QUESTION 2

A radiobiology student comes to your office and asks for your assistance in studying for the final exam. Answer the following questions in such a way that the student has a good chance of doing well on the exam.

POINTS

STATE ALL ASSUMPTIONS

12 A. Identify and describe two general mechanisms by which radiation can damage a critical target in a cell. In your discussion identify which mechanism is usually dominant with high-LET radiation. **Number your responses. Only the first two will be graded.**

9 B. Name three (3) general types of biological effects of ionizing radiation that are taken into consideration in the derivation of dose limits for radiation workers. **Number your responses. Only the first three will be graded.**

15 C. List five (5) deterministic effects resulting from exposure to acute, high dose rate ionizing radiation. **Number your responses. Only the first five will be graded.**

5 D. What is the relationship between RBE and LET for low LET radiation (up to 100 keV/ m)?

9 E. Rank the following forms of radiation in order of **increasing** RBE. (use 1 = low, 3 = high)

_____ 5 MeV protons
_____ Fission-spectrum neutrons
_____ 20 keV x-rays