

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

[AHS 0321]

**MARCH 2021**

**Sub. Code: 2501**

**(OCTOBER 2020 EXAM SESSION)**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY**

**FIRST YEAR (From 2019-2020 onwards)**

**PAPER I – RADIOLOGICAL PHYSICS**

*Q.P. Code : 282501*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate notes on:**

**(2 x 20 = 40)**

1. Discuss in detail about the physics, principle and equipment of Digital Radiography.
2. Describe the physical principles of MRI.

**II. Write Short Notes on:**

**(10x6 = 60)**

1. Focal spot in a x-ray tube
2. Anode heel effect
3. Radiation detection equipment.
4. Free induction decay
5. Types of generator and working principle
6. Image Intensifier Tube
7. Characteristic X-ray
8. Ultrasound transducer
9. What are hard and soft x-rays and write about the added and inherent filtration?
10. Principle of AEC

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

[AHS 0222]

**FEBRUARY 2022  
(OCTOBER 2021 EXAM SESSION)**

**Sub. Code: 2501**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY  
FIRST YEAR**

**(Candidates admitted from 2019-2020 onwards – Paper I)**

**(Candidates admitted from 2020-2021 onwards – Paper II)**

**PAPER I & II – RADIOLOGICAL PHYSICS**

*Q.P. Code : 282501*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate notes on:**

**(2 x 20 = 40)**

1. Describe the Physics and principle of mammography.
2. What are the factors affecting radiographic quality? How to improve the Radiographic quality?

**II. Write Short Notes on:**

**(10x6 = 60)**

1. Scatter radiation- formation and control
2. Write about interlocking and X-ray tube overload protection
3. Half value thickness
4. Describe the principle of Magnetic Resonance angiography
5. Annihilation coincidence detection.
6. Explain about the relationship between the absorbed dose and equivalent dose.
7. Write notes on Doppler Physics
8. Heat dissipation methods in X-ray tube
9. Radiation units.
10. Discuss the interaction between ultrasound and matter.

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

**[AHS 0522]**

**MAY 2022**

**Sub. Code: 2501**

**M.Sc. RADIOGRAPHY AND IMAGING TECHNOLOGY  
FIRST YEAR**

**(Candidates admitted from 2019-2020 onwards – Paper I)**

**(Candidates admitted from 2020-2021 onwards – Paper II)**

**PAPER I & II – RADIOLOGICAL PHYSICS**

***Q.P. Code : 282501***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate notes on:**

**(2 x 20 = 40)**

1. Describe the physical principle of MDCT.
2. Discuss in detail the Digital Radiography. Also explain the advantages of digital radiography over conventional radiography.

**II. Write Short Notes on:**

**(10x6 = 60)**

1. PACS in radiology department.
2. X-ray films and characteristics.
3. Rotating anode in X ray tube.
4. Personal dosimeters.
5. Write note on ultrasound physics.
6. Describe the Hounsfield number.
7. Write note on Compton effect.
8. Filters.
9. CR vs DR.
10. What are the requirements of X-ray production.

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