

Time : 3 Hours]**[Total Marks : 50**

- Instructions :** (1) Each section should be answered in separate answer book.
(2) Answers should be brief and to the point.

SECTION – I

1. State true or false with justification : (Any six) **1 × 6 = 6**
- (a) Deficiency of sphingolipid leads to respiratory distress syndrome.
 - (b) Heparin is acts as an anticoagulant.
 - (c) Immunoglobulin A is elevated in primary immune response.
 - (d) Pyridoxine deficiency affects carbohydrate metabolism.
 - (e) Hemoglobin is acts as a buffer.
 - (f) Lipase estimation is better than amylase in acute pancreatitis.
 - (g) Heme regulates its own biosynthesis.
2. (A) Read the following case report and answers the questions : **5**
- A 60 years old male presented with complaint of epigastric pain radiating to back for 3 months, weight loss for 2 months, dark urine and clay coloured stools for one week. On blood investigation – Total Bilirubin 11 mg%. Direct Bilirubin 10.5%. Indirect Bilirubin 0.5 mg%. Radiological investigations revealed presence of tumor in head of pancreas and dilated biliary canaliculi and duct.
- (i) What is your probable diagnosis ? What is the underlying defect ?
 - (ii) Which serum enzyme is raised in this condition and why ?
 - (iii) Status of bilirubin, urobilinogen and bile salt in urine and stool ?
 - (iv) How indirect bilirubin is converted to direct bilirubin ?
 - (v) How unconjugated bilirubin is transported in blood and why it is not excreted in urine ?
- (B) Discuss the following : **3 + 2 = 5**
- (i) Vitamin B₃-Niacin: coenzyme function and deficiency manifestations
 - (ii) Fetal hemoglobin and its relation with 2, 3 – Bisphosphoglycerate (BPG).

3. Write short notes : (Any **three**) **3 × 3 = 9**
- (i) Mechanism of ATP synthesis. Write on inhibitors of ATP synthesis.
 - (ii) Classification of proteins.
 - (iii) Explain Glycosides with example. Write on disaccharides.
 - (iv) Neutral fat (Triacylglycerol) – Types, property, function and hydrolysis.

SECTION – II

4. Give your comments with Biochemical justification : (Any **six**) **1 × 6 = 6**
- (a) Cyclic AMP is act as a second messenger.
 - (b) Deficiency of Vitamin K leads to hemorrhage.
 - (c) t-RNA contains anticodon arm.
 - (d) Post-translational modification of collagen requires vitamin C.
 - (e) Anion gap is increased in metabolic acidosis.
 - (f) Ceruloplasmin is also useful for iron transport.
 - (g) Retinoic acid is used therapeutically.
5. Discuss the following : (Any **two**) **5 × 2 = 10**
- (a) Sickle cell anemia and thalassemia.
 - (b) Various enzyme inhibitions and their effects on V_{max} and K_m value of enzyme.
Give 2 examples of each enzyme inhibitors.
 - (c) Biochemical functions and deficiency manifestation of Vitamin A. Deficiency manifestation of Vitamin D.
6. Write short notes : (Any **three**) **3 × 3 = 9**
- (a) Digestion and absorption of proteins.
 - (b) Electrophoresis and its applications.
 - (c) Renal regulation of pH.
 - (d) Biological effects of radiation.
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