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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2015

SUBJECT: GENERAL AND APPLIED PATHOLOGY
(2011 SCHEME)

Tuesday, December 15, 2015

Time: 10:00-11:30 Hrs.

Max. Marks: 40

✍ **Answer ALL questions:**

1. Classify anaemias. Describe the clinical features and basic investigations of iron deficiency anaemia.

(3+2+3 = 8 marks)

2. Define neoplasia. Describe the differences between benign and malignant tumors.

(1+6 = 7 marks)

3. **Write short notes on:**

3A. Embolism

3B. Necrosis

3C. Granulomatous inflammation

3D. Hemophilia

3E. AIDS

(5 marks × 5 = 25 marks)



MANIPAL UNIVERSITY
SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2015
SUBJECT: RADIATION PHYSICS
(2011 SCHEME)

Wednesday, December 16, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

Answer ALL the questions.

- 1A. Write briefly about characteristic x-ray energy spectrum.
- 1B. Explain gas multiplication phenomenon in proportional counter.
- 1C. Interaction of charged particles with matter.
- 1D. Define half-life, mean life. Derive for the same.
- 1E. Write a short note on photoelectric effect.
- 1F. How long it will take for 10mci sample of I-123 half-life 13.2 hr and 50mci sample of Tc-99m half-life-6hr to possess the same activity.

(5 marks × 6 = 30 marks)

2. Answer any FIVE of the following questions:

- 2A. Write in detail about attenuation coefficients and factors affecting attenuation.
- 2B. Derive the equation of law of successive disintegration and explain transient and secular equilibrium.
- 2C. Write detail about interaction of neutrons with matter.
- 2D. Explain construction and working principle of Geiger Muller detector.
- 2E. Discuss about various atomic models.
- 2F. Write in detail about nuclear fusion and fission process giving examples for each.

(10 marks × 5 = 50 marks)



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SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2015

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

Thursday, December 17, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

PART-A

1. Answer any FIVE questions from the following:

- 1A. What is meant by neoplasia? What are the steps in the development of neoplasia?
- 1B. Write the common signs and symptoms of cancer. What is meant by cancer related fatigue?
- 1C. What is meant by radiosensitivity and radiocurability of tumours?
- 1D. Cerebrovascular syndrome and hematological syndrome.
- 1E. List a few points to be considered in patient set up and immobilization for radiotherapy treatment.
- 1F. What is meant by the concept of functional subunit (FSU) in the study of radiation tolerance?

(10 marks × 5 = 50 marks)

PART -B

2. Answer ALL questions from the following:

- 2A. Different types of cancer pain
- 2B. Repair of sublethal damage
- 2C. Hypofractionation
- 2D. Common rules in TNM staging system
- 2E. TD 5/5 and TD 50/5
- 2F. Complications due to cancer

(5 marks × 6 = 30 marks)



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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2015

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

Friday, December 18, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

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

- 1A. Write about the Instrumentation for MRI.
- 1B. Discuss in detail about the construction of an X-ray tube.
- 1C. Describe about the steps in producing characteristic curve.
- 1D. Explicate Manual film processing.
- 1E. Discuss about the importance of PACS in health care.
- 1F. Describe the positioning and basic radiographic view for Thorax.

(10 marks × 5 = 50 marks)

2. **Answer ALL questions.**

- 2A. Explain the basic principle of MRI.
- 2B. Outline the CT artefacts and its remedies.
- 2C. Explain the methods of silver recovery.
- 2D. Narrate the methods to reduce the radiation dose to the patient during routine radiography.
- 2E. Explicate Quantum detection and conversion efficiency.
- 2F. Describe the types of X-ray cassettes.

(5 marks × 6 = 30 marks)



MANIPAL UNIVERSITY

SECOND YEAR B.Sc. M.R.T. DEGREE EXAMINATION – DECEMBER 2015 SUBJECT: (A) HOSPITAL PRACTICE AND PATIENT CARE (B) RECORD KEEPING (2011 SCHEME)

Saturday, December 19, 2015

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. Write briefly about the skin care of a patient receiving radiotherapy for cancer of the tongue.
- 1B. Enumerate the diseases for which donated blood is tested prior to transfusion.
- 1C. Write briefly about precautions to be taken when dealing with a HIV positive patient with an open infected wound.
- 1D. Write on the protein, carbohydrate and on calorific requirements of patients with cancer receiving treatment.
- 1E. Enumerate the types of bowel diversions. Why is ileostomy care different from colostomy care?

(10 marks × 4 = 40 marks)

SECTION – B : RECORD KEEPING (40 MARKS)

Answer any FOUR of the following questions:

- 2A. Write the various rules involved in FORM designing.
- 2B. Write format of history and Physical examination FORM. (5+5 = 10 marks)
- 3A. Write the merits and demerits of middle digit filing system.
- 3B. Name the types of medical papyri and explain each briefly. (5+5 = 10 marks)
- 4A. How is the confidentiality of a Medical Record is maintained in hospital?
- 4B. What is the policy in retention of Medical records of medico-legal cases? (5+5 = 10 marks)
- 5A. Write the format of request for X-ray examination.
- 5B. Mention the values of Medical Record for patients. (4+6 = 10 marks)
- 6A. Expand and explain SOMR.
- 6B. Write about the needs, advantages and disadvantages of microfilming of medical records. (4+6 = 10 marks)