



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR
THE DEGREE OF BACHELOR OF SCIENCE IN PUBLIC HEALTH
WITH INFORMATION TECHNOLOGY**

MAIN CAMPUS

PML 221: BASIC BIOCHEMISTRY

Date: 15th June, 2017

Time: 12.00 - 3.00pm

INSTRUCTIONS:

- Answer ALL Questions in section A and Question 9 and any other ONE in section B.



SECTION A (40 MARKS) (Attempt all the questions in this section)

1. Outline the significance of the following metabolic pathways **(5 marks)**
 - a. Gluconeogenesis
 - b. Glycogenesis
 - c. Glycogenolysis
 - d. Hexose pentose pathway
 - e. Fatty acid beta oxidation
2. Sequentially describe steps of the urea cycle. (Hint: use a well labeled diagram in your illustration) **(5 marks)**
3. List five enzymes involved in lipid digestion and the function of each **(5 marks)**
4. Describe the four levels different levels of nucleic acid structure **(5 marks)**
5. Use a well labeled diagram to illustrate the alternate fate of pyruvate **(5 marks)**
6. Both insulin and glucagon are critical in maintenance of blood sugar level
 - a. Outline three ways through which insulin regulates the blood sugar **(3 marks)**
 - b. Outline two ways through which glucagon regulates the blood sugar **(2 marks)**
7. Complete the table by filling in the correct nucleoside and nucleotide in the space provided **(5 marks)**

S/N	Base	Nucleoside	Nucleotide
1.	Adenine	_____	_____
2.	Guanine	_____	_____
3.	Cytosine	_____	_____
4.	Uracil	_____	_____
5.	Thymine	_____	_____

8. For each of the ions stated below, identify the enzyme(s) containing it (5 marks)

S/N	Ion	Examples of enzymes containing this ion
1.	Cupric	
2.	Ferrous or Ferric	
3.	Magnesium	
4.	Manganese	
5.	Zinc	

SECTION B (30 MARKS) Answer question 9 and any other one question

9. Use a clearly labeled diagram to describe the Citric acid cycle (15 Marks)
10. From step one to the last, describe the functions of the enzymes of the glycolytic pathway (15 marks)
11. Describe the criteria used in the classification of amino acids by giving relevant examples (15 marks)