

NKT/KS/17/5182

Bachelor of Science (B.Sc.) Semester-V (C.B.S.) Examination

BIOCHEMISTRY

(Metabolism)

Paper—1

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams wherever necessary.

1. Give a detailed account of ATP as high energy phosphate compound and also discuss why it has been called as energy currency of the cell. 10

OR

Describe the following –

- (a) Creatine phosphate
 - (b) Phosphoenol pyruvate
 - (c) Acetyl CoA. 10
2. Describe following techniques employed in metabolic studies :–
 - (a) Studies with micro-organisms 2½
 - (b) Studies with tissue culture 2½
 - (c) Catheterization 2½
 - (d) Organ ectomy. 2½

OR

Describe in detail following techniques used to study metabolism :

- (a) Use of tracers 5
- (b) Use of mutants. 5

3. Describe in detail glycolytic pathway. Add a note on its energy considerations. 10

OR

Give a detailed account of citric acid cycle. 10

4. (a) Describe in detail by pass reactions of gluconeogenesis. 5
(b) Write a note on glyoxylate cycle. 5

OR

Describe the process of substrate level and oxidative phosphorylations. Also discuss specific inhibitors and uncouplers of oxidative phosphorylation. 10

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

- (i) What is meant by free energy ? 1
- (ii) Define enthalpy. 1
- (iii) Give one point of difference in ΔG° & $\Delta G'^\circ$. 1
- (iv) Name any fluid used for organ perfusion. 1
- (v) What is experimental fistula ? 1
- (vi) Sulfonamide is structural analogue of _____. 1
- (vii) What is meant by "amphibolic" pathway ? 1
- (viii) Name the key enzyme of glycogenesis. 1
- (ix) In PDH complex P stands for _____. 1
- (x) How many ATP molecules are generated by Malate-Aspartate shuttle system ? 1
- (xi) ATP synthase and complex V are same (True or False) 1
- (xii) Name the scientist who proposed "Chemiosmotic Hypothesis". 1