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ZOOLOGY

(Major)

Paper : 5.2

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following as directed (any seven) :

1×7=7

- (a) Define free energy.
- (b) What is oxidising agent?
- (c) Name two hydrophobic amino acids.
- (d) What is multimeric protein? Give one example.
- (e) The most common covalent bond that stabilizes the protein conformation is _____.

(Fill in the blank)

- (f) Chitin, found in insect exoskeleton and crustacean shell, consists of _____ only.

(Fill in the blank)

(g) Phosphate binds to ADP molecule by — bond.

(Fill in the blank)

(h) Write two most important significances of lipid.

(i) Define ribozyme.

2. Write very short answers (any four) : $2 \times 4 = 8$

(a) Write the concept of energy from the biological point of view.

(b) Discuss 'living body as a thermodynamic system'.

(c) Explain normal solutions of acids and bases.

(d) Write the chemical significance of molar and normal solutions.

(e) Explain enzyme as biological catalyst.

(f) Explain chemiosmotic hypothesis.

(g) Write about the transport protein of the membrane.

3. Answer in short (any three) : $5 \times 3 = 15$

(a) Write the fluid mosaic model of plasma membrane with suitable diagram.

(b) Describe how ribosome get assembled.

(c) Describe the law of conservation of energy.

- (d) Discuss about the factors controlling enzyme activity.
- (e) Write a note on biological importance of pH.
- (f) Discuss oxidative phosphorylation in mitochondria.
- (g) Discuss that equilibrium constant is a measure of directionality.

Answer the following (any *three*) :

10×3=30

- 4. Entropy and free energy are the two means to assess thermodynamic spontaneity. Discuss second law of thermodynamics in the light of the statement.
- 5. What do you understand by enzyme kinetics? Discuss Michaelis-Menten kinetics with suitable explanation.
- 6. "Electron flows from coenzymes to oxygen." Discuss mitochondrial electron transport system in the light of the above statement.
- 7. Describe β -oxidation of fatty acid.
- 8. Discuss, with the help of a flow chart, the ornithine cycle and write about its significance.

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