

The Royal Australian and New Zealand College of Radiologists

Examination for Diploma, Part I

Radiation Oncology

Radiotherapeutic Physics

Time Allowed : 3 hours

ALL QUESTIONS are to be attempted. All questions are of equal value.

Clearly labelled diagrams should be drawn wherever relevant.

1. Give details of the design of a beryllium window tube for superficial X-ray therapy. Outline its advantages and disadvantages.
2. Describe the processes that occur in the absorption of an x-ray beam as it passes from air into a tissue medium.
3. Discuss the problems of treating chest wall lesions with electron beams.
4. Write an essay on arc therapy.
Discuss the clinical and physical problems inherent in using this method of treatment in Radiation Oncology.
5. Discuss the possible errors that can arise in the various steps that are taken between the prescription of a treatment schedule and the delivery of this prescription using a beam of photons from a linear accelerator.
How might these errors be eliminated or minimized?
6. Discuss the various radioactive sources that might be used in the interstitial and intracavitary treatment of malignant tumours.
Compare the use of direct loading, manual afterloading and automatic afterloading.

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