

**MANIPAL UNIVERSITY****MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2007****SUBJECT: PAPER I: BASIC SCIENCES IN RELATION TO RADIOTHERAPY**

Monday, April 02, 2007

Time: 3 Hrs.

Max. Marks: 100

**Answer all the questions.**

1. Discuss the physical, chemical and biological effects of radiation on the cell.  
(20 marks)
2. Describe the anatomy lymphatic system in head and neck region and discuss the management of secondary in neck nodes with unknown primary.  
(20 marks)
3. Enumerate the late effects of Radiation on various organs of the body.  
(20 marks)
4. Write short notes on:
  - 4A. Hyperthermia
  - 4B. Oxygen Effect
  - 4C. ALARA
  - 4D. Esthesioneuroblastoma.

(10×4 = 40 marks)



**MANIPAL UNIVERSITY****MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2007****SUBJECT: PAPER II: PHYSICS, NUCLEAR MEDICINE AND STATISTICS**

Tuesday, April 03, 2007

Time: 3 Hrs.

Max. Marks: 100

**Answer all the questions.**

1. Discuss the various isotopes used in Brachytherapy and their physical characteristics. Describe the ideal isotope used in Brachytherapy.  
(20 marks)
2. Describe the histopathologic classification of Brain tumors. How do you manage anaplastic astrocytoma of Brain?  
(20 marks)
3. What are the prognostics factors in breast cancer? How do you manage a premenopausal lady with estrogen receptor negative early breast cancer?  
(20 marks)
4. Write short notes on:
  - 4A. Back scatter
  - 4B. Beam defining devices
  - 4C. Chordoma
  - 4D. P-Value  
(10×4 = 40 marks)



Reg. No.

## MANIPAL UNIVERSITY

### MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2007

SUBJECT: PAPER III: CLINICAL RADIOTHERAPY AND CANCER CHEMOTHERAPY

Wednesday, April 04, 2007

Time: 3 Hrs.

Max. Marks: 100

**Answer all the questions.**

1. Discuss in detail the diagnosis and management of Acute Lymphoblastic Leukemia in a 4-year-old child.  
(20 marks)
2. Describe the staging and management of Neuroblastoma.  
(20 marks)
3. Describe the staging of Endometrial carcinoma and management of Endometrial carcinoma.  
(20 marks)
4. Write short notes on:
  - 4A. Topoisomerase-I inhibitors.
  - 4B. Brachytherapy in prostate cancer.
  - 4C.  $\beta$  - HCG.
  - 4D. Osteoclastoma.

(10×4 = 40 marks)



**MANIPAL UNIVERSITY****MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2007****SUBJECT: PAPER IV: RECENT ADVANCES IN RADIATION ONCOLOGY**

Thursday, April 05, 2007

Time: 3 Hrs.

Max. Marks: 100

**✍ Answer all the questions**

1. Discuss the pathological classification of Hodgkin's Lymphoma. Discuss the management of stage IIA Hodgkin's disease.

(20 marks)

2. Discuss the pathology and clinical features of brain tumors. Discuss the management of Astrocytoma grade IV of frontal lobe.

(20 marks)

3. Describe the physical and biological characteristics of "Intensity Modulated Radiation Therapy" (IMRT) and its clinical application.

(20 marks)

4. Write short notes on the following:

- 4A. Phase III clinical trials.  
4B. Endovascular Brachytherapy.  
4C. Chronic myeloid leukemia.  
4D. SIADH.

(10×4 = 40 marks)

