

(3 Hours) Total Marks : 75

Instructions:

- 1) **All** the questions are **compulsory**.
- 2) **All** the questions carry **equal marks**.
- 3) Attempt **any one** question out of (b) and (c).
- 4) Attempt **any one** question out of (d) and (e).
- 5) **Draw flow charts and diagrams** wherever necessary

- Q.I a) Attempt **any two**: (04)
- i) State the significance of HMP shunt
 - ii) Enlist the glycogen storage diseases with the defective enzyme.
 - iii) Give difference between aerobic & anaerobic glycolysis.
 - iv) Enumerate different enzymes & coenzymes of pyruvate dehydrogenase complex.
- b) Give an account of Malate-Aspartate and Glycerol phosphate shuttle. (05)
- OR**
- c) Discuss uronic acid pathway and its significance
- d) Describe Gluconeogenesis & its significance (06)
- OR**
- e) Discuss in detail glycogen metabolism & its regulation.
- Q.II a) Attempt **any two**: (04)
- i) Name any two inborn errors of lipid metabolism with their enzyme defect
 - ii) Enumerate the characteristics of extra-mitochondrial fatty acid synthetase complex.
 - iii) Describe the functions of chylomicrons and HDL.
 - iv) Give four functions of prostaglandins.
- b) Discuss steps in β – oxidation and energy transaction with reference to Palmitic acid. (05)
- OR**
- c) Outline the pathway of phosphatidic acid synthesis. How is it converted to lecithin?
- d) Discuss biosynthesis of cholesterol & its regulation. State the functions of cholesterol. (06)
- OR**
- e) Describe formation and fate of ketone bodies.
- Q.III a) Attempt **any two**: (04)
- i) Enlist four disorders of urea cycle and state their defective enzymes.
 - ii) Name the glucogenic and ketogenic amino acids
 - iii) Diagrammatically explain the biosynthesis of creatine and creatinine.
 - iv) Give purine salvage pathway. State the tissues where salvage pathway take place.

b) Give an account of glycine and glutamic acid metabolism and explain the inborn errors of (05) metabolism associated with them.

OR

c) Explain transamination, deamination and transmethylation with suitable examples.

d) Discuss denovo synthesis of purine & its regulation. (06)

OR

e) Write a note on nitrogen fixation and nif genes.

Q.IV a) Attempt **any two**: (04)

- i) Give derivatives of ectodermal germ layer
- ii) State significance of parathyroid hormones
- iii) Give various secondary messengers involved in protein hormone action.
- iv) Name tropic hormones of anterior pituitary

b) Give an account of growth hormone functions and abnormalities associated with it. (05)

OR

c) Describe chemistry, mechanism of action, metabolic effect and disorders of hormones of adrenal cortex .

d) Explain the applications of stem cells. (06)

OR

e) Discuss first few weeks of embryogenesis after fertilization till closing of neural tube.

Q.Va) Attempt **any two**: (04)

- i) Explain the factors affecting absorption of iron
- ii) Give functions of any two trace elements.
- iii) What is Addisons disease?
- iv) Give normal range of serum Na, K & Chloride.

b) Explain the visual cycle and role of VitA. Discuss disorders associated with it . (05)

OR

c) Explain the structure of neuron and mechanism of transmission of nerve impulse.

d) Describes and functions of contractile proteins of muscle. Explain the biochemical events occurring during muscle contraction. (06)

OR

e) With relation to bone, describe its structure, composition and formation. Explain factors affecting bone metabolism.

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