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## MANIPAL UNIVERSITY

THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2010

SUBJECT: PHYSICS AND DARK ROOM TECHNIQUES

Tuesday, June 08, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

✍ **Answer all questions.**

✍ **All questions carry equal marks.**

- 1A. What are the physical characteristics of the x-ray beam?
- 1B. Explain the factors influencing quality and intensity of x-ray beam.
2. List the types of x-ray generator and explain the capacitor charged generator.
3. Explain the importance and use of time, distance and shielding for radiation protection in medical imaging.
4. Explain the characteristics of a radiographic image in detail.
5. Define oxidation and reduction and explain their significance in radiographic film processing.



**MANIPAL UNIVERSITY****THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2010****SUBJECT: RADIOLOGICAL PROCEDURES**

Thursday, June 10, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions. Each question carries EIGHT marks.**

1. Describe contrast media used in GIT.
2. Write in brief about Indication, contraindication and preparation for BMFT.
3. Write short note on sialography.
4. Describe angiographic catheters.
5. Describe the procedure of Barium Swallow.

✍ **Describe the following radiographic views:**

6. Ankle Joint – AP & Lateral.
7. View for Para nasal sinuses.
8. Cervical spine AP & Lateral.
9. Chest - Left Lateral decubitus.
10. Optic foramina.



# MANIPAL UNIVERSITY

## THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – JUNE 2010

### SUBJECT: NEW IMAGING MODALITIES AND RECENT ADVANCES

Saturday, June 12, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

✍ **Answer ALL the questions.**

1. Mention different generations of CT scanners and their specification. (8 marks)
2. Describe in detail PACS. (8 marks)
3. What are transducers? Explain in detail construction and functioning. (8 marks)
4. Write in detail about the basic principle behind MRI. (8 marks)
5. Write short note on:
  - 5A. Different types of magnets which can be used in MRI.
  - 5B. Safety in MRI. (4+4 = 8 marks)
6. Write note on:
  - 6A. Advantages and disadvantages of Macroradiography.
  - 6B. Target of X-ray tube in Mammography. (4+4 = 8 marks)
7. Describe the artifacts seen in MRI. (8 marks)
8. What is a digitizer used in computerized radiography? Write about the workflow in a Digitizer. (8 marks)
9. Write short note on:
  - 9A. Detector cross talk in CT
  - 9B. CT number (4+4 = 8 marks)
10. A patient arrives with RTA, mainly has head injury. Compare the different modalities in radiology which can be made use of? (8 marks)

