



NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91 Cadastral Zone, Nnamdi Azikwe Express Way, Jabi, Abuja.
FACULTY OF EDUCATION
2020_1 Semester

COURSE CODE: **SED321**
COURSE TITLE: **BIOLOGY FOR INTEGRATED SCIENCE III**
CREDIT UNITS: **2**
TIME: **2 Hours**
INSTRUCTIONS: **Answer question No. 1 and any other two**

1a) Great scientists like Schleiden 1838 and Schwann 1839, described the cell and the structure of its major organelles. What then is a cell according to these scientists?
(3 marks)

1b) Describe the functions of five (5) of these major organelles of an animal cell when viewed under the light microscope.
(10marks)

(1c) The two (2) types of cell division necessary if the organisms are to reproduce in life are:
(2marks)

1d) State and explain the five (5) distinct phases that are involved in the first type of cell division.
(10marks)

1e) Transgenic technique is preferred to the traditional methods of plant and animal breeding. List five (5) reasons to support this statement? **(5marks)**

2a) What is *Meiosis*? **(2marks)**

(2b) In a sentence explain the following terms:

- Heterozygous
- Genotype
- Allele
- Chromosome

(2marks)

2c) Mention four (4) sex-linked traits in humans. **(4 marks)**

2d) Illustrate any four (4) types of interactions among living organisms. **(12marks)**

3a). Differentiate between scramble and contest competition. **(6marks)**

3b) Identify ten cultural methods of pest control **(5marks)**

3c) Mention four (4) characteristics of wood land that differentiates it from forest. **(4marks)**

3d) Identify four (5) medical conditions that are of genetic nature in humans. **(5marks)**

4a) List any four (4) distinct phases involved in cell division. **(4 marks)**

4b) Briefly explain the following as relates to methods of animal Improvement?

- i. transgenic organism
- ii. genetic engineering
- iii. artificial insemination **(8 marks)**

4c) Illustrate the outcome of a cross between pure F1 homozygous white flower (AA) and F1 Homozygous pure Red flower (aa) **(8marks)**