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MANIPAL UNIVERSITY
FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS)
DEGREE EXAMINATION – JUNE 2016

SUBJECT: RECENT ADVANCES IN RADIOTHERAPY
(2011 SCHEME)

Wednesday, June 01, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- ✍ **Answer ALL the questions.**
✍ **Draw diagrams wherever necessary.**

1. Describe three different types of on-line digital portal imaging systems. Discuss the advantages and disadvantages of each of these systems.
(20 marks)

2. Discuss SRS Technique using X-ray knife.
(20 marks)

3. Discuss in detail Dose Calculation Algorithm for IMRT.
(20 marks)

4. **Write short notes on:**
 - 4A. Patient Immobilization-SRS/SRT
 - 4B. Inverse Planning
 - 4C. MLC- Interleaf transmission
 - 4D. Virtual Simulation(5 marks × 4 = 20 marks)



MANIPAL UNIVERSITY**FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS)
DEGREE EXAMINATION – JUNE 2016****SUBJECT: CLINICAL RADIATION DOSIMETRY AND RADIATION STANDARDIZATION
(2011 SCHEME)**

Friday, June 03, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

- ✍ **Answer ALL the questions.**
✍ **Draw diagrams wherever necessary.**

1. Explain the IAEA TRS 277 protocol for the output measurement of high-energy Electron beams?
(20 marks)
2. Elucidate the Design and Characteristics of Free air chamber and Graphite chambers.
(20 marks)
3. Discuss the operational quantities used in area monitoring and personal monitoring.
(20 marks)
4. **Write short notes on:**
 - 4A. Relation between exposure and Air kerma.
 - 4B. Give the conditions of Bragg-Gray cavity theory.
 - 4C. Calibration of ion chambers in terms of absorbed dose in water.
 - 4D. TG-51 protocol.

(5 marks × 4 = 20 marks)

