

**MANIPAL UNIVERSITY****SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2016****SUBJECT: GENERAL AND APPLIED PATHOLOGY  
(2011 SCHEME)**

Thursday, December 15, 2016

Max. Marks: 40

Time: 10:00-11:30 Hrs.

**Answer ALL questions:**

1. Define shock. What are the different types of shock? Describe the pathogenesis of septic shock. (1+3+4 = 8 marks)

2. Define necrosis. Describe the different types of necrosis with examples. (1+6 = 7 marks)

3. **Write short notes on:**

3A. Nutritional anaemias

3B. Fate of a thrombus

3C. Classification and clinical features of acute myeloid leukemia

3D. Phagocytosis

3E. AIDS

(5 marks × 5 = 25 marks)



**MANIPAL UNIVERSITY****SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2016****SUBJECT: RADIATION PHYSICS  
(2011 SCHEME)**

Friday, December 16, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

**PART: A****1. Answer all the questions:**

- 1A. Write a short note on Compton Scattering.
- 1B. Write a short note on filters.
- 1C. What is the activity of 1gm of Ra-226 (half-life = 1622 years)?
- 1D. Write in detail about transient equilibrium.
- 1E. Write a short note on photoelectric effect.
- 1F. Explain alpha decay and beta decay.

(5 marks × 6 = 30 marks)

**PART: B****2. Answer any FIVE of the following questions:**

- 2A. Describe in detail the construction and working of an X-ray tube with a schematic diagram.
- 2B. What is filtration? Write in detail about different types of filters.
- 2C. Write in detail about photoelectric effect and Compton process.
- 2D. How long it will take for 10mCi sample of I-123 half-life 13.2hr and 50mCi sample of Tc-99m Half-life-6hr to possess the same activity.
- 2E. Write in detail about the elementary principles of scintillation detector.
- 2F. Explain in detail interaction of electrons with matter.

(10 marks × 5 = 50 marks)



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

## MANIPAL UNIVERSITY

SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2016

SUBJECT: PRINCIPLES AND PRACTICE OF RADIOTHERAPY: PART – I  
(2011 SCHEME)

Saturday, December 17, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

### PART – A

1. Answer any FIVE questions from the following:

- 1A. Mention the different steps of a typical radiotherapy planning process. Write in detail on treatment simulation.
- 1B. Explain how is a patient with cancer suffering from pain managed.
- 1C. Write in brief about altered fractionation regimes.
- 1D. Classify cancer. What are the differences between benign and malignant tumors?
- 1E. Write briefly about the factors affecting radiocurability and radiosensitivity of tumors.
- 1F. Write briefly on the different methods by which cancer is known to spread.

(10 marks × 5 = 50 marks)

### PART – B

2. Write short notes on the following:

- 2A. Radiation induced brain damage
- 2B. Common rules in TNM staging system
- 2C. Complications of cancers
- 2D. Tumor suppressor genes and oncogenes
- 2E. TD 5/5 of any five organs
- 2F. Redistribution and Reoxygenation

(5 marks × 6 = 30 marks)





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

## MANIPAL UNIVERSITY

**SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2016**

**SUBJECT: PRINCIPLES AND PRACTICE OF RADIOLOGY  
(2011 SCHEME)**

Monday, December 19, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

1. **Answer any FIVE questions from the following:**

- 1A. Describe the characteristics of an Image.
- 1B. What do you mean by PACS and list out its importance.
- 1C. Describe the instrumentation for an Automatic Processor.
- 1D. Explain the construction and working principle of an X-ray tube.
- 1E. Explain the methods of Silver recovery.
- 1F. Describe the positioning and basic views for upper limb.

(10 marks × 5 = 50 marks)

2. **Answer ALL questions.**

- 2A. Mention the types of X-ray cassettes and its use.
- 2B. Explain the features of a Characteristic Curve.
- 2C. What do you mean by an Artefact and explain the artefacts in CT.
- 2D. Describe the techniques used on DSA.
- 2E. Outline the constituents and functions of Fixer.
- 2F. Explain quantum detection and conversion efficiency.

(5 marks × 6 = 30 marks)



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

## MANIPAL UNIVERSITY

**SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2016**

**SUBJECT: (A) HOSPITAL PRACTICE AND PATIENT CARE (B) RECORD KEEPING  
(2011 SCHEME)**

Tuesday, December 20, 2016

Time: 10:00-13:00 Hrs.

Max. Marks: 80

### SECTION – A : HOSPITAL PRACTICE AND PATIENT CARE (40 MARKS)

1. Answer any FOUR of the following questions:

- 1A. What are the lifting and moving techniques to be used for a cancer patient in radiotherapy?
- 1B. Explain the nursing care for a patient having stoma.
- 1C. Briefly explain dietary advice and nutrition for cancer patient in radiotherapy.
- 1D. Write briefly on the care that has to be taken for a patient having Foley's catheter.
- 1E. Explain the types of consent form and also write a short note on legal issues of medical records.

(10 marks × 4 = 40 marks)

### SECTION – B : RECORD KEEPING (40 MARKS)

Answer any FOUR FULL questions:

- 2A. Define medical record form.
- 2B. Write the short note on unit serial II types of numbering system.
- 2C. Write the short note on integrated medical records. (2+4+4 = 10 marks)
- 3A. Mention various method of filing of medical record in medical record department.
- 3B. Write the importance of central cancer register. (5+5 = 10 marks)
- 4A. What do you mean by completeness of medical record?
- 4B. Discuss fundamental rules of handling records in healthcare facilities. (5+5 = 10 marks)
- 5A. How medical record analysis can be carried out in medical record department?
- 5B. Describe the format of output patient records. (5+5 = 10 marks)
- 6A. What are the various physics facilities required for the maintenance of medical record?
- 6B. What are the process involve in computerization of medical record? (5+5 = 10 marks)