MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

SECOND YEAR **SECOND** SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN MEDIACAL LABORATORY SCIENCE

MML 214 – MEDICAL IMAGING

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question ONE any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A – (30 MARKS) – ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Explain the importance of radiation and radioisotopes. (5 marks)

b) Compare different types of radiation. (5 marks)

c) Explain application of Doppler effect in sonography. (5 marks)

d) Emulate the qualities of tungsten as an anode material. (5 marks)

e) Using Bremsstrahlung principle, explain X-ray production. (5 marks)

f) Outline the medical roles of radiologic technologists. (5 marks)

SECTION B (40 MARKS) – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) Describe the working principles of the following;

i. CT–scan (5 marks)

ii. Ultrasound (5 marks)

b) Describe the procedure of screening breast cancer using mammography. (10 marks)

QUESTION THREE (20 MARKS)

Discuss the X-ray machine components and its working mechanism. (20 marks)

QUESTION FOUR (20 MARKS)

a) Explain the factors to consider when siting and designing a medical imaging facility. (10 marks)

b) Describe the safety consideration of the patient and medical technologists in a medical imaging facility. (10 marks)