

2022

**BOTANY — HONOURS**

**Paper : CC-12**

**(Biochemistry)**

**Full Marks : 50**

*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 briefly the following (*any five*) : 2×5
- (a) What is the utility of Handerson-Hasselbalch equation?
  - (b) What is Chargaff's rule?
  - (c) Are amino acid compositions of isozymes same? Give an example of isozyme.
  - (d) Write down the significance of redox potential.
  - (e) Define free radicals with example.
  - (f) Give one example and chemical structure of a sulphur containing amino acid.
  - (g) What are enantiomers? Give one example.
2. Answer *any two* of the following :
- (a) Comment on competitive and non-competitive enzyme inhibition. 5
  - (b) 'Even though hydrogen bonds are many times weaker than covalent bonds, yet they are of crucial importance in biomolecules.'— Explain. 5
  - (c) Comment on the Secondary Structure of Protein. 5
  - (d) Write a short note on the fluid mosaic model of membrane. Give an example of unsaturated fatty acid present in plants. 4+1
3. Answer *any three* of the following :
- (a) Distinguish between oxidative phosphorylation and photo phosphorylation. Describe the mechanism of ATP synthesis in mitochondria in the light of chemiosmotic model. 4+6
  - (b) What is ssDNA and where is it found? Write briefly about mRNA and SnRNA. Describe the structure of tRNA. 1+1+(2+2)+4
  - (c) Give a brief account of major disaccharides present in plants. What do you understand by D-Glucose and L-Glucose? Describe the structure of phospholipids with special emphasis on their biological functions. 4+2+4

**Please Turn Over**

- (d) What is meant by steady state of enzyme action? Comment on the active and allosteric site of an enzyme. Write about the reactions catalysed by transferase and oxidoreductase. What is metalloenzyme? Give an example. 3+2+3+1+1
- (e) What is passive ion uptake? Discuss the different theories of active ion uptake. 2+8
-