



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MEDICAL ENGINEERING

DIPLOMA IN MEDICAL ENGINEERING
DME/JAN 2015/S-PT

ECL 2301
DIAGNOSTIC EQUIPMENT

2 hrs

INSTRUCTIONS TO CANDIDATES:

- This paper consists of **FIVE** questions
- Answer question **ONE COMPULSORY** and Attempt any Other **TWO**
- This paper consists of 3 printed pages

Question1

(COMPULSARY)

- (a) With the aid of a labeled diagram, describe the construction of a mercury type sphygmomanometer

(10 marks)

- (a) i) Describe the periodic procedures for an otoscope diagnostic set.
ii) Distigush between light and electron microscope.

(8 marks)

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

(12 marks)

Question2

- (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)

Question3

- (a) Describe the following methods of blood pressure measurement

- i) The Oscillometric method
ii) The Auscultatory method
iii) The Ultrasonic method

(12marks)

- (b) i) Describe the light path through the ophthalmoscope
ii) Explain the effect on blood pressure, caused by narrow cuff and loose cuff of sphygmomanometer

(8 marks)

Question4

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

(10 marks)

(b) With the aid of a labelled diagram, explain the principle of operation of pulsed oximeter

(10 marks)

Question5

(a)

Outline the difficulties encountered in using dark-field microscopy

(8 marks)

(b) With the aid of a diagram, explain the principle of operation of a darkfield microscopy

(12 marks)