

2015

BIOCHEMISTRY

Paper – BCT – 106

(Metabolism – I)

Full Marks – 25

The figures in the margin indicate full marks

Candidates are required to give their answers in their own words as far as practicable

1. Answer the following questions : 3×2
- (a) Which enzyme regulates de novo cholesterol synthesis? Name the class of drugs which competitively inhibit this enzyme.
 - (b) Which is the largest and the smallest of the lipoprotein family ?
 - (c) What is the structural difference between
 - (i) cis- and trans-fatty acids
 - (ii) saturated and unsaturated fatty acids?

Or

2. (a) What are ketone bodies ? Where are they formed ? Explain the reactions leading to their formation. 1+1/2+3
- (b) What is alpha oxidation ? 1
 - (c) The class of lipoproteins that is beneficial to atherosclerosis is; 1/2
 - (A) Low density of lipoproteins
 - (B) Very low density lipoproteins
 - (C) High density lipoproteins
 - (D) Chylomicrons.
3. (a) Explain the role of carnitine in fatty acid transport. 2
- (b) What is the cellular carrier of the carboxyl group during fatty acid biosynthesis ? 1
 - (c) How many cycles of oxidation are required to oxidize stearic acid to Acetyl Co A ? 1
 - (d) If phosphatidic acid is the group common to the phospholipids, what is the equivalent group common to the sphingolipids ? 1
 - (e) How are the ketone bodies utilized in the body ? 1 1/2

Or

4. (a) How Mevalonate is formed from Acetyl CoA during cholesterol synthesis ? 2

[Turn Over]

- (b) Explain the role of HDL in formation of IDL from VLDL. 2
- (c) Write short notes on Mixed Hyperlipemia. 2½
5. (a) How glycogen synthesis is initiated? 3
- (b) How glycolysis in muscle is regulated by PFK? 3
- (c) Name one metabolite which is neither an intermediate in glycolysis nor gluconeogenesis but controls both the reactions. ½
- Outline the controls of both metabolic reactions by the above metabolite. 3+3

Or

6. (a) (i) A steady supply of NADPH is necessary for maintaining the integrity of R.B.C. Justify. 3
- (ii) Are NADPH and NADH metabolically interchangeable? ½
- (b) How TCA cycle is regulated in eukaryote? 2½+2½
- (c) What are the advantages of formation of multienzyme complexes? Discuss in the light of PDH multienzyme complex mentioning all the enzymes present in the assembly. 4