



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SZL 207: ESSENTIALS OF CELL BIOLOGY

DATE:

TIME:

INSTRUCTIONS

Answer Question 1 and any other two questions

Illustrate your answer with clean labelled diagrams wherever appropriate

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain xenotransplantation and why it is necessary (3 marks)
- b) Describe any three types of signaling found in multicellular organisms (3 marks)
- c) Explain the implication of cytotoxicity in human health (3 marks)
- d) Briefly describe protein turnover (3 marks)
- e) Using examples, explain the role of ligands in cell physiology (3 marks)
- f) Outline the processes of necrosis (3 marks)
- g) Outline the molecules involved in communication between cells (3 marks)
- h) Explain any three causes of cancer (3 marks)
- i) Explain the role of cell communication to living organisms (3 marks)
- j) Differentiate between exocytosis and endocytosis. (3 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

QUESTION TWO (20 MARKS)

- a) Discuss the process of transcription. (12 marks)
- b) Explain the role of various proteins found in cell membrane (8 marks)

QUESTION THREE (20 MARKS)

Discuss the cell cycle and its regulation

QUESTION FOUR (20 MARKS)

- a) Explain the types of receptors found in animal cells (10 marks)
- b) Discuss a laboratory diagnosis of helminthic infections in man (10 marks)

QUESTION FIVE (20 MARKS)

Discuss the major histocompatibility complex.