

Duration: 3 Hours

Maximum Marks: 100

Instructions to the candidates:-

- 1) All the questions are compulsory. Choice is internal.
- 2) Figures to the right indicate full marks.
- 3) All questions carry equal marks.
- 4) Draw flowcharts /diagrams wherever necessary.

Q1 A) Fill in the blanks:

4

- i) _____ is also called as cobalamin.
- ii) The active form of vitamin K is _____.
- iii) Minerals are absorbed in the form of _____.
- iv) An amino acid, _____ bound to selenium mineral gives rise to physiological important amino acid.

Q1 B) Write a note on (any one)

4

- i) Role of Magnesium in physiological system
- ii) Vitamin A

Q1 C) Answer any two of the following:

12

- i) Explain in detail any two water soluble vitamins.
- ii) Describe how vitamin D help in absorption of calcium and its mobilization.
- iii) Justify: Many micro minerals are associated with immune response.

Q2 A) Fill in the blanks:

4

- i) When change in free energy is negative the reaction is said to be _____.
- ii) Respiratory electron transport chain in mammals is located in the _____.
- iii) Oxygen during photosynthesis is evolved from _____.
- iv) Cyclic photophosphorylation has _____ as the reaction centre.

Q2 B) Write a note on (any one)

4

- i) Glycerol phosphate shuttle
- ii) Noncyclic photophosphorylation.

Q2 C) Answer any two of the following:

12

- i) Give a detailed account on bioluminescence.
- ii) With the help of a schematic representation explain Calvin cycle
- iii) Explain the structure of ATP synthase and add a note on uncouplers of ETC.

Q3 A) Fill in the blanks:

4

- i) Galactosemia is an inherited autosomal _____ disorder.
- ii) Lactose intolerance is caused due to deficiency of enzyme _____.
- iii) _____ is a glycogen debranching enzyme.
- iv) Pyruvate carboxylase enzyme of gluconeogenesis requires _____ coenzyme.

Q3 B) Write a note on (any one)

4

- i) Glycolysis
- ii) Disorders of carbohydrate metabolism.

Q3 C) Answer any two of the following: **12**

- i) Give detailed account of TCA cycle
- ii) Discuss the Hexose monophosphate shunt in detail.
- iii) Giving significance explain Glyoxylate pathway

Q4 A) Fill in the blanks: **4**

- i) The technique of chromatography was discovered by _____.
- ii) Gel chromatography is also known as _____.
- iii) Plant pigments can be separated by _____.
- iv) R_g is related to _____.

Q4 B) Write a note on (any one) **4**

- i) Applications of affinity Chromatography
- ii) Technique of thin layer chromatography

Q4 C) Answer any two of the following: **12**

- i) Write an elaborate note on principle and applications of GLC
- ii) Give an account of Paper chromatography.
- iii) Write a note on ion exchange chromatography.

Q5 A) Define and explain: **8**

- a) Transducin
OR
- b) Phyloquinone
- c) Photorespiration
OR
- d) Luciferin
- e) Amphibolic pathway
OR
- f) Anabolism
- g) Void volume
OR
- h) R_f

Q5 B) State True or False with justification: **12**

- i) All fat-soluble vitamins have a coenzyme function.
- ii) Standard free energy changes are additives.
- iii) Excess water soluble vitamins are not excreted through urine.
- iv) Glycolysis occurs in cytosol.
- v) Full form of HPTLC is high product thin layer chromatography.
- vi) Ubiquinone is both single and double electron carrier.
