



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE WITH INFORMATION
TECHNOLOGY**

MAIN CAMPUS

SZL 201: CELL BIOLOGY

Date: 30th November, 2016

Time: 3.30 - 6.30 pm

INSTRUCTIONS:

- Answer ALL questions in SECTION A (40 marks) and any TWO in SECTION B (15 marks each).
- Illustrate your answers with labeled diagrams where appropriate.

SECTION A

Answer all questions in this section (40 marks). All questions carry equal marks

1. Give four functions of the smooth endoplasmic reticulum.
2. Outline the drawbacks of Robertson's unit membrane model.
3. Briefly describe the mode of action of the Na^+/K^+ ATPase.
4. Briefly explain the following terms:
 - a. G_0 stage of the cell cycle.
 - b. Membrane asymmetry.
 - c. Cytosol.
5. Citing the supporting evidence, briefly describe the endo-symbiotic theory.
6. List the four respiratory chain complex enzymes of the inner mitochondrial membrane.
7. Give a brief account of the steps involved in the development of a lysosome.
8. Briefly describe the prophase and metaphase stages of the mitotic division.
9. Briefly describe the structure and function of a desmosome junction.
10. Briefly explain how the following factors affect membrane fluidity:
 - a. Presence of double bonds along the fatty acyl chain
 - b. Length of the fatty acyl chain

SECTION B

Answer any two questions in this section (15 marks each)

11. Describe the mode of transport of glucose across red blood cell membrane and outline the features of this mode of transport.
12. Describe the role of the endoplasmic reticulum and Golgi complex in protein trafficking.
13. Describe the structure of the nuclear envelope.
14. Discuss the structure and function of microfilaments.