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MANIPAL UNIVERSITY

FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS) DEGREE EXAMINATION–
JUNE 2013

SUBJECT: RECENT ADVANCES IN RADIOTHERAPY

Tuesday, June 11, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

1. Write in detail about model based algorithm. (20 marks)
2. Write in detail about Tomotherapy. (20 marks)
3. Write in detail about Linac based SRS technique. (20 marks)
4. **Write short notes on:**
 - 4A. Any two mechanical checks for dynamic MLC.
 - 4B. Motorized Wedge.
 - 4C. Patient specific QA for IMRT.
 - 4D. ICRU reference point for external beam therapy.(5×4 = 20 marks)



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MANIPAL UNIVERSITY

FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS) DEGREE EXAMINATION– JUNE 2013

SUBJECT: CLINICAL RADIATION DOSIMETRY AND RADIATION STANDARDIZATION

Thursday, June 13, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

Answer ALL the questions.

1. Explain in detail Bragg-gray cavity theory and its validity. (20 marks)
2. Discuss in detail absorbed dose to water determination in a Co-60 gamma ray beam using TRS 398 protocol. (20 marks)
- 3A. Elucidate standardization of electron beams used in radiotherapy.
3B. Elucidate inter comparison of standard chambers ensuring traceability. (10+10 = 20 marks)
4. **Write a short note on:**
 - 4A. Relationship between absorbed dose and kerma.
 - 4B. Non-reference condition measurements for photons.
 - 4C. Significance of positioning of ion chambers at reference depth.
 - 4D. Calibration chain for electron and high energy photons from PSDL to user. (5×4 = 20 marks)

