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) Darvin (d) Emil Fischer

(ii) End product of aerobic glycolysis : ½

(a) Acetyl CoA (b) Lactate

(c) Pyruvate (d) CO_2 and H_2O

(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_2 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