



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER
MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: SBL 311


COURSE TITLE: CELL BIOLOGY

DATE: 19TH DECEMBER 2022 **TIME:** 8.00 – 10.00 AM

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) Outline the events that occur during metaphase of mitosis of a plant cell. (3 Marks)
- b) Distinguish between amoeboid and ciliary movement. (2 Marks)
- c) Highlight four features of cell theory. (4 Marks)
- d) Draw a well labelled diagram of a prokaryotic cell using a bacterial cell as an example. (4 Marks)
- e) Describe the principle of mitosis which retains the diploid chromosome number. (3 Marks)
- f) State any three differences between an animal cell and a plant cell. (3 Marks)
- g) Explain how organelles maintain their position in the cytosol. (2 Marks)
- h) Give account of the three forms of passive transport. (3 Marks)
- i) Describe the structural composition of the cell membrane. (3 Marks)
- j) Give three reasons that may cause cell death. (3 Marks)

QUESTION TWO

- a) Define the term osmosis. (2 Marks)
- b) Explain four roles of osmosis in plants (8 Marks)
- c) Describe five factors that affects the rate of diffusion. (10 Marks)

QUESTION THREE

- a) Discuss four morphological classification of cell deaths. (10 Marks)
- b) Explain how the surface area to volume ration influences cell sizes. (10 Marks)

QUESTION FOUR

- a) Write short explanatory notes on following organelles:-
- i. Chloroplasts (5 Marks)
 - ii. Mitochondria (5 Marks)
- b) Describe the sequential events that occur during the cell cycle. (10 Marks)

QUESTION FIVE

- a) Discuss on the main components of Deoxyribonucleic Acid (DNA). (12 Marks)
- b) Explain two mechanisms on how cell organelles are formed. (8 Marks)