



NATIONAL OPEN UNIVERSITY OF NIGERIA

**NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCE**

SEPTEMBER ,2020_1 EXAMINATION

COURSE CODE: BIO 402

COURSE TITLE: CYTOGENETICS OF PLANTS

CREDIT: 2 UNITS

INSTRUCTION: ANSWER QUESTION ONE AND ANY OTHER THREE

- 1(a) Define Cytogenetic (8marks)
- (b) Enumerate the consequence of translocation (3marks)
- (c) Write briefly on chromosome morphology? (5marks)
- (d) Name three shapes of chromosomes found during anaphase (3marks)
- (e.) What are telomeres? State their cytogenetic importance? (6marks)
- 2a. Write a comprehensive essay on duplication 8 Marks
- b. Give reasons why inversion is sometimes regarded as crossover suppressor 3 Marks
- c. Differentiate between identification of translocation heterozygote and translocation homozygote. 4 Marks
- 3a. Write a comprehensive essay on the size of chromosomes 7 Marks
- b. Using appropriate examples, explain the concept of the basic chromosome number 4 Marks
- c. Use a genome formula to represent the chromosome complement of a hybrid of three different species. 1 Mark
- d. Explain how DNA is organized into chromatin 3 Marks
- 4a. What do you understand by the concept of genetic balance? 2 Marks
- b. Enumerate the implications of changes in chromosome number on genetic balance 4 Marks
- c. i. Define is translocation 2 Marks
- ii. Discuss the types of translocation 5 Marks
- d. Explain how multipolar mitosis can cause aneuploidy. 2 Marks

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| 5a. Define the term deletion mutation | 2 Marks |
| b. List four examples of physical mutagens that can induce mutation | 4 Marks |
| c. Write a concise note on the different types of deletion mutation | 6 Marks |
| d. What are the consequences of deletion? | 3 Marks |