

**B.Sc. Part-II (Semester-III) Examination****BIOCHEMISTRY****(Intermediary Metabolism)**

Time : Three Hours]

[Maximum Marks : 80

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

(2) Draw diagrams wherever necessary.

1. (A) Fill in the blanks :

- (i) \_\_\_\_\_ is a first complex of ETC. ½
- (ii) Carbohydrate is stored in form of \_\_\_\_\_ in liver. ½
- (iii) \_\_\_\_\_ cycle is also termed as common metabolic pool. ½
- (iv) \_\_\_\_\_ is one of bile pigments. ½

(B) Choose the correct alternative :

- (i) Lock and Key theory was proposed by : ½
  - (a) Leuwenhoek
  - (b) Koshland
  - (c) Darwin
  - (d) Emil Fischer
- (ii) End product of aerobic glycolysis : ½
  - (a) Acetyl CoA
  - (b) Lactate
  - (c) Pyruvate
  - (d) CO<sub>2</sub> and H<sub>2</sub>O
- (iii) Glucose-6 phosphate is an allosteric inhibitor of : ½
  - (a) Glucokinase
  - (b) Hexokinase
  - (c) Phosphohexoisomerase
  - (d) None of the above
- (iv) The following is required as reductant in fatty acid synthesis : ½
  - (a) NADH
  - (b) NADPH
  - (c) FMN
  - (d) FAD

(C) Answer in **ONE** sentence :

- (i) Inhibitor 1
- (ii) Glycolysis 1
- (iii) Coenzyme 1
- (iv) Km 1

2. Answer the following :

- (a) Oxidative phase of HMP shunt 4
- (b) Mechanism of oxidative phosphorylation 4
- (c) Investment phase of glycolysis. 4

**OR**

- (p) Glyoxalate bypass 4
- (q) Glycogen synthesis in Liver 4
- (r) CO<sub>2</sub> generating steps of Kreb's cycle. 4
3. (a) Describe biosynthesis of saturated fatty acids. 4
- (b) Explain β-oxidation of fatty acids. 4
- (c) Explain in brief hydrolysis of triacylglycerols. 4

**OR**

- (p) Describe in brief metabolism of ketone bodies. 4
- (q) Discuss in brief biosynthesis of unsaturated fatty acids. 4
- (r) Describe transport of fatty acids into mitochondrial matrix. 4
4. Describe in detail regulation of cholesterol metabolism. 12

**OR**

- Describe in detail biosynthesis of cephalin and lecithin. 12
5. (a) Describe urea cycle in brief. 4
- (b) Describe biosynthesis of cysteine. 4
- (c) Describe biosynthesis of serine. 4

**OR**

- (p) Describe transamination and decarboxylation of amino acids. 4
- (q) Describe biosynthesis of Tyrosine. 4
- (r) Explain catabolism of Methionine. 4
6. (a) Discuss the sources of atoms in purines. 4
- (b) Describe in brief biosynthesis of adenine. 4
- (c) Describe in brief regulation of purine biosynthesis. 4

**OR**

- (p) Describe sources of atoms in pyrimidines. 4
- (q) Explain in brief regulation of pyrimidine biosynthesis. 4
- (r) Describe in brief biosynthesis of guanine. 4
7. Explain in detail degradation of heme pigment. 12

**OR**

- Describe in detail production of Bilirubin bile pigment. 12