

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF  
SCIENCE IN BIOMEDICAL SCIENCE AND BACHELOR OF SCIENCE IN  
BIOCHEMISTRY**

**BIOC 313: NUTRITIONAL BIOCHEMISTRY**

**STREAMS: BSC BIOMEDICAL SCIENCE & BIOCHEMISTRY      TIME: 2 HOURS**

**DAY/DATE: MONDAY 29/03/2021**

**11.30 A.M. – 1.30 P.M.**

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**INSTRUCTIONS:**

- Answer question ONE and any other TWO questions.
- Do not write on the question paper.

**QUESTION ONE (30 MARKS)**

- (a) Briefly discuss the digestion of food in the stomach of a pig. (5 marks)
- (b) Briefly describe the absorption of digested vitamins and minerals in monogastric animals. (6 marks)
- (c) Based on the diets they prefer, ruminant can be classified into distinct feeding types. Explain. (6 marks)
- (d) Briefly explain four major hormones that are found in the human digestive track. (4 marks)
- (e) Describe the pathophysiology of acute malnutrition. (7 marks)
- (f) Define obesity and briefly explain what leads to the disorder. (2 marks)

**QUESTION TWO (20 MARKS)**

- (a) With the aid of a well labeled diagram, describe the pre-caecal digestion in the horse. (10 marks)
- (b) Using a diagram, explain in detail the ruminant digestive anatomy and function. (10 marks)

**QUESTION THREE (20 MARKS)**

- (a) Discuss in detail the regulation of gastric secretions in humans. (10 marks)
- (b) Marasmus and kwashiorkor are both as a result of malnutrition. Discuss. (10 marks)

**QUESTION FOUR (20 MARKS)**

- (a) Define balanced nutrition and explain what foods should be eaten to provide a good balance of nutrients. (10 marks)
  - (b) Discuss carbohydrate digestion in ruminants under the following subheading.
    - (i) Forages
    - (ii) High concentrate feed stuffs (grains)
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