NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
MARCH/APRIL 2016 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: **BIO402**
COURSE TITLE: **CYTOGENETICS OF PLANTS CERDIT UNIT: 2**

TIME: **2 HOURS**
INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3) QUESTIONS

1a. Summarize the advantages of polyploidy. (4 marks)
b. You are given the following chromosome complement for plant with
Chromosome number, 2n =12; aa, bb, cc, dd, ee, ff.
Give the chromosome complement and the chromosome number of the following aneuploids: (6 marks)
(i) A monosomic for chromosome b, d and f
(ii) A double nullisomic for chromosomes a, c and f
(iii) A trisomic for chromosome a, d and e
c. Write **short notes** on the following:
(i) Satellite chromosomes (5 marks)
(ii) mitotic behavior in monoploids (5 marks)
(iii) fertility in monoploids (5 marks)

1. Give a detailed account of the causes of aneuploidy. (15 marks)

3a. Give reasons for the fact that banana cannot be propagated by seed. (5 marks)
b. Outline Emund Beercher Wilson's principles of chromosome theory of inheritance. (6 marks)
c. Summarize Thomas Morgan's contribution to the chromosome theory of inheritance? (4 marks)

4a. Define Cytogenetics (3 marks)
b. Describe the different methods of production of monoploids. (12 marks)

5. Classify chromosomes based on the number of centromeres. (15 marks)

6a. Differentiate between Autopolyploids and Allopolyploids. (3 marks)

b. Outline the role of Wilhelm Roux in the development of Cytogenetics. (4 marks)
c. Enumerate the genetic consequences of the following:
(i) translocation (4 marks)
(ii) deletion (4 marks)