

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF BIOMEDICAL TECHNOLOGY**

BMED 449: BIOMEDICAL INSTRUMENTATION

STREAMS: BMED

TIME: 2 HOURS

DAY/DATE: MONDAY 15/4/2019

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- (a) Briefly outline 3 diagnostic procedures where computed tomography is used. [4 marks]
- (b) Outline the difference between ultrasonic sensors and optical sensors. [6 marks]
- (c) Using an illustrative diagram, describe the structure of single beam spectrophotometer.

[6

marks]

- (d) Describe ultracentrifugation technique highlighting its applications in research. [6 marks]
- (e) Briefly explain the key steps in tissue preparation for diagnosis of cancer. [8 marks]

QUESTION TWO

- (a) Magnetic resonance imaging technique has for many years been used to diagnose various disease conditions. Discuss the statement giving examples. [12 marks]
- (b) Briefly describe how an ultrasound procedure is performed. [8 marks]

QUESTION THREE

- (a) Briefly describe an angiogram clearly indicating:
 - (i) How it is performed [4 marks]
 - (ii) When it should be performed [4 marks]
- (b) Discuss key items involved in proper maintenance of biomedical equipment. [12 marks]

QUESTION FOUR

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- (a) Discuss three major steps during cell fractionation technique. [12 marks]
- (b) Giving examples, discuss advantages and disadvantages of using cell fractionation. [8 marks]
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