

B.Sc. (With Credits)-Regular-Semester 2012 Sem V
B.Sc.3501 : Biochemistry : Paper-I (Metabolism-I)

P. Pages : 2

Time : Three Hours



GUG/W/16/3352

Max. Marks : 50

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- Notes : 1. All questions are compulsory & carry equal marks.
2. Draw diagrams wherever necessary.

1. Write a detailed account of high energy phosphate compounds. Add a note on role of ATP as energy currency of the cell. **10**

OR

Describe the following techniques used in metabolic studies.

- i) Studies with Mutants.
- ii) Studies with isotopes as tracers.
- iii) Fistula and catheterization.

2. Describe TCA cycle in detail. Add a note on its regulation. **10**

OR

Describe in detail Gluconeogenesis with special reference to their bypass reactions.

3. a) Write a note on redox potential. **2½**
b) Explain the role of excised organ in metabolic studies. **2½**
c) Explain the entry of fructose, mannose & galactose in glycolytic pathway. **2½**
d) Write a note on glyoxylate pathway. **2½**

OR

- e) Write how energy status of a cell is expressed by energy charge? **2½**
f) How are cell organelles used in metabolic studies? **2½**
g) Give the hormonal control of the process of glycogenolysis. **2½**
h) Write a note on uncouplers of oxidative phosphorylation. **2½**
4. a) Explain how ΔG° of a reaction is determined? **2½**
b) Explain how microorganisms are used to study metabolism. **2½**
c) Write a note on Cori cycle. **2½**
d) Explain the mechanism of ATP formation in ETC. **2½**

OR

- e) Write a note on ATP – ADP cycle. 2½
- f) How are intact organisms used in metabolic studies? 2½
- g) Explain the energetics of glycolysis. 2½
- h) Write a note on substrate level phosphorylation. 2½

5. Answer **any ten** of the following.

- a) What is phosphorylation potential? 1
- b) What is the difference between ΔG° & $\Delta G^{\circ'}$? 1
- c) Define free energy. 1
- d) Name the scientist who studied metabolism by organ slices manometrically. 1
- e) What is meant by organectomy? 1
- f) Give one advantages of use of tissue culture technique to study metabolism. 1
- g) Glycogen synthetase is the key enzyme of glycogenesis (True or False) 1
- h) Name any one enzyme of PDH complex. 1
- i) What is a futile cycle? 1
- j) Name any one inhibitor of oxidative phosphorylation. 1
- k) Define the term oxidative phosphorylation. 1
- l) What is F_0 & F_1 in ATP synthase? 1
