



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF SCIENCE IN BIOLOGY

SBT 100:CELLULAR BASIS OF LIFE

DATE: 24/9/2019

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) | Differentiate scientific method from technical research method | 3 marks |
| b) | Outline the three assumptions of cell theory | 3 marks |
| c) | Explain the following terms | 3 marks |
| | i. Physiological adaptation | |
| | ii. Chiasmata | |
| | iii. Non homologous chromosomes | |
| d) | Draw and fully label a named prokaryotic cell | 3 marks |
| e) | Highlight the function of cytoskeleton | 3 marks |
| f) | Describe the structure of cell membrane | 3 marks |
| g) | Describe the anatomy of DNA double helix | 3 marks |
| h) | Outline any three protein conformations observed in cell cytoplasm | 3 marks |
| i) | Explain why is interphase the longest stage of cell cycle | 3 marks |
| j) | Distinguish the following three terms: cytokinesis, cytolysis and plasmolysis | 3 marks |

SECTION B

QUESTION TWO

Discuss the various steps of the scientific method of inquiry

QUESTION THREE

Discuss the function of various biomolecules found in cells

QUESTION FOUR

Discuss the general processes leading to the formation of gametes in animals

QUESTION FIVE

Write an essay on cell transport