



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SZL 207: ESSENTIALS OF CELL BIOLOGY

DATE: 24/11/2020

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any two** questions in Section B.
2. Clearly and cleanly illustrate your answer as appropriate.

SECTION A: COMPULSORY

QUESTION ONE (30 MARKS)

- a) Briefly describe 'protein turnover' (3 marks)
- b) Define the role of MHC molecules in the human body (3 marks)
- c) Explain the role of cell communication to living organisms. (3 marks)
- d) Outline the process of transcription (3 marks)
- e) Define the processes of exocytosis and endocytosis (3 marks)
- f) Describe cancer and outline any two causes. (3 marks)
- g) Differentiate the major types of lymphocytes in a mammalian body (3 marks)
- h) Citing an example, define "cytotoxicity" (3 marks)
- i) Compare and contrast the processes of apoptosis and necrosis (3 marks)
- j) Using examples, explain the role of ligands (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO (20 MARKS)

- a) Discuss the structure of the cell membrane (12 marks)
- b) Describe the types of signaling found in multicellular organisms. (8 marks)

QUESTION THREE (20 MARKS)

Discuss the molecules of communication between cells.

QUESTION FOUR (20 MARKS)

Discuss the types of receptors found in animal cells

QUESTION FIVE (20 MARKS)

- a) Discuss the process of receptor mediated endocytosis (10 marks)
- b) Explain how proteins of the cell membrane facilitate cellular communication. (10 marks)