



*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**  
**2022/2023 ACADEMIC YEAR**

**SECOND YEAR FIRST SEMESTER**  
**SUPPLEMENTARY EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY AND  
EDUCATION SCIENCE**

**COURSE CODE: SZL 211**

**COURSE TITLE: CELL BIOLOGY / ~~FUNDAMENTALS OF CELL BIOLOGY~~**

**DATE: 25<sup>TH</sup> JULY 2022**

**TIME: 11.00 – 1.00 PM**

---

**INSTRUCTIONS TO CANDIDATES**

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

**TIME: 2 Hours**

This paper consists of 3 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

### Question One

- a) Define the following terms as used in cell biology (6 marks)
- i. Apoptosis,
  - ii. Cytokinesis,
  - iii. Phagocytosis.
- b) Differentiate between mitosis and meiosis (8 marks)
- c) Which of the following is NOT a premise of cell theory? (2 marks)
- A. All cells arise from other cells,
  - B. All living cells require water for survival,
  - C. All living things are only composed of cells.
- d) Which of the following statements about living cells is false? (2 marks)
- A. Most are microscopic,
  - B. They are found in all animals but not in all plants,
  - C. They are the smallest basic units that can carry out all of the functions that we normally define as life.
- e) Chromosomes are found in \_\_\_\_\_ of cells. (2 marks)
- A. the nucleus,
  - B. the cytoplasm,
  - C. both the nucleus and the cytoplasm.
- f) Autosomes: (2 marks)
- A. are all chromosomes other than the sex chromosomes,
  - B. are normal sex chromosomes,
  - C. automatically determine the sex of children.
- g) Normal humans have \_\_\_\_\_ pairs of autosomes and \_\_\_\_\_ pair(s) of sex chromosomes. (2 marks)
- A. 23 and 23,
  - B. 23 and 2,
  - C. 46 and 1,
  - D. 22 and 1.
- h) List the main differences between eukaryotic and prokaryotic cells (6 marks)

### **Question Two**

Describe the structure of cell membranes

(20 marks)

### **Question Three**

- i. Discuss the various components of the cell cytoskeleton
- ii. Write short notes on the following
  - a) Active transport across the cell membrane
  - b) Passive transport across the cell membrane

(10 marks)

(5 marks)

(5 marks)

### **Question Four**

Write notes on:

(20 marks)

- i. Mitosis,
- ii. Meiosis.

### **Question Five**

Discuss the eukaryotic cellular structure while highlighting the associated organelles with their respective functions

(20 marks)