BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – B.Sc.(MRIT)-2019/B.Sc.(MRIT)-2020
Course Name – Radiographic Techniques of Advanced Imaging Technology
Course Code - BMRIT503
(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 :*

(i) Which of the following is represented a good conductor of a sound wave?

a) solid b) liquid
c) gas d) bone

(ii) Which of the following measure the strength of an MRI Scanner?

a) MHU b) Tesla
c) Slice d) Frequency

(iii) ……was the first ceramic ferroelectrics to be discovered.

a) Barium b) Titanate
c) Barium titanate d) Quartz crystal

(iv) Identify the limitation of the MRI scan

a) Scan acquisition complexity b) Long imaging time
c) Image artifacts d) All of these

(v) Hounsfield and Mc Cormack received the Nobel Prize for Medicine in…… for the independent work on developing the theory and technology of CT scanning.

a) 1980 b) 1900
c) 1979 d) 1789

(vi) EBCT was made available to examine the

a) Abdomen scan b) Thoracic scan
c) Cardiac scan d) Angiography

(vii) HIFU is considered as a ……application of ultrasonography.

a) Diagnostic b) Therapeutic
c) Both 1 & 2 d) Clinical

(viii) In ……Cormark developed the theory of image reconstruction.

a) 1986 b) 1789
c) 1987 d) 1956

(ix) Which of the following mode is used to measure the fetal heart rate?

a) A-Mode b) B-Mode
c) M-Mode d) D-Mode

(x) T1 weighted image is organized with

a) Short TE & Short TR
b) Short TR
c) Short TE
d) Long TR & Long TE

(xi) The image contrast on ……. sequence is not depending upon the T1 or T2 Relaxation.

a) PD
b) T1W
c) T2W
d) T2*

(xii) How often a Doppler signal is sampled is determined by the _____ frequency.

a) Transmitted
b) Received
c) Doppler Shifted
d) Pulse repetition

(xiii) . ……is a localized increase of echo amplitude distal to a structure of low attenuation, seen as an area of increased brightness.

a) Acoustic shadow
b) Acoustic enhancement
c) Posterior shadow
d) Aliasing

(xiv) Which of the following illustrates the feature of USG Contrast media?

a) Should have the capacity to modify the acoustic properties.
b) Should have a property to pass through the capillary, pulmonary circulation, etc
c) Should be easily introduced into the vascular system
d) All of these

(xv) Select the correct statement related to hydrogen protons used in MRI Scan

a) Presently MR imaging is based on proton
b) Presently MR imaging is based on proton
c) Without any influence of the external magnetic field, protons randomly move in the body in any direction.
d) All of these

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain USG Transducer with a diagram. (3)
3. Express the term CDFI. (3)
4. Write a short note on CT Number. (3)
5. Explain the data acquisition process in CT. (3)
6. Illustrate the term LM & TM in MRI. (3)

OR

Distinguish between spin echo and gradient echo pulse sequence. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain common indications, contraindications, and risk factors of MRI. (5)
8. Write short notes on factors affecting image quality in CT scans and post-processing techniques also. (5)
9. Explain RF Pulse. Illustrate various factors which affect the MRI Pulse sequence. (5)
10. Describe Trans abdominal sonography (TAS). (5)
11. What is the Tissue Harmonic Imaging? Justify their use and application over conventional USG techniques. (5)
12. Define the term resonance. Explain the applications & limitations of magnetic resonance imaging. (5)

OR

Define the MRI Principle in detail. (5)

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