



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL 103: INTRODUCTION TO HISTOLOGY

DATE: 24/9/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

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

1.
 - a) Outline the functions of any three tissues of a mammalian eye (3 marks)
 - b) Explain why the nucleus of a cell stains differently from the cytoplasm (3 marks)
 - c) Explain the magnifying power of a binocular compound microscope (3 marks)
 - d) Relate structure of the squamous epithelium to its function (3 marks)
 - e) Illustrate the structure of a red blood cell as seen under a compound microscope (3 marks)
 - f) Outline three structural components of the skeletal system (3 marks)
 - g) Describe the structure of the cardiac muscle and explain why it does not fatigue (3 marks)
 - h) List any three minor organelles of an eukaryotic cell (3 marks)
 - i) Outline the use of any named three common laboratory stains (3 marks)
 - j) Outline the characteristics of glandular epithelium (3 marks)
2.
 - a) Discuss the practical applications of histology (10 marks)
 - b) Distinguish between a compound and an electron microscope (10 marks)
3. Relate the structure to the function of five major cellular organelles (20 marks)
4. Discuss the preparation of a stained permanent microscope slide of a skeletal muscle obtained from the black rhino *Diceros bicornis*. (20 marks)
5.
 - a) Illustrate the structure of areolar connective tissue. (10 marks)
 - b) Explain how the organs of the respiratory system complement each other in function (10 marks)