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BRAINWARE UNIVERSITY

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Brainware University
398, Ramkrishnapur Road, Barasat
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Term End Examination 2025-2026

Programme – B.Sc.(MRIT)-2022/B.Sc.(MRIT)-2023

Course Name – Protocol and Procedure of MRI

Course Code - BMRITC503

(Semester V)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :
- Select the correct option , TR stand for in MRI?
 - Transient Relaxation
 - Time of Repetition
 - Time of Resonance
 - Transverse Relaxation
 - Select the correct option, What technique is used to correct for motion artifacts?
 - Parallel imaging
 - Gating
 - Fat suppression
 - Increased TR
 - Select which of the following sequences would be most useful in evaluating cartilage in joints?
 - T1-weighted
 - Proton density (PD)
 - FLAIR
 - DWI
 - Identify the difference between T1 and T2 relaxation?
 - T1 measures proton density, while T2 measures tissue temperature
 - T1 measures longitudinal relaxation, while T2 measures transverse relaxation
 - T1 uses magnetic fields, while T2 uses sound waves
 - There is no difference
 - Identify the purpose of MRI safety screening form.
 - To identify contraindications and potential hazards
 - To improve image quality
 - To reduce scan time
 - To enhance patient comfort
 - Select the correct option about patient positioning in MRI.
 - With arms over the head
 - As per protocol guideline
 - With legs crossed
 - Without support or padding
 - Identify the correct option for Ramping in MRI.
 - To release the MRI field
 - To release cryogens
 - To install and starts the MRI Scanner
 - None of these
 - Select the cooling temperature for MRI Scanner.

- a) -270°C
- b) 4 Kelvin
- c) Both A & B
- d) 10 kelvin
- (ix) Select the correct MRI modality dedicatedly design for Traumatic Brain Injury patient.
 - a) Open MRI
 - b) Closed MRI
 - c) Hyperfine MRI
 - d) Upright MRI
- (x) Select the key imaging parameters for proton density image.
 - a) T1
 - b) T2
 - c) Amount of protons
 - d) All of these
- (xi) Identify the parameters which separate the IR pulse sequence from others.
 - a) TE
 - b) TR
 - c) TI
 - d) T!
- (xii) Identify the landmark used for MRI epilepsy protocol pulse sequence.
 - a) corpus callosum
 - b) Brain Steam
 - c) Hippocampus
 - d) None of these
- (xiii) Select the correct statement.... Statement A: Spatial saturation pulse is also known as saturation band Statement B: This technique involves applying an additional radiofrequency (RF) pulse before the imaging sequence to eliminate the signal from unwanted tissue.
 - a) Statement A is true
 - b) Statement B is true
 - c) Statement A is true while B is the correct explanation of A
 - d) None of these are true.
- (xiv) Choose the appropriate technique used to minimize the respiratory base motion artefact ?
 - a) Using respiratory gated sequences
 - b) Using radial k-space sampling techniques
 - c) Increase the number of signal averaging
 - d) All of these
- (xv) Identify the correct statement about NEX..
 - a) It is used to represent the number of times each line of k-space data is acquired
 - b) Increasing the number of signal averaging increases the SNR
 - c) Increasing the number of signal averaging reduce the artefact
 - d) All of these.

Group-B

(Short Answer Type Questions)

3 x 5=15

- 2. Explain Indication, Contraindication, Patient preparation and list all the sequence for Wrist MRI Scan. (3)
- 3. Illustrate the term "TR & TE". (3)
- 4. Explain the parameter of SE Pulse sequence. (3)
- 5. Write a short note on single and multivoxel spectroscopy. (3)
- 6. Explain the remedial action of Chemical shift artifact. (3)

OR

- Illustrate the term "Ramping" in MRI. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- 7. Write in detail about Aliasing Artifacts. (5)
- 8. Write in detail about Truncation Artifacts. (5)
- 9. Write in detail about Gibbs Artifacts. (5)
- 10. Differentiate between perfusion and diffusion MRI scan. (5)
- 11. Explain why is it important to screen for metal implants or devices before an MRI scan? (5)
- 12. Write in detail about MR Guided Biopsy. (5)

OR

Write in detail about MRCP.

(5)

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