



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

AUGUST – DECEMBER 2017 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 112: GENERAL BIOCHEMISTRY II

Date: DECEMBER 2017

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) State site of reaction for glycolysis and citric acid cycle **(2marks)**
- b) Stepwise account for total number of ATP produced from one glucose molecule **(8marks)**
- c) Discuss the three mechanisms proposed in 1950 for the replication of DNA **(6 marks)**
- d) Describe at least five substances that act as poison to the ETC cycle **(5 marks)**
- e) Explain DNA complementarity **(4 marks)**
- f) Give examples of eicosanoids derivatives **(5 marks)**
- Q2. a) Illustrate and explain the role of alanine cycle in protein metabolism **(12 marks)**
- b) Describe ATP production on electron transport chain ETC **(8 marks)**
- Q3. Describe how DNA is replicated in a bacteria **(20 marks)**

- Q4. a) Discuss three reasons why there is high fidelity in replicated DNA (6 marks)
- b) Discuss three stages in fatty acid oxidation (6 marks)
- c) Describe how urea is synthesized in the body (6 marks)
- d) Explain two biological roles of prostaglandins (2 marks)
- Q5. a) Discuss five amino acids that are broken down to glutamate (10 marks)
- b) Explain in detail how an operon utilizing tryptophan regulates in a bacteria (10 marks)

END