

**BACHELOR OF SCIENCE (RADIOLOGY & IMAGING TECHNOLOGY)(CBCS-2019 COURSE)
B.Sc. (R&IM) Sem-V : WINTER- 2022
SUBJECT : BASIC MRI-I**

Day : Thursday

Time : 10:00 AM-12:00 PM

Date : 02-02-2023

W-22536-2022

Max. Marks : 40

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- 1) There are Three sections as follows:

Section- A - Objective Type Questions	20 Marks
Section- B - Long Answer Questions	20 Marks
Section- C- Short Answer Question	20 Marks
 - 2) Section B has four long questions and ANY TWO have to be answered.
 - 3) Section C has six short questions and ANY FOUR have to be answered.
 - 4) Answer to both sections B and C should be written in same answer book.
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SECTION – B

Answer ANY TWO out of FOUR questions (10 x 2= 20)

1. Write in detail about inversion recovery sequences. Mention difference between STIR and FLAIR sequences.
2. Write in detail about MRI artefacts.
3. Write in short about Radio-frequency coils.
4. How do you acquire MRI Cervical spine study? Mention indications, contraindication and sequences taken and basics of sequence planning.

SECTION – C

Answer ANY FOUR out of SIX questions (5 x 4= 20)

1. What are paramagnetic, diamagnetic and ferromagnetic substances?
 2. Write about superconducting magnets.
 3. What is quenching?
 4. Write in short about different zones in MRI in terms of MR-safety.
 5. Enumerate different sequences taken in MRI Brain-epilepsy protocol.
 6. Write in short about image quality determinants.
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Section- B - Long Answer Questions 20 Marks
Section- C- Short Answer Question 20 Marks
 - 2) Section B has four long questions and ANY TWO have to be answered.
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 - 4) Answer Section A in the sheet provided and submit the sheet after answering.

SECTION – A

Multiple Choice questions have been provided. Tick the single best answer. (10 x 2 =20)

MCQs:

1. First MR Machine was invented by:
 - A. Roentgen and Curie
 - B. Mansfield and Lauterbur
 - C. Hounsfield and Edison
 - D. None
2. Which of these is not a gradient used in MRI:
 - A. Slice-selection
 - B. Phase-selection
 - C. Phase-encoding
 - D. Frequency-encoding
3. MRCP stands for:
 - A. Magnetic Repeated Cholangio-pancreaticography
 - B. Magnetic Resonance Cholangio-pancreaticography
 - C. Magnetic Resistance Cholangio-pancreaticography
 - D. Magnetic Real-time Cholangio-pancreaticography

PTO

4. Edge of K-space contains:
- A. Low spatial frequency information
 - B. High spatial frequency information
 - C. Both of the above
 - D. None
5. Smallest unit of digital image is:
- A. Pixel
 - B. Voxel
 - C. Slice
 - D. None
6. Centre of K-space contains:
- A. Low spatial frequency information
 - B. High spatial frequency information
 - C. Both of the above
 - D. None
7. The time interval between start of one RF pulse and start of another RF pulse is:
- A. TR
 - B. TE
 - C. TI
 - D. FID
8. The time between start of RF pulse and reception of the signal is:
- A. TR
 - B. TE
 - C. TI
 - D. FID
9. Full form of FID is:
- A. Free Induction Delay
 - B. Free Incidence Decay
 - C. Free Induction Decay
 - D. Free Incidence Delay
10. Head coil in MR is which type of coil?
- A. Surface
 - B. Volume
 - C. Phased-array
 - D. None

Total Marks Obtained: _____

Signature of Invigilator:

Signature of Examiner:
