



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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**MAIN EXAMINATION**

**JANUARY – APRIL 2017 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF BIOLOGY**

**REGULAR PROGRAMME**

**BIO 112: BIOCHEMISTRY II**

**Date: April 2017**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

- Q1. a) State the site of reaction for each of the following
- (i) Synthesis of fatty acids
  - (ii) Electron transport chain
  - (iii) Glycolysis
  - (iv) Citric acid cycle
  - (v) DNA replication
- ( 5 marks)**
- b) Name three amino acids that enter metabolism in the form of pyruvate
- (3 marks)**
- c) State three poisons or drugs that inhibit the electron transport chain
- (3 marks)**
- d) Describe three points that are key in regulating/controlling citric acid cycle
- (3 marks)**
- e) Discuss in details why fidelity is high in DNA replication
- (6 marks)**
- f) Explain the role of carnitine shuttle system in metabolism of lipids
- (3 marks)**
- g) Differentiate the following
- (3 marks)**
- i) Lagging from leading strand
  - ii) Uricotelic from ammonotelic
- ( 4 marks)**
- Q2. a) Describe five products synthesized from amino acids
- (10 marks)**

- b) Discuss two forms in which peripheral nitrogen is transported from tissue to the liver **(10 marks)**
- Q3. a) Discuss six derivatives of cholesterol **(12 marks)**  
b) Describe four mechanisms that regulate enzyme activity **(8 marks)**
- Q4. a) Describe the six key steps in DNA replication **(12 marks)**  
b) Describe how purine rings are biosynthesized in the body **( 8 marks)**
- Q5. a) Describe the biosynthesis steps of even chain fatty acids **(2 marks)**  
b) Explain in detail how an operon utilizing tryptophan regulates in a bacteria **(10 marks)**

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