



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING

ECL 2302: IMAGING EQUIPMENT I

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. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

QUESTION ONE

(a) Describe any FOUR uses/applications of x-rays in different fields
(8Marks)

(b) , using a basic circuit describe the production of X-rays
(8Marks)

(c) List any EIGHT properties of X-rays
(8Marks)

(d) Differentiate between:

- i. Filament current and tube current
 - ii. X-ray quality and quantity
 - iii. hard X- rays and soft x-rays
- (6Marks)

QUESTION TWO

(a) Explain the TWO needs for interlock circuits in an X-tray equipment
(4Marks)

(b) Describe the functions of any SIX interlock circuit in an X- ray equipment
(12Marks)

(c) List any FOUR properties of nucleus radiation.
(4Marks)

QUESTION THREE

(a) Describe the SIX film processing sequential events of a manual film processing machine
(12Marks)

(b) Describe the four maintenance concerns on a manual film processor

(8Marks)

QUESTION FOUR

(a) Describe the FOUR functions/needs of an autotransformer of an X- ray unit

(8Marks)

(b) Sketch and label a rotating anode X-ray tube assembly

(12Marks)

QUESTION FIVE

Write a standard laboratory investigation report carried out during the course of study to determine the Cable/Line Resistance value for an x-ray unit installation. (20Marks)