

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

# **UNIVERSITY EXAMINATIONS 2014/2015**

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN PUBLIC HEALTH**

**ICH 2106 : BIOCHEMISTRY 1**

**DATE: AUGUST 2014 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

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**QUESTION ONE**

1. Explain what happens to most protein molecules when exposed to extremes of pH and temperature. [3 marks]
2. All living cells constitute macro-elements and trace elements. Giving examples of each category, describe these types of elements. [3 marks]
3. Describe 3 major functions of proteins to the living organisms.[3 marks]
4. Describe any three properties of carbohydrates [3 marks]
5. Draw the structures of the following molecules.
6. 20:0
7.  [3 marks]
8. Explain the functions of the following vitamins
9. Thiamine
10. Riboflavin
11. Folic acid [3 marks]
12. Describe the primary results of pentose phosphate pathway. [3 marks]
13. Describe the fate of pyruvate in carbohydrate metabolism. [3 marks]
14. Describe the major differences between glycolysis and gluconeogenesis [3 marks]
15. Draw the structures of the following molecules.
16. Leucine
17. Alanine
18. Threonine

**QUESTION TWO**

1. Discuss the “de novo” synthesis of pyrimidines in animals. [14 marks]
2. Describe the regulation of glyconeogenesis [6 marks]

**QUESTION THREE**

Glycolysis is an essential process for cellular respiration. Describe how glucose is

metabolized to pyruvate. [20 marks]

**QUESTION FOUR**

1. Using a relevant example, describes how fatty acids are synthesized in the body. [14 marks]
2. Describe the regulation of fatty acid metabolism in the body.[6 marks]

**QUESTION FIVE**

1. Membrane channels facilitates the translocation of molecules across the membrane. Describes the various types of membrane channels. [10 marks]
2. Discuss membrane transporters in living organisms. [10 marks]