

[LP 1019]

OCTOBER 2019

Sub. Code: 4031

**M.Sc. MEDICAL PHYSICS EXAMS  
SECOND YEAR  
PAPER I – ADVANCED TECHNIQUES OF RADIOTHERAPY**

*Q.P. Code: 284031*

**Time : Three hours**

**Maximum : 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Describe the treatment planning process in three dimensional conformal radiotherapy treatments.
2. Describe in detail about the HDR Brachytherapy source strength measurement procedure using reentrant well-type chamber. Compare the physical aspects of single stepping Iridium-192 and Cobalt-60 sources used in HDR brachytherapy.

**II. Write notes on:** **(10 x 6 = 60)**

1. Forward and Inverse treatment planning processes.
2. Image guided radiotherapy (IGRT).
3. Total skin electron therapy (TSET).
4. Stereotactic radio-surgery using x-knife and gamma knife units.
5. Ocular brachytherapy.
6. Radioactive sources used for prostate implants.
7. Intravascular brachytherapy treatment techniques and the characteristics of beta-ray sources.
8. Tomotherapy.
9. Dose computation algorithms used in Treatment Planning Systems.
10. Intra-operative radiotherapy (IORT).

\*\*\*\*\*