

BACHELOR OF SCIENCE (RADIOLOGY & IMAGING TECHNOLOGY) (CBCS-2019 COURSE)

B.Sc. (R&IM) Sem-VI :SUMMER- 2022
SUBJECT : NEWER TECHNIQUES IN MRI

Day : Wednesday

Time : 10:00 AM-12:00 PM

Date : 27-07-2022

S-22547-2022

Max. Marks : **20**

N. B. :

- 1) There are three sections as:
Section – A = Objective type questions – 20 Marks.
Section – B = Long Answer questions – 20 Marks.
Section – C = Short Answer questions – 20 Marks.
- 2) Section – A is given in **SEPARATE** sheet and has to be answered on the same sheet. This sheet should be completed within first **20** minutes of starting the examination. This sheet with Section – A will be collected by the supervisor.
- 3) Section – B has four long questions and **ANY TWO** questions have to be answered.
- 4) Section – C has six short questions and **ANY FOUR** questions have to be answered.
- 5) You have to make \surd such kind of mark in the box of the appropriate answers.

Seat No.: _____

Signature of Invigilator : _____

Total Marks Obtained: _____

Signature of Examiner: _____

SECTION – A

MCQ's

- Q. 1** Edge of K-space contains:
- a) Low spatial frequency info
 - b) High spatial frequency info
 - c) Medium spatial frequency info
 - d) None of the above

- Q. 2** Smallest unit of digital image is:
- a) Matrix
 - b) Pixel
 - c) JPEG
 - d) NSA

- Q. 3** 1 Tesla = _____ Gauss.
- a) 10,000
 - b) 20,000
 - c) 15,000
 - d) 50,000

- Q. 4** Fringe field and its effects are prevented by:
- a) Quenching
 - b) Shielding
 - c) Ramping
 - d) Shimming

P. T. O.

Q. 5 Full form of STIR is:

- a) Short tau inversion recovery
- b) Small time inversion recovery
- c) Short time inversion recovery
- d) Short tau immersion recovery

Q. 6 MRCP stands for:

- a) Magnetic resonance cholangio-pancreaticography
- b) Magnetic resonance cholecysto-pancreationcography
- c) Magnetic repetition cholangio-pancreaticography
- d) Magnetic reformation cholangio-pancreaticography

Q. 7 First MR Machine was invented by:

- a) Raymond Damadian and Christian Donald
- b) Peter Mansfield and Paul Lauterbur
- c) Peter Manfield and Christian Donald
- d) Raymond Damadian and Peter Manfield

Q. 8 The time between start of RF pulse and reception of the signal is:

- a) Time to Echo
- b) Time to Invert
- c) Time to Repeat
- d) Time to Replicate

Q. 9 Full form of FID is:

- a) Free induction decay
- b) Free induction delay
- c) Full induction delay
- d) Full induction decay

Q.10 Head coil in MR is which type of coil?

- a) Volume
- b) Surface
- c) Phased array
- d) None

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- 4) Answer to both the sections should be written in **SAME** answer book.

SECTION – B

Q. 1 Long answer (Attempt **ANY TWO**) **(20)**

- a) How do you perform MR Urography study? Mention indications, contraindications, sequences taken and basics of sequence planning.
- b) How do you acquire MRI Knee study? Mention indications, contraindications, sequence taken and basics of sequence planning.
- c) What are the different image quality determinants in MRI?
- d) Write in detail about inversion recovery sequences. Mention differences between STIR and FLAIR sequences.

SECTION – C

Q. 2 Short answer (Attempt **ANY FOUR**) **(20)**

- a) Write about superconducting magnets.
- b) Write in short about FLAIR sequence.
- c) What are paramagnetic, diamagnetic and ferromagnetic substances?
- d) Write in short about Ramping of superconducting magnets.
- e) Mention general contraindications to performing MRI.
- f) Write in short about MR Enterography study.

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