

Reg. No.									
----------	--	--	--	--	--	--	--	--	--

MANIPAL ACADEMY OF HIGHER EDUCATION

MD (RADIOTHERAPY) DEGREE EXAMINATION – JUNE 2020

SUBJECT: PAPER I: BASIC SCIENCES, RADIOLOGY, STATISTICS, NUCLEAR MEDICINE

Wednesday, June 03, 2020

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Draw and explain the mammalian cell survival curve. Write on any one mathematical model describing the cell survival curve.

(15 marks)

2. Describe the anatomy and lymphatic drainage of stomach. Outline the role of adjuvant therapy in a patient with resected pT4NoMo well differentiated adenocarcinoma of the stomach.

(15 marks)

3. Write short notes on:

3A. Cerebrovascular syndrome

3B. Repair of sub-lethal damage

3C. Anatomy and lymphatic drainage of prostate

3D. Misonidazole

3E. Positron Emission Tomography

3F. Radiation cataractogenesis

3G. BRCA 1 and BRCA 2 genes

3H. Thermotolerance.

3I. Role of MRI in screening for breast cancer.

3J. Kaplan Mier survival curve

(7 marks × 10 = 70 marks)



Reg. No.

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (RADIOTHERAPY) DEGREE EXAMINATION – JUNE 2020
SUBJECT: PAPER II: RADIATION PHYSICS, RADIOTHERAPY

Thursday, June 04, 2020

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Write the staging of CA hypopharynx and the management of T3N2Cm0 CA pyriform sinus. (15 marks)

2. Discuss the construction of a linear accelerator (15 marks)

3. Short Notes:

3A. Cyclotron

3B. Tissue air ratio

3C. Tissue compensator

3D. Multileaf collimators

3E. Cesium 137

3F. Gamma zone monitor

3G. Linear energy transfer

3H. Paris system of brachytherapy

3I. Quality assurance of HDR unit

3J. Sr 89

(7 marks × 10 = 70 marks)



Reg. No.									
----------	--	--	--	--	--	--	--	--	--

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (RADIOTHERAPY) DEGREE EXAMINATION – JUNE 2020
SUBJECT: PAPER III: CHEMOTHERAPY, CLINICAL ONCOLOGY

Friday, June 05, 2020

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Staging of NSCLS and Management of T3N1M0.

(15 marks)

2. Management of all in a 9 year old.

(15 marks)

3. Short Notes:

3A. Management of doxorubicin extravasation

3B. Advantage and disadvantages of sequential chemoradiation

3C. Interferons

3D. Post OP management of CA rectum T3N0M0

3E. Bowen's disease

3F. Apoptosis

3G. Mitomycin C

3H. I-131

3I. Bicalutamide

3J. Photodynamic therapy in oral malignancy

(7 marks × 10 = 70 marks)



Reg. No.									
----------	--	--	--	--	--	--	--	--	--

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (RADIOTHERAPY) DEGREE EXAMINATION – JUNE 2020
SUBJECT: PAPER IV: RECENT ADVANCES

Saturday, June 06, 2020

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. List the modalities of APBI; discuss any one method in detail (15 marks)
2. Discuss the management of spinal cord compression secondary to metastases (15 marks)

3. Short Notes:

- 3A. Cone beam CT
- 3B. Heavy ion radiation
- 3C. Oncocytoma
- 3D. Modified gail model
- 3E. Trastuzumab
- 3F. Ki-67
- 3G. Tissue equivalent materials
- 3H. Gamma knife
- 3I. International prognostic index for follicular lymphoma
- 3J. Temsirolimus

(7 marks × 10 = 70 marks)

