

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: III (New)	Term	: First	Academic Year	: 2023-24
Course No.	: BIOCHEM 231	Title	: Fundamentals of Plant Biochemistry and		
Credits	: 3 (2+1)		Biotechnology		
Day & Date	: Monday, 4.12.2023	Time	: 9:00 to 12:00 hrs.	Total Marks	: 80

- Note :**
1. Solve ANY EIGHT questions from SECTION 'A'.
 2. All questions from SECTION 'B' are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagram wherever necessary.

SECTION 'A'

- Q.1 a) Differentiate between reducing sugar and non-reducing sugar.
b) List out different properties of water and write its importance.
- Q.2 a) Define Carbohydrates. Classify polysaccharides on the basis of composition with appropriate examples.
b) What are lipids chemically? Explain the significance of lipids.
- Q.3 a) Define Fatty acids. Give their classification with suitable examples.
b) Write in detail the mechanism of enzyme action.
- Q.4 a) Define Essential amino acids. Classify amino acids on the basis of composition with examples.
b) Define Nucleic acids and explain the types of RNA.
- Q.5 a) What are proteins? Classify proteins on the basis of composition with suitable example.
b) Write in short about TCA cycle involved in aerobic respiration.
- Q.6 a) Define Biomolecules. Enlist and write their characteristics.
b) Describe β -oxidation of fatty acids with generation of ATP molecules.
- Q.7 a) Write the scope and importance of Biochemistry in Agriculture.
b) Define Enzyme. Give the functions of enzymes.
- Q.8 Define Anther culture. Explain the procedure and advantages of anther culture.
- Q.9 Define Micropropagation. Describe the stages and applications of micropropagation.
- Q.10 Define Biotechnology. Discuss the scope and importance of Biotechnology in promoting human welfare.

(P.T.O.)

SECTION 'B'

Q.11 Define the following terms:

- 1) Buffer solution
- 2) Biochemistry
- 3) Polysaccharides
- 4) Isomerism
- 5) Restriction enzyme
- 6) Totipotency
- 7) Callus
- 8) Explant

Q.12 Do as directed:

- 1) Who is known as the 'Father of Biochemistry'?
- 2) Linoleic acid is _____ fatty acid.
- 3) List out sulphur containing amino acids.
- 4) Give an example of milk sugar.
- 5) Who suggested the term 'Protein'?
- 6) Who is known as the 'Father of Plant Tissue Culture'?
- 7) Give the contribution of Guha and Maheshwari.
- 8) Give two examples of commonly used auxins in plant tissue culture.

