MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	**: III (New)**	**Term**	**: I**	**Academic Year**	**: 2018-19**
Course No.	**: BIOCHM 231**	**Title**	**: Fundamentals of Plant Biochemistry and Biotechnology**		
Credits	**: 3(2+1)**				
Day & Date	**: Monday, 12.11.2018**	**Time**	**: 9.00 to 12.00**	**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 diagrams wherever necessary.

SECTION "A"

Q.1 a) Define biomolecules, enlist the biomolecules of life and state the characteristics.

b) Give scope and importance of biochemistry in Agriculture.

Q.2 a) Define the term carbohydrate. How are carbohydrates classified on the basis of behavior upon hydrolysis?

b) Define fatty acids. Write down the functions of fatty acids.

Q.3 a) What are lipids chemically? How are they classified?

b) Define glycoside. Give classification of glycoside.

Q.4 a) What is meant by essential amino acids? Classify amino acids on the basis of composition with suitable examples.

b) Describe β- oxidation of fatty acids with generation of ATP molecules.

Q.5 a) What are proteins? Classify proteins on the basis of composition with suitable examples.

b) Define nucleic acids? State the functions of nucleic acids.

Q.6 a) Classify enzymes as per IUB systems of classification. Explain the factors which affect enzyme activities.

b) Differentiate between reducing sugar and non-reducing sugar.

Q.7 a) Enlist various methods of gene transfer.

b) Explain in detail *agrobacterium* mediated transformation with suitable diagram.

Q.8 a) Define somaclonal variation.

b) Give the applications and causes of somaclonal variation.

Q.9 Define molecular marker. Write down molecular marker applications.

Q.10 Define micropropagation. Explain in detail the applications of micropropagation.

(P.T.O.)

4

SECTION "B"

Q.11 Define the following terms.

1) Buffer
2) Rancidity
3) Mutarotation
4) Disachharides
5) Phospholipid
6) Restriction enzyme
7) Callus
8) Cybrid

Q.12 Give contribution of the following scientists.

1) Antoine Lavoisier
2) Berzelius
3) F. Laibach
4) H.G. Khorana
5) G. Haberlandt
6) Guha and Maheshwari
7) Watson and Crick
8) Louis Pasteur

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