Exam. Code : 210003

Subject Code : 3794

M.Sc. Botany 3rd Semester

PLANT BIOCHEMISTRY

Paper : BOT-C615

Time Allowed—3 Hours] [Maximum Marks—50

Note :— (1) Attempt **All** parts from Section A. Each question carries **1** mark.

(2) Attempt any **seven** questions from Section B. Each question carries **3** marks.

(3) Attempt any **three** questions from Section C. Each question carries **7** marks.

SECTION—A

1. Explain :

(i) Electrostatic interactions

(ii) Phosphorylation / dephosphorylation of proteins

(iii) Significance of uronic acid pathway

(iv) Cori's Cycle

(v) Fatty liver and lipotropic factors

(vi) Fatty acid synthase—multienzyme complex and its regulatory role

(vii) Michaelis constant

(viii) What is meant by saturation of the enzyme ?

SECTION—B

2. Explain pH and pI with their significance.

3. Give a brief account on the different types of interactions present in biomolecules.

4. Discuss Pyruvate dehydrogenase (PDH) complex and its mechanism.

5. Discuss anaplerotic reactions in detail.

6. Explain *de novo* synthesis of cholesterol and its regulation.

7. Describe the digestion and absorption of dietary lipids.

8. Explain factors affecting enzyme activity.

9. Explain the different theories proposed for mechanism of enzyme substrate complex formation.

10. Describe various mechanisms for regulation of blood glucose.

11. Explain the HMP shunt pathway and its significance.

SECTION—C

12. Discuss Henderson–Hasselbalch equation and its significance in detail.

13. Describe in detail EM Pathway along with its energetics and regulation.

14. Give an account of β—oxidation of saturated even carbon fatty acid (Palmitic acid) along with its energetics and regulation.

15. What is I.U.B.M.B. system of nomenclature of enzymes ? What is E.C. code number ? What is its significance ?

16. Describe Kreb's cycle in detail along with its energetics and regulation. Justify its amphibolic role with suitable example.