National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science
Department of Pure and Applied Sciences
JANUARY, 2021 EXAMINATION

COURSE CODE: BIO402
COURSE TITLE: CYTOGENETIS OF PLANTS
CREDIT UNIT: 2
TIME ALLOWED: 2 HOURS

INSTRUCTION: ANSWER **QUESTION 1** AND **ANY OTHER THREE** QUESTIONS

1a. What is chromosome packaging? (2 marks)
b. State the main idea of the chromosome theory of inheritance (2marks).
c. Enumerate the four (4) principles of chromosome theory of inheritance as laid down by Edmund Beecher Wilson (6 marks)
d. Enumerate the major events in each of the four (4) levels of chromosome packaging (15 marks)

2a. What is a centromere? (2 marks)
b. Mention two (2) functions of the centromeres (4 marks)
c. Write short notes on the following:
i. A centric chromosomes (3 marks)
ii. Monocentric chromosomes (3 marks)
iii. Dicenteric chromosomes (3 marks)

3a. What is monoploid number? (2 marks)
b. State the Genome Formula (3 marks)
c. Describe the meiotic behaviour in monoploids (10 marks)

4a. Identify and describe the two major types of tetraploids (6 marks)
b. Explain the concept of Genic Balance (3 marks)
c. What is multipolar mitosis? (3 marks)
d. Enumerate any three (3) causes of Aneuploidy (3 marks)

5a. What is haploid number (2 marks)
b. What do you understand by the term “gamete production”? (7 marks)
c. List six (6) plants that exhibit spontaneous monoploidy (6 marks)