



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2020/2021

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY, FOOD
SCIENCE AND NUTRITION, HUMAN NUTRITION AND DIETICS AND FOOD
SERVICE AND HOSPITALITY MANAGEMENT**

HBB 2111: BIOCHEMISTRY I

DATE: AUGUST 2021

TIME: 2 HOURS

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY
OTHER TWO QUESTIONS**

Question ONE (30 marks)

- a) Outline any four functions of the following vitamins
 - (i) Cobalamin (2 marks)
 - (ii) Riboflavin (2 marks)
- b) Distinguish between the following terms
 - (i) Nucleotide and nucleoside (2 marks)
 - (ii) Prokaryotic and eukaryotic organisms (2 marks)
 - (iii) Glycosidic bond and peptide bond (2 marks)
- c) Briefly describe six applications of biochemistry in food science (3 marks)
- d) Explain the classifications of lipids giving an example in each case (6 marks)
- e) Outline any five functions of biomembranes (5 marks)
- f) Briefly describe the ionization of water (6 marks)

Question TWO (20 Marks)

Using examples and structures in each case, discuss the classification and functions of any four polysaccharides (20 marks)

Question THREE (20 Marks)

- a) Discuss metabolism giving the different categories (6 marks)
- b) During starvation, liver glycogen stores are depleted leading to metabolic associated disease. Discuss. (14 marks)

Question FOUR (20 Marks)

- (a) Define an enzyme and outline the factors affecting enzyme activity (5 marks)
- (b) Describe the hypothesis explaining the formation of enzyme substrate complex (6 marks)
- (c) Discuss the classification of enzymes, giving an example in each case (9 marks)