



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

EXAMINATION: SECOND SEMESTER 2019_2
COURSE TITLE: BIOTECHNOLOGY IN CROP/PEST MANAGEMENT (2CU)
COURSE CODE: (CSP 401)
TOTAL SCORE:70MARKS
TIME ALLOWED: 2HR

INSTRUCTION: Answer 5 questions in all, question one is compulsory and any other four questions

1. a. Define Biotechnology (5 marks)
 b. Briefly discuss ten (10) advantages of micro-propagation (15 marks)
 c. Mention and briefly explain causes of spontaneous mutations on molecular levels (10 marks)

2. a. Outline the advantages of herbicide resistant cultivars (5 Marks)
 b. what are the major concerns of these advantages? (5 Marks)

3. Discuss the following fully as contained in your study material;
 a. Genetic Engineering (5 Marks)
 b. Conventional Biotechnology (5 Marks)

4. Write short notes the following processes:
 a. Nitrification (5 Marks)
 b. Denitrification (5 Marks)

5. a. Explain the term “Mutation” (4 marks)
 b. Differentiate between Spontaneous and Induced mutation (6 Marks)

6. Give detailed outline of the role of Nitrogen in the Biosphere (10 marks)

7. In tabular form differentiate between Fungi pathogens and Bacteria pathogens(10 Marks)