



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SZL103: INTRODUCTION TO HISTOLOGY

DATE: 21/6/2021

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

1. Answer all questions in section A and any two questions in section B.
2. Illustrate your answer with clean, well labelled diagrams as appropriate.

SECTION A: COMPULSORY

QUESTION ONE (30 MARKS)

- a) Explain the important items on the label of a permanent histological slide – (3 marks)
- b) Explain the functional structure of squamous epithelium (3 marks)
- c) Outline the function of the following cellular organelles (3 marks)
 - i. Nucleolus
 - ii. Smooth endoplasmic reticulum
 - iii. Ribosomes
- d) Illustrate the structure of a mast cell (3 marks)
- e) Explain how you would observe a permanent slide of a neurone under a binocular microscope (3 marks)
- f) Explain the characteristics of the mammalian cardiac muscle (3 marks)
- g) Explain the purpose and the effectiveness of stains used in histology (3 marks)
- h) Illustrate the structure of columnar epithelium (3 marks)
- i) Using an example from a named organ system, differentiate between a tissue and an organ. (3 marks)
- j) Differentiate between fluorescence and autoradiography as histological techniques (3 marks)

SECTION B – ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

Relate structure to function of connective tissue

QUESTION THREE (20 MARKS)

Describe 'processing' in preparing a permanent microscope slide

QUESTION FOUR (20 MARKS)

- a) Compare and contrast a compound binocular with a transmission electron microscope (10 marks)
- b) Discuss applications of histological studies (10 marks)

QUESTION FIVE (20 MARKS)

Describe tissues of the circulatory system.