



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

AUGUST – DECEMBER 2018 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

PART TIME PROGRAMME

BIO 100: GENERAL BIOLOGY

Date: DECEMBER 2018

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) i) Briefly explain the cell theory **(3 marks)**
- ii) List and explain the 2 major types of cells that occur in organisms **(2 marks)**
- ii) List and explain any three unifying themes in biology **(3 marks)**
- iii) What are the contributions of the following scientists to our understanding of life?
i) Miller
ii) Oparin **(2marks)**
- b) i) Name the 4 most common elements found in living organisms **(2 marks)**
- ii) Explain why carbon is referred to as tetravalent **(1 mark)**
- iii) Which biological process uses the latent heat of vaporization **(1 mark)**
- c) i) Differentiate between ATP and DNA **(1 Mark)**
- ii) Give a reason why the secondary structure of DNA is called a double helix **(2marks)**

- iii) Differentiate between monosaccharides, disaccharides and polysaccharides **(3marks)**
- d) Briefly discuss the theories that explain enzyme activity **(6 marks)**
- e) Name the location of the following reactions
- i) Glycolysis
 - ii) Krebs cycle
 - iii) Light dependent reactions of photosynthesis
 - iv) Light independent reactions of photosynthesis **(4 marks)**
- Q2. Describe the light reaction and the Calvin cycle stating the raw materials and products of photosynthesis **(20 marks)**
- Q3. Outline the properties of water and explain their importance in life **(20 marks)**
- Q4. Enzymes are globular proteins that are used as catalyst, discuss factors that affect the activity of an enzyme **(20 marks)**
- Q5. Outline the characteristics of fungi and their economic importance **(20 marks)**

END