Reg. No.									

MANIPAL UNIVERSITY

FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS) DEGREE EXAMINATION – JUNE 2014

SUBJECT: RECENT ADVANCES IN RADIOTHERAPY

Monday, June 16, 2014

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

✍ **Answer ALL the questions.**

1. Discuss in detail Dose Calculation Algorithm for IMRT.

2. Explain in detail the different wedge systems available with their advantage and disadvantages.

3. Explain in detail the different steps involved in 3D conformal treatment planning process.

(20 marks × 3 = 60 marks)

4. **Write short notes on.**

4A. Linac Isocentric Accuracy in SRS system

4B. Virtual Simulation

4C. Gamma knife

4D. Image guided Brachytherapy

(5 marks × 4 = 20 marks)

Reg. No.										

MANIPAL UNIVERSITY

FOURTH SEMESTER M.Sc. (MEDICAL RADIATION PHYSICS) DEGREE EXAMINATION – JUNE 2014

SUBJECT: CLINICAL RADIATION DOSIMETRY AND RADIATION STANDARDIZATION

Wednesday, June 18, 2014

Time: 10:00 – 13:00 Hrs. Max. Marks: 80

Answer ALL the questions.

1. Discuss in detail about the correction factors for the influence quantities in TRS 398 protocol (20 marks)

2A. Explain the standardization procedure for the brachytherapy sources in terms of Air Kerma Strength.

2B. Elucidate standardization of electron beams used in radiotherapy.

(10+10 = 20 marks)

3. Elucidate TRS 277 protocol for the output measurement of high energy X-ray beams. (20 marks)

4. **Write short notes on:**

4A. Significance of positioning of ion chambers at reference depth

4B. Relationship between absorbed dose and kerma

4C. Standardization of brachytherapy sources in terms of activity

4D. Charge particle equilibrium

(5 marks × 4 = 20 marks)