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:APRIL2016

TIME:2HOURS

DATE: Pick DateSelect MonthPick 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) Differentiate between Radiation Detection and Radiation Measurement.
(4Marks)

(b) With the aid of sketches where necessary describe the THREE Dosimetry principles.
(6Marks)

(c) Describe any FIVE methods employed in radiography to reduce scatter radiation
(10Marks)

QUESTION TWO

(a) Aided by sketch describe the 3 active layers of an **I.I device in a** fluoroscopy equipment.
(12Marks)

(b) Sketch and label an **I.I** of a Fluoroscopy unit.
(8Marks)

QUESTION THREE

(a) With the aid of a labeiled sketch describe the operating principle of a **pen dosimeter** worn by radiographers for personnel radiation protection measures.

(12Marks)

(b) With the aid of sketches differentiate between Stochastic and Non Stochastic ionization radiation effects.

(8Marks)

QUESTION FOUR

(a) Radiology equipment is usually fitted with anti-scatter grid mechanism for scatter radiation reduction. By use of sketch describe how any such an anti-scatter grid mechanism operates.

(10Marks)

(b) Describe any five checks in cooperated in a radiology department to enhance quality assurance programs (QAP) purposes of radiographic equipment (10Marks)

QUESTION FIVE

(a) With the aid of a block diagram show the layout of any FIVE devices/elements on a fluoroscopy procedure setup

(10Marks)

(b) Define the following terms:

Fluoroscopy

Nacrocytosis

Angiography

Cells restitutions

Dosimetry

Cell mutation

Hematopoietic

Photo multiplier

Somatic effects

LD^{30}_{50}