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## MANIPAL UNIVERSITY

MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER I: BASIC SCIENCES IN RELATION TO RADIOTHERAPY

Monday, April 04, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw neat labeled diagrams wherever necessary.**

1. Describe in detail the genetic effects of ionizing radiation.

(20 marks)

2. Enumerate the Faucial arch structures and discuss the management of Tonsillar tumours.

(20 marks)

3. Describe the staging classification of Retinoblastoma. How do you treat a child with group II FH Histology Retinoblastoma?

(20 marks)

4. **Write short notes on:**

4A. Cancer Registry

4B. Carcinoma in situ of cervix

4C. Beta emitters

4D. DNA Ploidy

(10×4 = 40 marks)



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## MANIPAL UNIVERSITY

MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER II: PHYSICS, NUCLEAR MEDICINE AND STATISTICS

Tuesday, April 05, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Draw neat labeled diagrams wherever necessary.

1. What is Bragg peak curve? Discuss in detail about particulate radiation.  
(20 marks)
2. What are the differences between cobalt 60 and linear accelerator? Describe about the physical characteristics of linear accelerator.  
(20 marks)
3. Discuss about Paris system in interstitial brachytherapy.  
(20 marks)
4. Write short notes on:
  - 4A. Iodine<sup>123</sup>
  - 4B. Digitizer
  - 4C. CT simulation
  - 4D. Chi Square test

(10×4 = 40 marks)



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## MANIPAL UNIVERSITY

MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER III: CLINICAL RADIOTHERAPY AND CANCER CHEMOTHERAPY

Wednesday, April 06, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw neat labeled diagrams wherever necessary.**

1. Describe the pathology of bladder tumours and discuss the staging and radiotherapeutic management of transitional cell carcinoma of the bladder.

(20 marks)

2. Describe the anatomy and lymphatic drainage of penis. How do you manage T2 No Mo carcinoma penis?

(20 marks)

3. Discuss the clinical features and staging of Hodgkin's management of stage IIA Hodgkin's Lymphoma in 24-year-old female.

(20 marks)

4. **Write short notes on:**

4A. Pain management

4B. IMRT

4C. Esthesio Neuroblastoma

4D. Keloids

(10×4 = 40 marks)



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## MANIPAL UNIVERSITY

MD (RADIOTHERAPY) DEGREE EXAMINATION – APRIL 2011

SUBJECT: PAPER IV: RECENT ADVANCES IN RADIATION ONCOLOGY

Thursday, April 07, 2011

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer all the questions.**

✍ **Draw neat labeled diagrams wherever necessary.**

1. Discuss the recent advantages in the treatment position and treatment delivery of radiotherapy.

(20 marks)

2. Describe the staging clinical features and management of multiple myeloma.

(20 marks)

3. Discuss the management of unknown primary with secondary lymph node in the axilla in 35-year-old female.

(20 marks)

4. **Write short notes on:**

4A. Photodynamic therapy

4B. Complications of HDR Brachytherapy in cervix

4C. CEA

4D. Arsenic Trioxide

(10×4 = 40 marks)

