Trial Paper

St Vincent's course 2009

Question 1.

a. Describe the device that modulates the intensity of each of the following beams: MV photons, protons, kV photons (3)

b. Describe the physical processes that result in the modulation of beam intensity. (3)

c. Describe the devices that modulate the quality of each of the following beams: MV photons, kV photons (2)

d. Describe the physical processes that result in altered beam quality of the beam. (2)

Question 2.

a. Describe the differences between a kV and MV chest radiograph. (1)

b. Discuss how these differences arise. (2)

c. Discuss in detail with diagrams each of the physical processes identified. (7)

Question 3.

Select and describe in detail five fail-safe devices attached to a linear accelerator (2/device)

Question 4.

a. Describe the features of a wedge as used in radiotherapy. (3)

b. Discuss the two main types of wedge and the differences in the beams that are produced by each. (4)

c. Describe how these differences are accounted for in planning. (3)

Question 5.

a. discuss the physical advantages and disadvantages of a parallel opposed pair of photon fields. (4)

b. discuss the physical advantages and disadvantages of a IMRT delivered with 7 photon fields. (4)

c. discuss the physical advantages and disadvantages of the use of SSD fields. (2)

Question 6.

a. Discuss the reasons that make the CTV the most important for the radiation oncologist, but the PTV the most important for the radiation therapist. (5)

b. Discuss the differences in the construction of geometric field size-based plans and dosimetric image-based plans. (3)

c. Discuss the ways that a DVH can be unhelpful in plan assessment. (2)