(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR

SECOND YEAR 1ST SEMESTER MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY, BACHELOR OF SCIENCE IN BIORESOURCE MANAGEMENT, BACHELOR OF EDUCATION SCIENCE AND BACHELOR AGRICULTURE EDUCATION AND EXTENSION

COURSE CODE: SZL 211

COURSE TITLE: FUNDAMENTALS OF CELL BIOLOGY

DATE: Thursday 9th August, 2018. **TIME:** 2:00 – 4:00 p.m.

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 2 printed pages. Please Turn Over

QUESTION ONE

a) Describe the structural composition of the cell membrane. (5 Marks)

b) Draw a well labelled diagram of a prokaryotic cell using a bacterial cell as an example. (4 Marks)

c) Distinguish between rough endoplasmic reticulum and smooth endoplasmic reticulum (2 Marks)

d) Briefly describe the events that occur during metaphase of mitosis of a plant cell. (4 Marks)

e) State the significance of mitosis in living organisms. (4 Marks)

f) Outline four main features of cell theory (4 Marks)

g) State four functions of the cell wall. (4 Marks)

h) State the contributions of the following scientists in the field of Cell Biology.

i. Robert Hooke (1 Mark)

ii. Antony Van Leenwenhoek (1 Mark)

iii. Marcello Malpighi (1 Mark)

QUESTION TWO

a) Describe four cell junction types. (12 Marks)

b) Define the term cell division. (2 Marks)

c) Describe the components of three types of filaments of a cytoskeleton. (6 Marks)

QUESTION THREE

a) Outline the events that occur during the cell cycle. (8 Marks)

b) Write short notes on the following:-

i. A Vacuole (4 Marks)

ii. Cytoplasm (4 Marks)

iii. Lysosome (4 Marks)

QUESTION FOUR

a) Tabulate six differences between mitosis and meiosis of cell division. (10 Marks)

b) i). Define apoptosis. (2 Marks)

ii). Describe the pathways that regulate the process. (8 Marks)

QUESTION FIVE

a) Explain the structural composition of the cell wall. (10Marks).

b) Distinguish between Gram Positive and Gram Negative bacterial cell wall. (10 Marks)