



NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
JUNE/JULY EXAMINATION

COURSE CODE: CSP401

COURSE TITLE: BIOTECHNOLOGY IN CROP/PEST MANAGEMENT

TIME ALLOWED: 2 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER FOUR QUESTIONS

1. I need to rapidly multiply an exotic banana cultivar for planting and ensure that the resulting plant is identical to the stock plant material. Discuss the general steps/stages that I should follow. 20 marks

2 (a). What is biotechnology? 5marks

(b). Define the following terms:

i) A Construct 5 marks

ii) Cloning 5 marks

iii) Restriction enzymes 5 marks

iv) Transformation 5 marks

v) Totipotency 5 marks

3 (a). Discuss the causes of mutation in two categories. 17 marks

(b). What is recombinant DNA? 3 marks

4 (a). What are transgenic plants? 3 marks

(b). Why are transgenic crops needed? 8 marks

(c). Discuss the three major genetic traits that are used in breeding for resistance to fungal diseases in crops? 9 marks

5. Discuss the GM control of insect pests. 20 marks

6 (a). List six ways through which herbicide resistance can be prevented or delayed.

0.5 x 6 points = 3 marks

(b). Discuss five advantages of herbicide resistant cultivars. 12 marks

(c). What is nitrogen fixation and why is the process essential for life? 3 marks

(d). What is denitrification? 2 marks

7 (a). Discuss the following genetic marker technologies:

(i). Restriction fragment length polymorphism; 5 marks

(ii). Amplified fragment length polymorphism and 5 marks

(iii). Random Amplification of Polymorphic DNA. 3 marks

(b). What are the applications and limitations of the above technologies? 7 marks