



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL 107: INTRODUCTION TO HISTOLOGY

DATE: 9/5/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

1. Answer Question 1 (compulsory) and **any other two** questions
2. Use clean well labelled diagrams wherever appropriate.

QUESTION ONE (COMPULSORY) (30 MARKS)

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| a) | Differentiate between a smooth and a striated muscle. | (3 marks) |
| b) | Outline the use of histological preparations in medicine. | (3 marks) |
| c) | Outline the functions of connective tissue. | (3 marks) |
| d) | Use an example to differentiate an organ from an organ system. | (3 marks) |
| e) | Explain the basis of differential staining when preparing an animal tissue for microscopy. | (3 marks) |
| f) | Relate the structure to function of squamous epithelium. | (3 marks) |
| g) | Explain the characteristics of the cardiac muscle. | (3 marks) |
| h) | Outline composition of the fluid tissue of the circulatory system. | (3 marks) |
| i) | Outline the salient labels on a permanent microscope slide. | (3 marks) |
| j) | Explain the roles of the nucleus in an eukaryotic cell. | (3 marks) |

QUESTION TWO (20 MARKS)

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|----|---|------------|
| a) | Illustrate the structure of the mitochondrion and relate it to function. | (5 marks) |
| b) | Discuss 'processing' as a procedure in preparing permanent histological slides. | (15 marks) |

QUESTION THREE (20 MARKS)

Discuss the structure and function of a mammalian nervous system.

QUESTION FOUR (20 MARKS)

- a) Identify the micrograph sample provided and draw a fully labelled plan diagram. (8 marks)
- b) Compare the functionality of a light compound microscope with that of an electron microscope (12 marks)

QUESTION FIVE (20 MARKS)

- a) distinguish two main types of cells based on evolutionary trends, (10 marks)
- b) Explain how you focus on a sample for microscope once it is mounted on the microscope stage (10 marks)