

Exam. Code : 210003

Subject Code : 5399

M.Sc. Botany 3<sup>rd</sup> Semester

PLANT BIOCHEMISTRY

Paper—BOT-C-615

Time Allowed—3 Hours] [Maximum Marks—50

SECTION—A

**Note** :— ALL parts of question 1 are compulsory.  
Each part carries 1 mark.

1. What is energy currency ?
2. What is Henderson-Hasselbalch equation ?
3. What is citric acid cycle ?
4. What is ketogenesis ?
5. What is enzyme classification ?
6. What do you understand from activation energy ?
7. What are allosteric enzymes ?
8. Explain  $\alpha$ -oxidation of fatty acids.

SECTION—B

**Note** :— Attempt any *seven* questions. Each question carries 3 marks.

1. Describe covalent and non-covalent interactions with suitable examples.
2. Explain van der Waals forces and also highlight their significance.

3. What is gluconeogenesis ? Describe the synthesis of glucose from free glycerol.
4. Discuss pentose phosphate pathway. Also highlight its importance.
5. Describe the  $\beta$ -oxidation of fatty acids.
6. How cholesterol synthesis and transport takes place in human body ? Explain.
7. What is enzyme active site and enzyme-substrate complex ? Explain with examples.
8. Describe the induced fit hypothesis giving a suitable example.
9. Derive the Michaelis-Menton equation.
10. Explain Lineweaver-Burk plot. Also highlight their importance.

### SECTION—C

**Note** :— Attempt any *three* questions. Each question carries 7 marks.

1. Describe the structure and properties of water and its biological significance.
2. Discuss the catabolism of acetyl-CoA and metabolism of glycogen.
3. Explain the metabolism of acylglycerols and sphingolipids.
4. Describe historical perspectives of enzymes. Also elaborate the enzyme nomenclature.
5. Give brief account of enzyme induction and repression giving suitable examples.