



**NATIONAL OPEN UNIVERSITY OF NIGERIA
DEPARTMENT OF CROP AND SOIL SCIENCE
FACULTY OF AGRICULTURAL SCIENCES**

COURSE TITLE: BIOTECHNOLOGY IN CROP/PEST MANAGEMENT

COURSE CODE: CSP401

CREDIT UNIT: 3 Credit Units,

Time allowed: 3 Hrs.

Instructions: Answer 5 questions in all, question one is compulsory (30 marks) and any other four questions (10 Marks each),

1.
 - a. Explain the concept of Biotechnology (5 marks)
 - b. State the two (2) major branches of Biotechnology (5 marks)
 - c. State five (5) advantages of Biotechnology (5 marks)
 - d. Outline the constraints of Biotechnology in developing countries (5 marks)
 - e. Briefly discuss ten (10) advantages of micro-propagation (10 marks)
2. Enumerate ten (10) basic techniques, which stimulate the progress of modern Biotechnology (10 marks)
3. Briefly explain the following tools of Biotechnology
 - a. Restriction Endonucleases
 - b. Selection Markers
 - c. Clone
 - d. Chloroplast transformation
 - e. Transgenic Event(2 marks each = 10 marks)
4. Give detailed explanation of the role of Nitrogen in the Biosphere (10 marks)
5. Write short notes on the following:
 - a. Nitrification (5 Marks)
 - b. Denitrification (5 Marks)
6. Differentiate in tabular form Between Fungi pathogens and Bacteria pathogens (10 Mks)
7.
 - a. What are Biofertilizers? (5 marks)
 - b. State five (5) advantages of biofertilizers (5 marks)