.
- c) Discuss the superoxide metabolism. 2 + 8 + 5
8. a) Give an account of β -oxidation of palmitic acid (C_{16}) & its energetics.
- b) What do you mean by essential fatty acids ?
- c) What are ketone bodies ? How are they formed & utilized ? 8 + 2 + 5
9. Describe the role of adipose tissue in lipid metabolism. Describe the process of fatty acid transport from extracellular place to mitochondrial matrix. 10 + 5
10. Discuss the essential features of Krebs's cycle. Name the various enzymes and co-enzymes, that are involved in the aerobic oxidation of glucose. State the significance of Krebs's cycle towards body metabolism. 15
11. a) Write an account on the Fluid Mosaic Model with diagram.
- b) Write a few lines about the IUB system of nomenclature for enzymes.
- c) What are the characteristics of the Active Site of an enzyme ? 5 + 5 + 5
12. a) Discuss about the energy rich compounds in the light of bond strain, ionization, isomerization and resonance.
- b) What are the factors that can affect enzyme activity ? $7\frac{1}{2} + 7\frac{1}{2}$

 END

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