



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN
BIOLOGY

SZL 205: PRINCIPLES OF BIOCHEMISTRY

DATE: 18/12/2017

TIME: 2.00-4.00 PM

INSTRUCTIONS

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

SECTION A

1. a) Explain the following terms:
 - i. Glycosidic bond
 - ii. Disaccharide (3 marks)
- b) Outline three uses of proteins. (3 marks)
- c) Describe nucleic acids and their role in the cell. (3 marks)
- d) Describe briefly three uses of polysaccharides, giving examples (3 marks)
- e) describe briefly the metabolism of lipids. (3 marks)
- f) Describe protein mobility in relation to their structure (3 marks)
- g) Explain the role of DNA (3 marks)
- h) State the role played by water within the cell. (3 marks)
- i) Distinguish between essential and non- essential amino acids, giving examples in each case (3 marks)
- j) Explain what macromolecules are and state three examples (3 marks)

SECTION B

2. Discuss the occurrence, metabolism and uses of carbohydrates. (20 marks)
3. Explain the role of water as a solvent and its interaction with proteins poly saccharides and nucleic acids. (20 marks)
4. Describe the biosynthesis and function of proteins. (20 marks)
5. Describe cellular metabolic pathways that lead to generation of energy. (20 marks)