CHUKA UNIVERSITY

FIRST YEAR EXAMINATION BIOC 101: INTRODUCTION TO BIOMEDICAL SCIENCE AND TECHNOLOGY

Stream: Y1S1: BSc BIMEDICAL SCIENCES

Instructions:

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

Question One (30 marks)

 a. Distinguish between Biomedical Informatics and Biomedical Engineering (2 marks)
 b. A veterinarian shall provide veterinary medical care under the terms of a veterinarian-client-patient relationship (VCPR). Justify this statement (2.5)
 c. How can big pharmaceutical companies overcome the problem of increased generic competition? (3 marks)
 d. Differentiate between mass and weight (4 marks)
 e. Using examples, distinguish between extensive and intensive property of matter (3 marks)
 f. State main application of medical imaging techniques in disease diagnosis (3 marks)
 g. Outline the SI base units and the respective quantity measured (3.5 marks)
 h. Draw a well labeled diagram of a prokaryotic cell (5 marks)
 i. What is the volume in liters of a sample of acetone having a mass of 925 g? (The density of acetone is 0.788 g/mL) (4 marks)

Question Two (20 marks)

 a. Distinguish between prokaryotic and eukaryotic cell. .(10 marks)
 b. Discuss ethics in clinical practice (10 marks)

Question Three (20 marks)

 a. Discuss how biochemistry relates to biomedicine (10 marks)
 b. Discuss the problem of limited approval of new chemical entities and how pharmaceutical companies can overcome it (10 marks)

Question Four (20 marks)

 a. A sample of aluminum metal has a mass of 8.4 g. The volume of the sample is 3.1 cm^3. Calculate the density of aluminum in SI units. (10 marks)
 b. Different techniques (modalities)allow one to look inside the human bodyin different ways (looking at different signals). Justify this statement.(10 marks)