



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

BCH 203: BASIC METABOLISM I

13TH DECEMBER, 2016

TIME: 1.30-3.30 P.M

INSTRUCTIONS TO CANDIDATES

- (a) Answer ALL the Questions in Section A**
- (b) Answer ANY TWO Questions in Section B**
- (c) Illustrate your answers with well labeled diagrams where appropriate**

SECTION A (30 marks)

1. Briefly, describe the entry of galactose into the glycolytic pathway. **(3 marks)**
2. Distinguish kinetics from thermodynamic. **(3 marks)**
3. List **three** uses of NADPH. **(3 marks)**
4. List **three** differences between hexokinase and glucokinase. **(3 marks)**
5. State the **two** Laws governing energy transfer and utilization. **(3 marks)**
6. Briefly, describe the two types of galactosemia. **(3 marks)**
7. State three functions of the pentose phosphate pathway. **(3 marks)**
8. Briefly discuss the various methods of regulating metabolism. **(3 Marks)**
9. Give a biochemical explanation of the symptoms displayed during fructose intolerance. **(3 Marks)**

10. Define the following terms:

- a. Enthalpy. **(1 mark)**
- b. Entropy. **(1 mark)**
- c. Free energy of chemical reaction. **(1 mark)**

SECTION B (40 marks)

- 11. Discuss the Embden Meyerhof Pathway. **(20 marks)**
- 12. Describe the hexose monophosphate shunt. **(20 marks)**
- 13. Discuss the metabolism of glycogen, fructose and galactose. **(20 marks)**
- 14. Describe the reactions of the tricarboxylic acid cycle. **(20 marks)**