

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN BIOMEDICAL**

BMET 101: INTRODUCTION TO BIOMEDICAL SCIENCE AND TECHNOLOGY

STREAMS: BSC BIOMEDICAL Y1S1

TIME: 2 HOURS

DAY/DATE: MONDAY 10/12/2018

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. Distinguish between Biomedical Sciences and Biomedical technology (2 marks)
- b. Outline the fundamental principles that apply generally to medicine or health care (4 marks)
- c. How can big pharmaceutical companies overcome the problem of increased generic competition? (3 marks)
- d. Explain the differences that exist between solid, liquid and gas states of matter in terms of particles (3 marks)
- e. Differentiate between mass and weight (4 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 825 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. The density of copper is 8.96 g/cm³. You have three different solid samples of copper. One is rectangular with dimensions 2.3 cm x 3.1 cm x 8.0 cm. The second is a cube with edges of 3.8 cm. The third is a cylinder with a radius of 1.5 cm and a height of 8.4 cm. Calculate the mass of each sample in SI units. (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. Discuss ethics in clinical practice (10 marks)
- b. Different techniques (modalities) allow one to look inside the human body in different ways (looking at different signals). Justify this statement. (10 marks)
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