



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

**MAIN EXAMINATIONS
KAKUMA CAMPUS**

FIRST YEAR FIRST SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF**

BACHELOR OF SCIENCE IN HUMAN NUTRITION AND DIETETICS

COURSE CODE: NUR 100

COURSE TITLE: CELL BIOLOGY AND GENERAL GENETICS

DATE: 22/04/2022

TIME: 8.00-10.00 A.M

INSTRUCTIONS TO CANDIDATES

SECTION A: ANSWER **ALL** QUESTIONS [10 MARKS]
SECTION B: ANSWER **ALL** QUESTIONS [30 MARKS]
SECTION C: ANSWER **BOTH** QUESTIONS [30 MARKS]

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

NUR 100: CELL BIOLOGY AND GENERAL GENETICS

SECTION A: MULTIPLE CHOICE QUESTIONS [10 MARKS]

1. Name the function of the cell membrane in the cell.
 - A. To control the substances that enter and leave the cell
 - B. To carry out respiration
 - C. To contain the genetic information
 - D. To synthesise proteins
2. Which of these describe the process of mitosis?
 - A. Two haploid daughter cells are produced
 - B. Four diploid daughter cells are produced
 - C. Two diploid daughter cells are produced
 - D. Four haploid daughter cells are produced
3. One of the following statements is correct in cell biology:
 - A. Hooke was first to observe living cells and introduce the word *cell* to describe them
 - B. Brown, Schleiden and Schwann, all working independently, were first to propose the cell theory.
 - C. Remak was first to propose the tenet that 'all cells arise from other cells'.
 - D. Leeuwenhoek was the first to observe unicellular organisms in pond water.
4. ----- is associated with bacterial cells.
 - A. Ribosomes
 - B. Nucleus
 - C. Chloroplasts
 - D. Lysosomes
5. ----- is not found in plant cells.
 - A. Mitochondria
 - B. Glyoxysomes
 - C. Centrosomes
 - D. Golgi apparatus
6. One of the cell group does not possess a true nucleus.
 - A. Prokaryotes
 - B. Eukaryotes

- C. Plants
D. Animals
7. A plant having the genotype AABbCC will produce _____ kinds of gametes.
- A. 5
B. 4
C. 3
D. 2
8. How do you calculate the magnification of a magnified object?
- A. Image size x actualsize
B. Image size ÷ actualsize
C. Actual size x image size
D. Actual size ÷ image size
9. What are cells called if they are adapted to perform a certain job?
- A. Specific
B. Functional
C. Unique
D. Specialised
10. An individual's collection of genes is called _____
- A. Genotype
B. Phenotype
C. Trait
D. None of the above

SECTION B: SHORT ANSWER QUESTIONS [30 MARKS]

11. With help of a diagram describe the structure of a microtubule [6 Marks]
12. Describe the activities in G1 phase of the cell cycle [6 Marks]
13. Outline the role of peroxisomes in a cell [6 Marks]
14. State Mendel's Laws of inheritance and outline two applications in health [6 Marks]
15. State the five functions of the plasma membrane of the cell [6 Marks]

SECTION C: LONG ANSWER QUESTIONS [30 MARKS]

16. Describe the role of endoplasmic reticulum and golgi complex in protein trafficking[15 Marks]
17. Discuss the role of genetics in alleviating hunger and ensuring food security in Kenya[15 Marks]
18. With special emphasis on function, discuss any TWO gaps in cell cycle [15 Marks]