

Exam. Code : 103206

Subject Code : 1412

B.A./B.Sc. Semester—VI

**BIOTECHNOLOGY**

**(Environmental Biotechnology and Plant  
Biotechnology)**

Time Allowed—3 Hours] [Maximum Marks—75

**Note** :— Q. No. 1 is compulsory. The remaining 8 questions are in **FOUR** units and candidates are required to attempt **1** question from each unit.

1. All following questions carry equal marks :

(i) What is fermentation ? Give an example studied by you.

(ii) Define Biogas. What is its composition ?

(iii) “Transgenic organism”—define and give an example.

(iv) What is biological nitrogen fixation ? Give examples of microorganism responsible for it.

(v) Define “Micropropagation”.

(vi) What are aseptic conditions ? Give example.

(vii) Explain how dihaploids are produced ?

(viii) Define "Callus". How is it produced ?

(ix) What do you understand by somatic hybridization ? Give an example.

(x) Explain electrophoration and its significance.

1.5×10=15

### UNIT—I

2. (a) How methogenic bacteria are important ? Explain.  
(b) Write a note on conventional fuels and their environmental impacts.
3. Write in detail the role of microorganisms in the sustainable development of quality food, fuel and fibres.

### UNIT—II

4. (a) How microbes degrade various pesticides and other toxins ? Give example.  
(b) Write a note on Biofertilizers and organic farming.
5. Explain various means of producing transgenics and highlight the contributions of biotechnology in waste management and agriculture.

### UNIT—III

6. (a) Write a note on *in vitro* pollination.  
(b) How axillary bud and meristem culture are used in micropropagation of elite species ? Explain.

7. Enlist and explain in detail the roles of various plant growth regulators in *in vitro* micropropagation of elite species.

UNIT—IV

8. (a) Haploid production and their significance. Explain.  
(b) Write note on endosperm culture.
9. Explain the various applications of “Suspension culture” and “Somatic variations”. How variants are selected using these two techniques ?  $4 \times 15 = 60$