

**UGANDA MARTYRS UNIVERSITY
NKOZI
UNIVERSITY EXAMINATION
FACULTY OF EDUCATION**

SEMESTER I, 2023/ 2024

**FIRST YEAR EXAMINATION FOR BACHELOR OF SCIENCE WITH
EDUCATION - AGRICULTURE**

INTRODUCTORY BIOLOGY

DATE: 13/12/2023
TIME: 9:30am-12:30pm
DURATION: 3HRS

Instructions:

- 1. Carefully read through ALL the questions before attempting*
- 2. Answer 3 questions in section A plus 2 questions from B*
- 3. No names should be written anywhere on the examination booklet.*
- 4. Ensure that your Registration number is indicated on all pages of the examination answer booklet.*
- 5. Ensure your work is clear and readable. Untidy work shall be penalized*
- 6. Any type of examination Malpractice will lead to automatic disqualification*

SECTION A (Attempt 3 Questions)

- 1) a. Write brief notes about the cell theory 3 marks
b. The nucleus of a cell is the conductor of all cell activities. Briefly discuss. 3 marks
c. Write briefly about the following;
i. Mitochondria
ii. Magnetosome 2 marks each
iii. Lysosome
- 2) Outline the monomers of the following macromolecules;
a. DNA
b. Lipids
c. Sucrose
d. Maltose 2 marks each
e. Cellulose
- 3) Write short notes about the following sub-themes in protein synthesis;
a. Transcription 4 marks
b. Translation 4 marks
- 4) Outline the roles played by the following during protein synthesis;
a. mRNA
b. tRNA
c. rRNA 4 marks each
- 5) Write short notes about the following cell organelles;
a. Nucleus
b. Mitochondria
c. Chloroplast
d. Magnetosome 4 marks each
- 6) a. Discuss the atomic theory of matter 5 marks
b. Give the descriptive overview about the following;
i. Bonding between atoms
ii. Water and its properties
iii. Biochemical compounds 4 marks each

SECTION B (Attempt 2 Questions)

11) Give a detailed analysis about chemical bonding. **20 marks**

12) Discuss the properties and functioning of the following macromolecules;

a. Nucleic acids

b. Proteins

10 marks each

13) a) Discuss the anatomy and functioning of the cell membrane of a eukaryote

b) Discuss protein synthesis

14) a) Define the following;

i. Mitosis

ii. Meiosis

2 marks

2 marks

b) Discuss the cell cycle

16 marks

END