



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**Faculty of Agricultural Sciences**  
**Department of Crop & Soil Science**

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**CSP - 401: BIOTECHNOLOGY IN CROP/PEST MANAGEMENT [3 CREDITS]**

**INSTRUCTIONS:** Answer five questions in all. Question one is compulsory and it carries 30 marks. The rest carry 10 marks each.

**TIME ALLOWED 2 30: Minutes.**

1. a. what is Biotechnology?(5 Marks)  
b. What are the advantages of micro propagation? (20 Marks)  
c. What are the causes of spontaneous mutations on the molecular level?(5 Marks)
2. Enumerate the advantages of herbicide resistant cultivars(10 Marks)
3. Discuss the role of Nitrogen in the biosphere (10 Marks)
4. Differentiate between Nitrification and denitrification(10 Marks)
5. Differentiate between fungal pathogens and bacterial pathogens(10 Marks)
6. What is biofertilizer? (10 Marks)
7. Discuss the following (10 Marks)
  - a. Conventional biotechnology
  - b. Multiplication