



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING (DME 224 Y3 S2)

ECL 2306 : IMAGING EQUIPMENT II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FOUR** questions. Attempt any **THREE** questions.

Do not write on the question paper.

QUESTION ONE

(a) Explain the FIVE reasons for Quality Assurance Programs (QAP) in a radiology department.

(10Marks)

(b) With the aid of a block diagram show the layout of any SIX devices/elements of a fluoroscopy procedure setup.

(10Marks)

QUESTION TWO

(a) Describe the THREE cardinal ionization radiation protection measures

(12Marks)

(b) Besides the 3 cardinal protection measures list any other EIGHT radiation ionization protection measures

(8Marks)

QUESTION THREE

(a) Define the following terms:

Fluoroscopy

Nacrocytosis

Angiography

Cells restitutions

Dosimetry

Hematopoietic

Photo sensor

LD_{50}^{30}

(8Marks)

(b) Use sketches where necessary, to describe the FOUR Dosimetry principles

(12Marks)

QUESTION FOUR

, By use of atomic structures describe:

(i) classical scatter

(ii) Compton scatter radiation (20Marks)

QUESTION FIVE

(a) Describe the FOUR stages leading to a biological injury or damage due to ionization radiation using chemical formulae where necessary.

(12Marks)

(b) List any EIGHT details on an x-ray equipment logbook

(8Marks)