**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0122]** **JANUARY 2022** **Sub. Code: 2515**

**(OCTOBER 2021 EXAM SESSION)**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2019-2020 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**
***Q.P. Code : 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Enumerate the various gradient echo sequences. Describe in brief the principles and their clinical applications.

2. Mention the recent advancements and innovation in dual source CT technology and elaborate on them.

**II. Write notes on:** **(10 x 6 = 60)**

1. Breast Tomosynthesis.
2. Dry view Laser Camera.
3. Artefact reduction techniques in MDCT.
4. Volume Ultrasound.
5. Diffusion Weighted Imaging.
6. Ultrasound Elastography.
7. Digital Fluoroscopy.
8. Contrast enhanced USG.
9. HIFU.
10. Silent MRI.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1022]** **OCTOBER 2022** **Sub. Code: 2515**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2019-2020 & 2020-2021 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**

***Q.P. Code : 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Computed Radiography and Digital Radiography.

2. Principles, present status and future of PET MR Imaging.

**II. Write notes on:** **(10 x 6 = 60)**

1. Virtual Colonoscopy.
2. MR Spectroscopy.
3. Intravascular Ultrasound.
4. MR sequences in Cardiac imaging.
5. Functional MRI.
6. Ultrasound contrast agents.
7. Silent MRI.
8. HIFU.
9. Contrast enhanced USG.
10. Digital Fluoroscopy.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1023]** **OCTOBER 2023** **Sub. Code: 2515**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2020-2021 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**

***Q.P. Code: 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Describe techniques of MRCP. What are the advantages and disadvantages of MRCP vs ERCP?

2. Picture Archiving and communication system.

**II. Write notes on:** **(10 x 6 = 60)**

1. CT Artifacts.
2. Advantages of 3T MRI over 1.5T MRI.
3. Dose reduction techniques in MDCT.
4. Principles of Digital Radiography.
5. Pressure Injector.
6. High intensity focused ultrasound.
7. HIFU.
8. Contrast enhanced USG.
9. Silent MRI.
10. Digital Fluoroscopy.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0524]** **MAY 2024** **Sub. Code: 2515**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2020-2021 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**

***Q.P. Code: 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Mention the recent advancements and innovation in dual source CT technology and elaborate them.
2. Discuss about radiofrequency coils. Explain about signal encoding for image formation in MRI.

**II. Write notes on:** **(10 x 6 = 60)**

1. MR Sequences in Cardiac Imaging.
2. Focused transducer.
3. Contrast enhanced USG.
4. Multi detector CT.
5. Defusion Weighted Imaging.
6. CR image reader.
7. Ultrasound Elastography.
8. Gradient coil.
9. Silent MRI.
10. Bow tie filter.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1024]** **OCTOBER 2024** **Sub. Code: 2515**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2020-2021 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**

***Q.P. Code: 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Discuss in detail about the basic principles and recent advancements in ultrasound imaging technology.

2. Discuss in detail about the recent advances and innovations in MRI imaging technology.

**II. Write notes on:** **(10 x 6 = 60)**

1. Spectral CT technology.
2. Advancements in digital radiography.
3. Digital mammography.
4. Ultrasound elastography.
5. CBCT.
6. HIS and RIS.
7. Radiation protection in mammography.
8. DSA.
9. ABVS.
10. PET SCAN.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1025]** **OCTOBER 2025** **Sub. Code: 2515**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**
**SECOND YEAR (From 2020-2021 onwards)**
**PAPER V – NEWER DEVELOPMENTS IN ADVANCED IMAGING TECHNOLOGY**

***Q.P. Code: 282515***

**Time: Three hours** **Answer ALL Questions** **Maximum: 100 Marks**

**I. Elaborate on:** **(2 x 20 = 40)**

1. Elaborate on Dual Energy CT.
2. PET CT and MRI fusion imaging Technology.

**II. Write notes on:** **(10 x 6 = 60)**

1. Liver specific MRI contrast agents.
2. Ultrasound contrast imaging.
3. High intensity focused ultrasound.
4. Virtual Bronchoscopy.
5. MRI Elastography.
6. Breast Tomosynthesis.
7. Endoscopic Ultrasound.
8. Cardiac MRI.
9. CSF flow studies.
10. Digital Radiography.

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