TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING

EL2301: DIAGNOSTIC EQUIPMENT

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

(a) Schedule the procedure of centering the condenser of a light microscope (8 marks)

(b) i) A 0.010 M of sample gives an absorbance of 0.48 at 505nm in a given cell. Determine the concentration of a solution to give an absorbance of 0.24 in the cell of photometer

ii) Outline the quarterly technical maintenance procedure on Blood gas analyzer (10 marks)

(c) With the aid of a labeled diagram, explain the principle of operation of an Electronic blood pressure machine (12 marks)

Question TWO

(a) i) State any THREE common faults of a microscope

ii) Outline the cleaning procedure of an oil immersion objective lens in a microscope (8 marks)

(b) With the aid of a diagram, explain the principle of operation of a Fluorescence microscopy (12 marks)

Question THREE

(a) i) Describe the periodic procedures for an otoscope diagnostic set.

ii) Distinguish between light and electron microscope. (8 marks)

(b) With the aid of a diagram, describe the construction features of Liquid Expansion thermometers

(12 marks)

Question FOUR

(a) i) Explain the functional difference between calorimeter and flame photometer

ii) Explain the effect on blood pressure, caused by narrow cuff and loose cuff of sphygmomanometer

(10 marks)

(b) With the aid of a labelled diagram, describe the use and operational principle of a Laryngoscope.

(10 marks)

Question FIVE

(a) Explain the additional precautions that should be taken in Hot and Humid climates when using alight microscope. (8marks)

(b) i) Outline the difficulties encountered in using dark-field microscopy

ii) With the aid of a diagram, explain the principle of operation of a dark-field microscopy (12 marks)