



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE IN NUTRITION & DIETETICS

HFN 145: GENERAL BIOLOGY

DATE: 17TH JANUARY, 2025

TIME: 11.00 AM – 1.00 PM

INSTRUCTIONS:

- Answer question **ONE (Compulsory)** and **any other TWO** questions

QUESTION ONE (30 MARKS)

- Explain the postulates advanced by the cell theory. (3 marks)
- Describe the structure and functioning of the lysosomes. (3 marks)
- With examples, describe two types of epithelium tissues. (3 marks)
- Describe two major types of neurons. (3 marks)
- Describe the structure and adaptation of the cardiac muscles. (3 marks)
- Contrast a Gram negative and Gram positive cell. (3 marks)
- A virus is described as living but acellular in nature. Explain. (3 marks)
- Explain the contributions of Schleiden and Antonie van Leeuwenhoek to cell biology. (3 marks)
- A prokaryotic cell is inferior to a eukaryotic cell. Explain. (3 marks)
- Explain a simple reflex action. (3 marks)

QUESTION TWO (20 MARKS)

Describe the organization of the central nervous system. (20 marks)

QUESTION THREE (20 MARKS)

- a) Discuss 2 mechanisms of movement of substances across the cell membrane. (10 marks)
- b) Discuss the differences between mitosis and meiosis. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the adaptations of the small intestines to its role. (14 marks)
- b) Describe hunger pangs as feedback to stimulus. (6 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the Laws of Mendelian genetics. (12 marks)
- b) Discuss temperature regulation in man. (8 marks)