



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER I
SESSION 2020/2021**

**COURSE NAME : PHYSICS OF RADIOTHERAPY AND
NUCLEAR MEDICINE**

COURSE CODE : BWC 40903

PROGRAMME CODE : BWC

EXAMINATION DATE : JANUARY/ FEBRUARY 2021

DURATION : 3 HOURS

**INSTRUCTION : ANSWER ALL QUESTIONS
OPEN BOOK EXAMINATION**

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THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

- Q1** (a) Cell-survival curves are used to describe the relationship between radiation dose and the proportion of cells that survive. As a Radiation Therapist, retrieve the meanings of cell survival in order the cells to maintain its function. (10 marks)
- (b) X-rays can be used to examine the entire area of a patient's body. Unfortunately, increasing tremendously skeptical about the exposure to X-ray can increase the risk of over exposure to this radiation. Based on this, identify the standard operating procedure (SOP) for X ray to make sure this can be reduced the risk of over exposure. (10 marks)
- Q2** (a) During the last 10 years, radiation therapy technologies have gone through major changes especially to improve the target localization accuracy and dose conformity. Discover the technical challenges for dosimeter verification in implementing this emerging technologies in radiation therapy. (10 marks)
- (b) Suggest **ONE (1)** beam modifier and explain by relating the situation while doing radiotherapy treatment. (10 marks)
- Q3** (a) The main purpose of acceptance testing is to evaluate the system's compliance with the business requirements and to verify if it has met the required criteria for delivery to end users. Determine the risk that the users will face if the acceptance testing does not meet the desired requirement. (10 marks)
- (b) Brachytherapy is a procedure that involves placing radioactive material inside a body. Despite of many negative opinions about the safety issues in brachytherapy, it is still the best method to treat cancer. Present your opinion to support this argument. (10 marks)
- Q4** (a) Radiopharmaceuticals are radioactive drugs that can be used for the diagnosis and, increasingly, for the therapy of diseases. Deduce how Erbium-169 is able to target specific organs, tissues or cells within the human body without risking human life. (10 marks)
- (b) There is no risk of exposure to radiation during the Magnetic Resonance Imaging (MRI) procedure. However, MRI generally is not advised for patients with epilepsy. Justify the relationship between both statements. (10 marks)

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Q5 (a) Euthanasia can be defined as the deliberate, intentional termination of the life of a patient in intolerable suffering with an irreversible underlying disease. Point out this issues.

(10 marks)

(b) If you are a health care workers who is faced to execute euthanasia as issued by the hospital, how would you explain the readiness of Malaysians in tackling this issue?

(10 marks)

-END OF QUESTIONS -

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