

**B.Sc. Imaging Technology Third Year Semester-VI**

**February 2020 Examination**

**Time: 2.30 Hrs.**

**Paper-I**

**[Max. Marks: 80]**

**Sub: MRI Physics and Instrumentation**

**Q.P Code: J6440**

*Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

- 1 Write in detail about spin echo sequence and fast/turbo spin echo sequence.
- 2 Explain patient preparation and safety consideration during MRI scan.

**SHORT ESSAY (Answer any Six)**

**6 X 5 = 30 Marks**

- 3 Write about larmor equation and radio frequency?
- 4 Explain about super conducting magnets.
- 5 What is the difference between 2D and 3D picture?
- 6 Explain about diamagnetism and ferromagnetism.
- 7 Describe fringe field in MRI and ways of preventing it?
- 8 What are molecular tumbling rate effects on T1 and T2?
- 9 Write about MR imaging history?
- 10 Write about spinning proton?

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

- 11 What is magnetization?
- 12 What is shim coil?
- 13 What is paramagnetism?
- 14 What is gradient coil?
- 15 What is T2 relaxation?
- 16 Enumerate MR contrast agents
- 17 What are types of magnets?
- 18 What is nuclear magnetization?
- 19 What is T1 relaxation?
- 20 What is the principle of gradient recalled echo?
- 21 What is NMR?
- 22 What is MRI pulse sequence?

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**B.Sc. Imaging Technology Third Year Semester-VI  
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**Paper-II**

**[Max. Marks: 80]**

**Sub: MRI Imaging basics and advances in MRI**

**Q.P Code: J6450**

*Your answers should be specific to the questions asked.*

*Draw neat labeled diagrams wherever necessary.*

**LONG ESSAY**

**2 × 10 = 20 Marks**

- 1 Write about DWI/ADC MR imaging and its importance?
- 2 What are the types of MR angiography? And write briefly about it?

**SHORT ESSAY (Answer any Six)**

**6 × 5 = 30 Marks**

- 3 What is mammography? And its uses?
- 4 What is arterial spin labelling?
- 5 What are the uses of MR spectroscopy?
- 6 Write about importance of MR perfusion studies?
- 7 Write characteristics of T1 weighted MR imaging?
- 8 Write about projections in mammography?
- 9 What is proton density imaging?
- 10 Write about gadolinium based contrast agents?

**SHORT ANSWERS (Answer any Ten)**

**10 × 3 = 30 Marks**

- 11 Anode in mammography?
- 12 What is T2 shine through?
- 13 Write uses of proton density imaging?
- 14 What is CISS sequence?
- 15 Characteristics of T2 weighted imaging?
- 16 What is TR?
- 17 What is B value?
- 18 What is TOF?
- 19 What is digital mammography?
- 20 What are the types of MR perfusion studies?
- 21 Indications for MRI brain?
- 22 Write uses of FLAIR sequence?

**B.Sc. Imaging Technology Third Year Semester-VI**

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Paper-III

[Max. Marks: 80]

**Sub: Interventional radiological procedures**

**Q.P Code: J6460**

*Your answers should be specific to the questions asked.*

*Draw neat labeled diagrams wherever necessary.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

- 1 Discuss the adverse contrast reactions during the special procedures?
- 2 Write in detail about peripheral venography?

**SHORT ESSAY (Answer any six)**

**6 X 5 = 30 Marks**

- 3 Write about mobile radiography?
- 4 How to localize foreign body using radiography?
- 5 Write the procedure of MCU?
- 6 Write a brief note on coronary angiogram?
- 7 Complications of digital subtraction angiography?
- 8 Write a note on forensic radiology?
- 9 Difference between ionic and non-ionic contrast agents.
- 10 Explain about pre-operative choleodactiography?

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

- 11 Indications for retrograde urethrography?
- 12 What are the complications of percutaneous nephrostomy?
- 13 Duplication radiography.
- 14 Post-operative choleodactiography.
- 15 Emergency drugs in radiology department.
- 16 What is macro radiography?
- 17 What is soft tissue radiography technique?
- 18 Write about superior venography
- 19 Macro radiography.
- 20 Importance of multiple radiography?
- 21 What is pulmonary arteriography?
- 22 What is high kilovoltage technique?

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