Reg. No.										

MANIPAL UNIVERSITY

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

SUBJECT: GENERAL AND APPLIED PATHOLOGY
(2011 SCHEME)

Wednesday, June 15, 2016

Time: 10:00-11:30 Hrs. Max. Marks: 40

Answer ALL questions:

1. Define leukemia. Give the FAB classification of acute leukemia. Describe the clinical features of acute leukemia.

(1+4+3 = 8 marks)

2. Define inflammation. Describe the cellular events of acute inflammation.

(1+6 = 7 marks)

3. **Write short notes on:**

3A. Sickle cell anaemia

3B. Lepromatous leprosy

3C. Spread of tumours

3D. Factors influencing wound healing

3E. Fate of a thrombus

(5 marks × 5 = 25 marks)

Reg. No.										

MANIPAL UNIVERSITY

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

SUBJECT: RADIATION PHYSICS
(2011 SCHEME)

Friday, June 17, 2016

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

PART: A

1. **Answer all the questions:**

1A. Write a short note on photoelectric effect.

1B. Define absorbed dose and exposure.

1C. Write briefly about scintillation detectors.

1D. What are electromagnetic radiations? Mention their properties.

1E. Explain Line focus principle and Heel effect.

1F. i) What is the energy equivalent to the mass of an electron? Because the mass of a particle increases with velocity, assume that the electron is at rest.

ii) How many Becquerel of ^{24}Na should be ordered so that the sample activity will be 3.7×10^{8} Bq when it arrives 24 hours later? ($T_{1/2}$=15 hours)

(5 marks × 6 = 30 marks)

PART: B

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

2A. Write in detail how electrons interact with matter.

2B. Write about construction and working of a Geiger Muller counter.

2C. Write in detail about nuclear fusion and fission process giving examples for each.

2D. What is filtration? Write about different types of filters and also mention the recommended total filtration for diagnostic radiology.

2E. Write in detail about Bohr's atom model.

2F. **Write a short note on:**

i) Activity

ii) Exposure

iii) KERMA

iv) Absorbed dose

v) Equivalent dose

(10 marks × 5 = 50 marks)

Reg. No.										

MANIPAL UNIVERSITY

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

SUBJECT: PRINCIPLES AND PRACTICE OF RADIOTHERAPY: PART – I

(2011 SCHEME)

Monday, June 20, 2016

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

PART – A

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

1A. Discuss 4 R's of radiobiology in detail.

1B. Discuss about altered fractionation schedules.

1C. What are the steps involved in Radiotherapy Planning?

1D. How will you simulate a patient of Cancer of the breast?

1E. Differences between Teletherapy and Brachytherapy.

1F. What is Time Dose Fractionation (TDF) in Radiotherapy?

(10 marks × 5 = 50 marks)

PART- B

2. **Answer all the following questions**

2A. TD 5/5 of any five organs

2B. Palliative Radiotherapy

2C. Late effects of Radiotherapy

2D. Split Course Radiotherapy

2E. Bite Block in head and neck cancer

2F. Sub Lethal and Supra Lethal dose

(5 marks × 6 = 30 marks)

Reg. No.										

MANIPAL UNIVERSITY

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

SUBJECT: PRINCIPLES AND PRACTICE OF RADIOTHERAPY: PART – I

(2011 SCHEME)

Monday, June 20, 2016

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

PART – A

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

1A. Discuss 4 R's of radiobiology in detail.

1B. Discuss about altered fractionation schedules.

1C. What are the steps involved in Radiotherapy Planning?

1D. How will you simulate a patient of Cancer of the breast?

1E. Differences between Teletherapy and Brachytherapy.

1F. What is Time Dose Fractionation (TDF) in Radiotherapy?

(10 marks × 5 = 50 marks)

PART- B

2. **Answer all the following questions**

2A. TD 5/5 of any five organs

2B. Palliative Radiotherapy

2C. Late effects of Radiotherapy

2D. Split Course Radiotherapy

2E. Bite Block in head and neck cancer

2F. Sub Lethal and Supra Lethal dose

(5 marks × 6 = 30 marks)

Reg. No.										

MANIPAL UNIVERSITY

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

SUBJECT: PRINCIPLES AND PRACTICE OF RADIOLOGY
(2011 SCHEME)

Wednesday, June 22, 2016

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

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

1A. Describe the basic principle of MRI.

1B. Explain the Manual Processing.

1C. Explicate the production and features of a Characteristic Curve.

1D. Write about the Instrumentation of CT.

1E. Discuss about the factors affecting development and fixing of film.

1F. Write the positioning and basic views for upper limb.

(10 marks × 5 = 50 marks)

2. **Answer ALL questions.**

2A. Explain the steps to control exhaustion of processing solutions.

2B. Define the characteristics of an image.

2C. Outline the methods used to recover silver from processing solution.

2D. Write the indications and positioning for Ankle AP.

2E. List out the practical measures to reduce dose to the patient during routine radiography.

2F. Describe PACS.

(5 marks × 6 = 30 marks)