



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

BACHELOR OF EDUCATION

SZL 207: ESSENTIALS OF CELL BIOLOGY

DATE: 30/4/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

1. Answer Question 1 (compulsory) and any two questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A

QUESTION ONE (COMPULSORY) (30 MARKS)

- | | | |
|----|---|-----------|
| a) | Describe fluorescence microscopy | (3 marks) |
| b) | Describe the main functions of the major histocompatibility complex molecules | (3 marks) |
| c) | Distinguish between hormones and cytokines | (3 marks) |
| d) | Illustrate the process of endocytosis | (3 marks) |
| e) | Explain the concept of protein turnover | (3 marks) |
| f) | Describe the structure of cytoskeleton | (3 marks) |
| g) | Explain the causes of cell death | (3 marks) |
| h) | Describe Immunofluorescence technique | (3 marks) |
| i) | Illustrate the process of fusion in yeast | (3 marks) |
| j) | Describe the process of neurotransmission across synapses | (3 marks) |

SECTION B

QUESTIONS TWO (20 MARKS)

Describe the following processes:

- | | | |
|----|----------------------|------------|
| a) | Antigen processing | (10 marks) |
| b) | Antigen presentation | (10 marks) |

QUESTIONS THREE (20 MARKS)

Describe the stages of cell signaling

QUESTIONSFOUR (20 MARKS)

Describe the structures and their functions in eukaryotic cells

QUESTIONS FIVE (20 MARKS)

Discuss the application of tissue culture in science and industry