

**B.Sc., RADIOGRAPHY AND IMAGING TECHNOLOGY****1851 – EQUIPMENTS OF ADVANCED IMAGING MODALITIES****UNIT 1****SUB TOPIC – 1 MAMMOGRAPHY SYSTEM****I. Elaborate on 10 MARKS****Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

S.No	Question	Reference	Bloom's Taxonomy
1	Write in detail about mammography system as a special radiography technique, including history, imaging requirements, system construction and types, accessories such as tube, compression, grids, AEC, nature of suitable X-ray beam, immobilization accessories, film processing, image quality, image recording devices, interventional procedures, biopsy equipment attachments, radiation dose, mammo tomogram, sonomammography, and future developments.	November 2024	Analyze

**II. Write notes on 5 MARKS****Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

S.No	Question	Reference	Bloom's Taxonomy
1	Write notes on history, imaging requirements, and mammography system construction/types, including accessories like tube, compression, grids, and AEC, with focus on procedural aspects and indications.	April 2025	Understand
2	Write notes on nature of X-ray beam, immobilization accessories, film processing, image quality, image recording devices, interventional procedures, biopsy equipment, radiation dose, mammo tomogram, sonomammography, and future developments in mammography.	March 2023	Understand

**III. WRITE SHORT NOTES ON 3 MARKS****Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

S.No	Question	Reference	Bloom's Taxonomy
1	Radiation dose and image quality in mammography systems.	November 2024	Apply
2	Indications and future developments for sonomammography and mammo tomogram.	April 2023	Remember

**SUB TOPIC – 2 ULTRASONOGRAPHY/DOPPLER SYSTEMS****I. ELABORATE ON 10 MARKS****Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

S.No	Question	Reference	Bloom's Taxonomy
1	Write in detail about ultrasonography/Doppler systems as special radiography techniques, including basic acoustics principle, basic physics of sound propagation in different media, production of ultrasound (piezoelectric effect), ultrasound terminologies, interaction of ultrasound with matter, ultrasound properties propagation in tissue, absorption, scattering, reflection and refraction, acoustic impedance, piezoelectric effect, transducer, pulsar, receiver, beam/sensitivity and gain generators, A, B and M scanning & echo modes, transducers, techniques of sonography, equipment selection, display methods, ultrasound image formation, data storage and display, image and artifacts, Doppler instrumentation, Doppler equation, transducer, quality assurance and performance tests, bio effects and safety considerations, types of machines, portable systems, and acoustic coupling agents ingredients/preparation.	November 2024	Analyze

**II. WRITE NOTES ON 5 MARKS****Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

S.No	Question	Reference	Bloom's Taxonomy
1	Write notes on basic acoustics principle, physics of sound propagation, production of ultrasound (piezoelectric effect), terminologies, interaction with matter, properties in tissue, absorption, scattering, reflection, refraction, and acoustic impedance in ultrasonography/Doppler systems.	April 2025	Understand
2	Write notes on transducer, pulsar, receiver, beam/sensitivity and gain, scanning modes (A, B, M, echo), techniques of sonography, equipment selection, display methods, image formation, artifacts, Doppler instrumentation, equation, quality assurance, bio effects, safety, machine types, portable systems, and acoustic coupling agents.	March 2023	Understand

**III. WRITE SHORT NOTES ON 3 MARKS**

**Reference – The Tamilnadu Dr.M.G.R Medical University Question Paper**

<b>S.No</b>	<b>Question</b>	<b>Reference</b>	<b>Bloom's Taxonomy</b>
1	Bio effects and safety considerations in ultrasonography/Doppler systems.	November 2024	Apply
2	Doppler equation and artifacts in ultrasonography.	April 2023	Remember