

[LQ 140]

AUGUST 2020  
(MAY 2020 SESSION)

Sub. Code: 2035

**M.D. DEGREE EXAMINATION**  
**BRANCH IX – RADIO THERAPY**

**PAPER I – MEDICAL RADIATION PHYSICS AS APPLIED TO  
RADIOTHERAPY AND RADIATION BIOLOGY**

*Q.P. Code: 202035*

**Time: Three Hours**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Draw a block diagram of Linear Accelerator and label its parts. Discuss the recent advances made with respect to Linear Accelerator.
2. What are the various interactions of radiation with matter? Explain in detail with suitable diagram.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Biological Equivalent Dose (BED) and its applications.
2. Explain the principles of Radiation Protection with a note on Personnel Monitoring Devices and Maximum Permissible Dose (MPD).
3. What is QUANTEC? What are its advantages? Discuss its applications
4. Compare and contrast SSD and SAD.
5. Factors that modify radiation response.
6. Radioisotopes used for treatment of bone metastases
7. Discuss the physical characteristics of two commonly used HDR brachytherapy sources. Explain the ideal characteristics required for brachytherapy sources.
8. Discuss the benefit of Accelerated Fractionation with respect to Radiobiology.
9. Stochastic and non-stochastic effects of radiation.
10. Particle therapy

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