

# Rajiv Gandhi University of Health Sciences

## II Year M. Sc Medical Imaging Technology - SEP-2019

[Time: 3 Hours]

[Max. Marks: 80]

### Advanced Technique and Instrumentation of MRI

#### Q.P. CODE: 9545

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary.

#### LONG ESSAY (Answer Any Two)

**2 X 10 = 20 Marks**

1. Discuss in detail the advanced imaging technique in MRI.
2. Describe in detail about MRI artifacts.
3. What are the three logical or functional gradients required to obtain an image?

#### SHORT ESSAY (Answer Any Eight)

**8 X 5 = 40 Marks**

4. MRI contrast media
5. Explain about STIR, SPIR and FLAIR sequence.
6. Discuss about static imaging of cardiac images. Mention few difference of static and cine images.
7. Contrast to Noise ratio in MRI
8. Sequence looping
9. MRI protocol for sella
10. Phase encoding
11. K-space
12. Discuss on Fourier transformation.
13. Phased array coils

#### SHORT ANSWERS (Answer Any Ten)

**10 X 2 = 20 Marks**

14. Nyquist frequency
15. Surface coils
16. Mention the important difference between T1 and T2 relaxation.
17. Utility of helium in MRI
18. Protocols used for MRI Knee
19. Clipping artifact
20. Non-selective pulse
21. SMASH and GRAPPA
22. Prospective gating and retrospective gating
23. DIR
24. Faraday's cage
25. Name few fast imaging sequence

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