



MACHAKOS UNIVERSITY

University Examinations 2019/2020 academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN POPULATION HEALTH

HEH 201: ENVIRONMENTAL BIOCHEMISTRY

DATE: 19/01/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS

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

SECTION A

QUESTION ONE 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 DNA and RNA molecules (3 marks)
- g) Briefly discuss the 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 (20 MARKS)

Discuss protein synthesis

QUESTION THREE (20 MARKS)

Describe starch biosynthesis and degradation

QUESTION FOUR (20 MARKS)

Describe the mechanisms of drugs clearance and metabolism

QUESTION FIVE (20 MARKS)

Discuss β -oxidation of fatty acids