



مقرر: فيزياء التأثيرات الإشعاعية كود المقرر: ٢-٤٠٣٣٨٤ برنامج: الفيزياء الطبية فرع: الطلبة أستاذ المادة: د/رمضان علي حسن
الاختبار: النهائي الفصل الدراسي: ٣٩١ الفترة: ٤ الزمن: ساعتان التاريخ: ١٦ / ٤ / ١٤٤٠ قاعة:
اسم الطالب/ الرقم الجامعي/ شعبة (١) الدرجة الكلية/ 50 درجة

Please answer **five** questions only:

الرجاء الاجابة عن **خمسة** اسئلة فقط مما يلي

Question One

[10 Marks]

- A) Defined; Isotopes - Bremsstrahlung.
- B) Discuss the radiation dose limits according ICRP 60.

Question Two

[10 Marks]

- A) Explain how we can calculate Effective Dose & Equivalent Dose
- B) Compare between Stochastic & non-stochastic radiation effects. (in table please)

Question Three

[10 Marks]

- A) Discuss the X ray generation
- B) Calculate the SI equivalents of the following: 200 mrad, 5 rad, 0.2 mrem.

Question Four

[10 Marks]

- A) Explain the Indirect radiation Action.
- B) Explain how to control the external radiation hazard.

Question Five (Answer true or false)

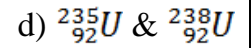
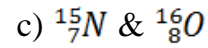
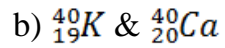
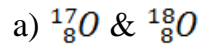
[10 Marks]

- 1- LET unit is keV / μm .
- 2- Rontgen is measure only in air.
- 3- Photoelectric effect mostly occurs with lower Z material.
- 4- Compton scattering occurs at a quantum energy higher than 0.5 MeV.
- 5- Somatic cells, in which case the point mutation is passed on to the daughter cell.

Question Six (Please choose the correct answer)

[10 Marks]

1. Which of the following pairs represents isobars?



2. -----have same chemical properties;

a) Isobars

b) Isotopes

c) Isotones

d) None of these

3. If the dose from standard X ray is 2 Gy and the dose from test radiation produced the same biological effect is 0.5 Gy, then RBE equal;

a) 8

b) 6

c) 4

d) 2

4. The -----it is amount of radiation dose in which 50 % of the biological system will be die within one day; a) $LD_{50/30}$. b) $LET_{50/30}$ c) RBE d) none of them

5. Which of the following What are the routes of radioactive sources entry to the body;

(a) Inhalation

(b) Entry through the skin

(c) Eye exposure.

(d) a & b