

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

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

Q4 A) Fill in the blanks:

4

- The technique of chromatography was discovered by _____.
- Gel chromatography is also known as _____.
- Plant pigments can be separated by _____.
- R_f is related to _____.

Q4 B) Write a note on (any one)

4

- Applications of affinity Chromatography
- Technique of thin layer chromatography

Q4 C) Answer any two of the following:

12

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

Q5 A) Define and explain:

8

- Transducin
- OR**
- Phyloquinone
 - Photorespiration
- OR**
- Luciferin
 - Amphibolic pathway
- OR**
- Anabolism
 - Void volume
- OR**
- R_f

Q5 B) State True or False with justification:

12

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