



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 105/6LABORATORY METHODS

DATE: 26/9/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS:

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

SECTION A

1.
 - a) Outline at least two purposes and four objectives of a laboratory design (3 marks)
 - b) List at least six key stakeholders in a laboratory design (3 marks)
 - c) Give some of the general information needed during laboratory design (3 marks)
 - d) Describe three objectives of local exhaust ventilations in a laboratory (3 marks)
 - e) What do you understand by biosafety requirement in biology lab (3 marks)
 - f) Give an expression to calculate the weight of any biological molecule like protein (3 marks)
 - g) Outline six key physical environmental specifications when installing a laboratory equipment
 - h) What are the functions of the following two reagents in a biological laboratory EDTA and Heparin.
 - i) List both sample and environmental characteristics which can affect the weight of a sample (3 marks)
 - j) Distinguish three levels of the laboratory management team and identify the role of each level. (3 marks)

SECTION B

2. Compare and contrast an open laboratory versus a closed laboratory (20 marks)
3. Describe the different biosafety levels in biological laboratories. (20 marks)
4. You have just been appointed to lead a research in a biology laboratory dealing with the analysis of blood samples from field-based animals. Discuss the steps you will take to make sure you fulfil your duty? (20 Marks).