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MANIPAL UNIVERSITY

THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2014

SUBJECT: PHYSICS AND DARK ROOM TECHNIQUES

Wednesday, December 17, 2014

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

1. Explain the construction and working of capacitor discharge generator.
2. Compare and contrast direct fluoroscopy and image intensifier.
3. How is latent image converted into visible image?
4. When should we use grid or air gap technique? Add a note on effect of filtration on patient as well as on exposure factors.
5. **Write short note on:**
 - 5A. Space charge effect
 - 5B. Fuse
6. Explain the working of semiconductor rectifiers.
7. Discuss film latitude and exposure latitude.
8. Define artifacts and explain artifacts that occur due to poor handling and storage conditions.
9. Explain how the temperature of developing solution is maintained in automatic processor.
10. Classify and elaborate on films used in medical imaging.

(8 marks × 10 = 80 marks)



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MANIPAL UNIVERSITY

THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2014

SUBJECT: RADIOLOGICAL PROCEDURES

Thursday, December 18, 2014

Time: 10:00-13:00 Hrs.

Max. Marks: 80

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

1. Classify Contrast media and mention about the different types of Contrast Media.
2. Describe FTR in detail.
3. Describe the Indication, Contraindication, Technique and Procedure for IVU.
4. Explain the Procedure for Sialography in detail.
5. Write short notes on Cervical Myelography.

✍ **Describe the following Radiographic views:**

6. "Lordotic" view
7. "Jones" view
8. Views for Scaphoid
9. "Scotty Dog" view
10. "Intercondylar Notch" view



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MANIPAL UNIVERSITY

THIRD YEAR B.Sc. M.I.T. DEGREE EXAMINATION – DECEMBER 2014

SUBJECT: NEW IMAGING MODALITIES AND RECENT ADVANCES

Friday, December 19, 2014

Time: 10:00-13:00 Hrs.

Max. Marks: 80

✍ Answer ALL the questions. Draw suitable diagrams wherever required.

1. Define K space. Explain the basic K space filling method in MRI.
2. Write a short note on phase contrast MRA.
3. Write a note on MRI safety.
4. Describe the parameters for dual phase CT examination of liver.
5. Explain filtered back projection image reconstruction algorithm in CT.
6. Write a note on mechanical transducers for ultrasonography.
7. Explain tangential view of mammography.
8. Write a short note on digital fluoroscopy.
9. Define radioactivity. Explain radioactive decay by beta emission.
10. Explain the working of CR system in short.

(8 marks × 10 = 80 marks)

