CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR SCIENCE IN BIOMEDICAL SCIENCE

BMET 214: BIOCHEMISTRY OF BIOMOLECULES

STREAMS: BSC BIOMED Y2S1 **TIME: 2 HOURS**

DAY/DATE: TUESDAY 11/12/2018 **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:

- **Answer question one and any other two questions.**
- **Do not write on the question paper.**

QUESTION ONE (30 MARKS)

(a) Glyceraldehyde is a simple monosaccharide that exists as enantiomers. Explain using a diagram. (5 marks)

(b) Outline the functions of carbohydrates. (3 marks)

(c) Explain the various levels of protein structure. (5 marks)

(d) Describe the two types of fatty acids. (5 marks)

(e) Distinguish between a nucleotide and a nucleoside. (3 marks)

(f) Differentiate between good cholesterol and bad cholesterol. (5 marks)

(g) Using lactose as an example, explain the glycosidic linkages that join monosaccharaides to form disaccharides. (4 marks)

QUESTION TWO (20 MARKS)

(a) Explain using diagrams the alpha and the beta pleated sheets as found in protein structure. (10 marks)

(b) Explain in detail the phenomena of sickle cell anemia. (10 marks)

QUESTION THREE (20 MARKS)

(a) Describe the role of hemoglobin in the transport of oxygen. (10 marks)

(b) Differentiate between RNA and DNA using well labelled diagrams. (10 marks)

QUESTION FOUR (20 MARKS)

(a) Describe in detail the ABO (H) blood group antigens and how they are synthesized. (10 marks)

(b) Explain the general pharmacology of antiviral nucleoside analogues and give some structural examples of antiviral nucleoside analogue for DNA viruses. (10 marks)
