



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN POPULATION HEALTH

HEH 201: INTRODUCTION TO ENVIRONMENTAL BIOCHEMISTRY

DATE: 23/9/2019

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

QUESTION 1. – COMPULSORY (30 MARKS)

- a) Giving examples, discuss the functions of carbohydrates in the living systems. (3 marks)
- b) Explain why maltose is a reducing sugar while sucrose is a non-reducing sugar (3 marks)
- c)
 - i) Describe the general structure of an amino acid (1 mark)
 - ii) Outline the properties of amino acids (2 marks)
- d) Describe simple tests for lipids in a given sample in the laboratory (3 marks)
- e) Using an illustration, describe the formation of a triglyceride (3 marks)
- f) Differentiate between a DNA and RNA molecules (3 marks)
- g) Briefly discuss electron transport chain (3 marks)
- h) Distinguish between aerobic and anaerobic respiration (3 marks)
- i) Explain the dietary values of vitamins (3 marks)
- j) Define “biotransformation” (3 marks)

SECTION B

QUESTION TWO

Discuss protein synthesis

(20 marks)

QUESTION THREE

Describe starch biosynthesis and degradation

(20 marks)

QUESTION FOUR

Describe the mechanisms of drugs clearance and metabolism

(20 marks)

QUESTION FIVE

Discuss β -oxidation of fatty acids

(20 marks)