

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2016/2017**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY.

**SHC 3202: BASIC METABOLISM I**

**DATE: DECEMBER, 2016 TIME: 2 HOURS**

**INSTRUCTIONS: -** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Explain why glucose is stored as glycogen. (2 marks)
2. Describe the molecules in the electron transport chain (2 marks)
3. How are electrons transferred from NAOH to the Iron-sulfur clusters in complex 1. (2 marks)
4. Give a summary of glucogen synthesis and degradation. (2 marks)
5. Outline the coenzymes found in pyruate degradation. (2 marks)
6. Explain why glucose is an indispensable metabolites. (2 marks)
7. Describe how pyruate kinase and TCA cycle are regulated. (2 marks)
8. Outline fructolysis pathway. (3 marks)
9. Differentiate between lactose intolerance and galactosemia. (2 marks)
10. Outline four energy-rich functional groups in substrate in glylolysis. (2 marks)
11. Describe two enzymes required in the oxidative phase in Hmp shunt. (2 marks)
12. Explain how malic enxymes generate NADPH. (3 marks)
13. Describe how malaria parasites detoxify heme. (2 marks)
14. Explain how phagocytes use NADPH to generate reactive oxygen species. (2 marks)

**QUESTION TWO (20 MARKS)**

1. Describe cori cycle (15 marks)
2. Explain why we need both NADH and NADPH. (5 marks)

**QUESTION THREE (20 MARKS)**

1. Discuss the reaction in glycolysis pathways. (15 marks)
2. Describe the regulation of respiratory chain. (5 marks)

**QUESTION FOUR (20 MARKS)**

1. Describe the reaction in the TCA cycles. (15 marks)
2. Discuss the inter organ relationship in glycogen metabolism. (5 marks)