MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL 103: INTRODUCTION TO HISTOLOGY

DATE: 24/5/2022 **TIME: 8.30-10.30 AM**

INSTRUCTIONS

1. Answer question 1 and any other two questions
2. Illustrate your answer with clean, well labelled diagrams as appropriate.

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Explain the following labels on a prepared permanent microscope slide: (3 marks)

   i. H/E

   ii. Nerve cell

b) Explain the number of mitochondria present in an animal cell. (3 marks)

c) Illustrate the structure of a mitochondrion (3 marks)

d) Relate the structure of the nucleolus to its function (3 marks)

e) Explain how you bring a light microscope binocular microscope to focus on a permanent slide of a bone tissues (3 marks)

f) Explain how differential staining in preparing permanent slides works (3 marks)

g) Explain the characteristics of the mammalian cardiac muscle (3 marks)

h) Explain immunofluorescence as a histological technique. (3 marks)

i) Briefly discuss how magnification is achieved in microscopy (3 marks)

j) Explain the functions of the rough endoplasmic reticulum (3 marks)

QUESTION TWO (20 MARKS)

a) Compare a binocular compound microscope with a transmission electron microscope. (10 marks)

b) using an example, justify cellular organization in animals. (10 marks)

QUESTION THREE (20 MARKS)

Discuss the composition and function of the human circulatory system.

QUESTION FOUR (20 MARKS)

Discuss the structure and function of the epithelial tissue.

QUESTION FIVE (20 MARKS)

Discuss how you would prepare a permanent slide of smooth muscle from a pig.