

Examination for Diploma, Part 1

Clinical Radiobiology

Time allowed : 3 hours

ALL QUESTIONS ARE TO BE ATTEMPTED.

All questions are of equal value. Clearly labeled diagrams should be drawn wherever relevant.

1. Non standard fractionation schedules in radiotherapy have attracted considerable interest in recent years. Describe the radiobiological basis for such fractionations and the tumour types most likely to benefit.
2. Describe the properties of high-energy neutrons. In radiobiological terms, give an account of the potential value of neutron radiotherapy for the treatment of some types of human solid tumours. Do the clinical results justify the continued employment of this form of treatment?
3. Describe the effects of ionizing radiation on the cells of tissue in the human body. By what mechanisms are the acute and late effects of radiation damage manifested?
4. (A) What is meant by the term stochastic effects?
(B) Discuss the radiobiological basis of the recommendations made by the International Commission on Radiological Protection (I.C.R.P.) when setting dose limits for occupational exposure.
5. In radiobiological terms, write short notes on three of the following:
(A) Radiation myelopathy.
(B)
- 6.

SEPTEMBER 1991