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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: ADVANCED TECHNIQUE AND INSTRUMENTATION OF MRI

Monday, May 28, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Write a note on MR contrast media.

(20 marks)

2. **Write short notes on:**

2A. Types of magnets

2B. Basic Principles

2C. Proton density image

2D. RF transmitter and receiver coils

2E. Cardiac MRI

2F. Pulse cycle

(10×6 = 60 marks)



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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: INTERVENTIONAL RADIOLOGY TECHNIQUES

Wednesday, May 30, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Describe in detail the indications, contraindications, advantages, disadvantages, instrumentation and procedure of carbon dioxide angiography.

(20 marks)

✍ **Write short notes on:**

- 2A. Seldinger's technique
- 2B. Image processing in digital subtraction angiography
- 2C. Percutaneous transhepatic biliary drainage
- 2D. Ultrasound guided liver biopsy
- 2E. Catheters, embolizing agent(s) and technique of neck mass embolization
- 2F. Inferior vena cava filter placement

(10×6 = 60 marks)



Reg. No.

MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: CARE OF PATIENTS IN DIAGNOSTIC RADIOLOGY

Friday, June 01, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. What are the biological effects of X-Ray? Discuss the various short term and long term effects.

(20 marks)

✍ **Write short notes on:**

- 2A. CPR in cardiac arrest
2B. Abdominal thrust (Heimlich maneuver)
2C. Precautions prior to IV contrast administrations.
2D. Oxygen administration in emergency
2E. Crash carts
2F. Electronic patient monitoring

(10×6 = 60 marks)



Reg. No.

MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: MANAGEMENT OF HEALTHCARE ORGANIZATION

Monday, June 04, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

Answer ALL the questions.

1. Discuss the 'evaluation of Hospital Services'.

(20 marks)

Write short notes on:

2A. Break-even Analysis

2B. Leadership

2C. Standard Operating Procedures (SOP's)

2D. Patient care area

2E. Delegation

2F. Decision Making

(10 × 6 = 60 marks)



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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: RADIATION EVALUATION & PROTECTION IN DIAGNOSTIC RADIOLOGY

Wednesday, June 06, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

✍ Answer ALL the questions.

✍ Major Question:

1. Write a detailed note on aim and principles of radiation protection.

(20 marks)

2. Write short notes on:

2A. Pocket dosimeter

2B. 10 day rule

2C. Primary barrier

2D. X-ray beam filtration

2E. Automatic exposure control

2F. CTDI

(10×6 = 60 marks)



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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – MAY/JUNE 2012

SUBJECT: NUCLEAR MEDICINE IMAGING TECHNIQUE

Friday, June 08, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Explain factors determining image quality in nuclear medicine.

(20 marks)

2. **Write short notes on:**

2A. Basic principles of gas filled detectors

2B. Procedures for handling spills

2C. Specific activity

2D. Quality assurance of imaging equipments

2E. Scintillation detectors

2F. Compton scatter

(10×6 = 60 marks)



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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: ADVANCED TECHNIQUE AND INSTRUMENTATION OF MRI

Monday, December 17, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Explain Spin echo pulse sequence and turbo spin echo pulse sequence.

(20 marks)

2. **Write short notes on:**

2A. BOLD Imaging

2B. Abdominal imaging protocols

2C. 2D Fourier transformation method

2D. Image formation

2E. T1 weighted image

2F. Relaxation time

(10×6 = 60 marks)



Reg. No.

MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: INTERVENTIONAL RADIOLOGY TECHNIQUES

Tuesday, December 18, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Discuss renal anatomy. Write brief note on renal angiography procedure.

(20 marks)

✍ **Write short notes on:**

2A. Informed consent

2B. Serial film changers

2C. Myelography

2D. Endoscopic retrograde cholangiopancreatography

2E. Thrombolysis

2F. Percutaneous abscess drainage

(10×6 = 60 marks)



Reg. No.

MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: RADIATION EVALUATION & PROTECTION IN DIAGNOSTIC RADIOLOGY

Wednesday, December 19, 2012

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 80

Answer ALL the questions.

Major Question:

1. What are the principles of radiation protection? Enumerate practical measures to reduce patient dose.

(20 marks)

2. **Write short notes on:**

2A. 28 day rule.

2B. Biological effects of Radiation.

2C. Thermoluminescent dosimeter.

2D. Tissue weighting factor.

2E. Warning lights and signs.

2F. Technical considerations to minimize dose in mammography.

(10×6 = 60 marks)



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MANIPAL UNIVERSITY

SECOND YEAR M.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2012

SUBJECT: NUCLEAR MEDICINE IMAGING TECHNIQUE

Thursday, December 20, 2012

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

✍ **Major Question:**

1. Write a note on hospital response to radiation accident.

(20 marks)

2. **Write short notes on:**

2A. Photoelectric process

2B. Geiger muller counters

2C. Exponential decay

2D. SPECT

2E. Factors determining image quality of a gamma camera

2F. Radiation units and quantities

(10×6 = 60 marks)

