[LL 0817] AUGUST 2017 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New syllabus 2014 - 2015)
THIRD YEAR
PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. How to plan a contrast CT of head and neck? Discuss about the parameters and preparation of patient.
2. Diabetic patient – preparation and after care during angiography procedure.
3. Various methods of reducing time duration for an abdominal MRI. Discuss about the protocol used for patient reported with hepatic cell carcinoma.

II. Write notes on: **(8 x 5 = 40)**

1. Catheters used in angiography.
2. Stroke protocol in MRI.
3. Preparation of the patient for ultrasound abdomen scan.
4. Indications for performing cerebral embolisation in angiography.
5. Indication and contraindications of using ionic contrast media.
6. Dynamic venogram of brain using MRI.
7. Various views for performing mammography.
8. Post processing of CT images.

III. Short answers on: **(10 x 3 = 30)**

1. TRUS.
2. Contrast media used in MRI.
3. Stent.
4. Pressure injector.
5. Venography.
6. Image display in CT.
7. Catheter.
8. Tube potential and current used in mammography.
9. MRCP.
10. BOLD.

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[LM 0218] FEBRUARY 2018 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Basic MR protocol to be used for pediatric brain. Discuss about the patient care before and after the MR scan and the necessary accessories used to monitor the patient.
2. Post nephrolithotomy patient reported with history of reducing haemoglobin- Discuss about the angiographic procedure, pre and post care.
3. Types of contrast in imaging – CT and MRI.

II. Write notes on: **(8 x 5 = 40)**

1. Perfusion CT.
2. Renal artery stenosis – Doppler imaging.
3. Stereotactic biopsy using mammography.
4. Three phase CT of liver – indication, protocol, preparation and procedure.
5. MR imaging of trauma of cervical spine – coil selection, protocols and patient care.
6. Dynamic liver imaging using MRI – indication, protocol, preparation and procedure.
7. SPECT-preparation of patient, radio isotope and image reconstruction.
8. Discuss about two common nuclear medicine procedures.

III. Short answers on: **(10 x 3 = 30)**

1. kV and mA.
2. Road mapping.
3. GFR.
4. TACE.
5. Foleys catheter.
6. Chiba needle.
7. Aortic dissection.
8. Deep vein thrombosis.
9. Reconstruction using MPR.
10. Bolus tracking.

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[LN 0818] AUGUST 2018 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Peripheral angioplasty and stenting for a patient reported with lower limb ischemia-indications, preparation, procedure and post care.
2. How to perform HRCT of the SI joint? Write in detail about the various post processing options available in CT for reconstructing HRCT of SI joint.
3. How to plan and perform a brain MRI scan for an unconscious and for non cooperative patient.

II. Write notes on: **(8 x 5 = 40)**

1. Selection of probe for abdominal ultrasound. Write details of sterilizing ultrasound probes.
2. Preparation of a patient before performing MR scan. Discuss about the safety measures that should be taken before entering a MR scanner room.
3. Discuss about the trolley setting and views used during a cerebral angiography performed using angiography machine.
4. List the advantages in MDCT compared to conventional CT.
5. Preparation of the patient for a PET scan – pre and post care.
6. Stroke protocol in CT.
7. Pituitary adenoma – MRI protocol.
8. MR angiography – TOF circle of willis.

III. Short answers on: **(10 x 3 = 30)**

1. Paramagnetic agents.
2. Stereotactic biopsy.
3. Aneurysm.
4. Contrast media.
5. TACE.
6. Mammo tomogram.
7. Tube potentials and tube current used in chest CT. What is the radiation dose from chest CT?
8. Image display in CT.
9. Angina pectoris.
10. Towne’s view.

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[LO 0219] FEBRUARY 2019 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Explain about Basic Design and Operating Principles Gamma Camera.
2. How MRI and USG is used to treat a patient with uterine fibroid?
3. Discuss about various radiopharmaceuticals used in nuclear medicine.

II. Write notes on: **(8 x 5 = 40)**

1. Write about CT guided Radiofrequency Ablation.
2. Write about Dual Source CT Scan.
3. Explain about Filtered back projection.
4. Compare features of three types of collimator which can be used with a Gamma Camera?
5. Units of radiation exposure.
6. Photomultiplier Tube.
7. NaF18 PET/CT.
8. Discuss about MR Guided focused ultrasound.

III. Short answers on: **(10 x 3 = 30)**

1. Uses of DWI.
2. How Oxygen is supplied to critically ill patient in MRI suite?
3. What is in vivo Dosimetry?
4. Digital radiography.
5. Bone scan.
6. HIDA scan.
7. Contamination monitor.
8. GFR.
9. Secular equilibrium.
10. Molybdenum generator.

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[LP 0819] AUGUST 2019 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Explain basic cardiac imaging, planning and myocardial visibility study in MRI.
2. Types of contrast in imaging – CT and MRI.
3. Describe mechanisms of radioactive decay in detail.

II. Write notes on: **(8 x 5 = 40)**

1. Gas-Filled Detectors.
2. Color doppler imaging.
3. Radioisotope Generator.
4. Structure of atom.
5. Artifacts in PET-CT.
6. Parallel multi-hole collimator.
7. Mass Attenuation Coefficient.
8. DMSA scan.

III. Short answers on: **(10 x 3 = 30)**

1. Cyclotron.
2. Gastric emptying study.
3. Tracers used in infection imaging.
4. Low pass and high pass filter.
5. Filters.
6. Inverse square law.
7. Heel effect.
8. Tc99 bones scan.
9. Tele radiology.
10. MRI artifacts.

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[LQ 0220] FEBRUARY 2020 **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING

Q.P. Code: 801837

Time: Three Hours **Maximum: 100 Marks**

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. How will you prepare a patient and perform CT Guided Biopsy? Explain the post procedure care.
2. Write briefly about parathyroid scan in nuclear medicine.
3. Discuss in detail the fusion imaging techniques.

II. Write notes on: **(8 x 5 = 40)**

1. Protocol for isotope renal cortical scan.
2. MIBG scan.
3. Delay tank.
4. Diffusion tensor imaging.
5. Nuclear imaging in myocardial perfusion.
6. Low pass and high pass filter.
7. Discuss on how to handle radiopharmaceuticals?
8. Colour doppler imaging.

III. Short answers on: **(10 x 3 = 30)**

1. What is binding energy?
2. Standardised uptake value (SUV).
3. Define hybrid technology.
4. What is MUGA?
5. Define static planar imaging.
6. PACS.
7. Advantages of digital radiography.
8. Uses of carbon dioxide in radiology.
9. OPG.
10. Radiology Information System (RIS).

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

[LR 1220] DECEMBER 2020 Sub. Code: 1837
(AUGUST 2020 EXAM SESSION)

BACHELOR IN RADIOLOGY IMAGING TECHNOLOGY
THIRD YEAR – (Regulation from 2014-2015)
PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING
Q.P. Code: 801837

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

I. Elaborate on: **(3 x 10 = 30)**

1. Write in detail about the patient preparation, acquisition of PET-CT scans. Explain about the pre and post patient care.
2. Write about the MR protocol for the paediatric brain patient and explain about the accessories used to monitor the patient.
3. Write down the protocol to be followed for imaging in mammography and explain in detail about the features of benign and malignant lesions in mammography

II. Write notes on: **(8 x 5 = 40)**

1. Back Projection Technique
2. MDCT and its advantages.
3. Collimation in Gamma camera.
4. Discuss about the exposure factors used in serial programming for imaging in angiography.
5. MR guided focused ultrasound.
6. Write any five quality assurance tests to be carried out for CT.
7. Interaction of Ultrasound with tissues and its properties.
8. DSA.

III. Short answers on: **(10 x 3 = 30)**

1. In vivo dosimetry
2. Expand PACS and DICOM
3. Piezo electric effect
4. Two common artifacts in MR.
5. Role of imaging in IGRT.
6. Name any three sequences commonly used in MR.
7. List down the clinical applications of ultrasound.
8. Role of radiographer in angiographic techniques.
9. GFR.
10. Contamination monitor.

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

[AHS 0122] JANUARY 2022 Sub. Code: 1837
(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
THIRD YEAR – (Regulation from 2014-2015)
PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING
Q.P. Code: 801837

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

I. Elaborate on: **(3 x 10 = 30)**

1. i) Discuss in detail about DSA.
   ii) Write about the various contrast agents used in angiographic imaging.
2. Discuss in detail about the construction, principle and working of a gamma camera.
3. Write in detail about the principle of image formation in MR and about various image Sequences followed in it.

II. Write notes on: **(8 x 5 = 40)**

1. Advantages of MDCT.
2. Methods of disposal of liquid wastes generated in a nuclear medicine department.
3. TRUS.
4. Stereotactic biopsy using mammography
5. Discuss about the safety precautions to be followed during PET-CT procedure.
6. PACS.
7. Doppler ultrasound
8. How is radiation dose measured? Write down any three methods to reduce radiation exposure in radiology practices.

III. Short answers on: **(10 x 3 = 30)**

1. HIDA scan
2. Filters
3. Molybdenum generator
4. Mammo tomogram
5. Deep vein thrombosis
6. Expand IGRT and PACS
7. List any three clinical applications of ultrasound.
8. Role of radiographer in angiographic techniques.
9. Heel effect.
10. Piezo electric effect.

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

[AHS 0922] SEPTEMBER 2022 Sub. Code: 1837
(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
THIRD YEAR (Regulation from 2014-2015)
PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING
Q.P. Code: 801837

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

I. Elaborate on: **(3 x 10 = 30)**

1. Explain about basic design and operating principles of Gamma camera.
2. Diabetic patient preparation and after care in angiography procedure.
3. Explain about radiation dose and recent advances in mammography techniques, their advantages and limitations.

II. Write notes on: **(8 x 5 = 40)**

1. DMSA scan.
2. Gas filled detector.
3. TRUS.
4. Doppler Ultrasound.
5. Perfusion imaging in MRI.
6. SPECT preparation of patient, radioisotope and image reconstruction.
7. PET-CT -Principles and Indications.
8. Radio-isotope Generator.

III. Short answers on: **(10 x 3 = 30)**

1. Sonomammogram.
2. Teleradiology.
3. Standardized uptake value.
4. Limitations of MRI.
5. Expand DICOM and PACS.
6. Uses of DWI.
7. Reconstruction using MPR.
8. Road mapping.
9. Secular equilibrium.
10. TACE and its Indications.

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

[AHS 0423] **APRIL 2023** **Sub. Code: 1837**

B.Sc. RADIOLOGY IMAGING TECHNOLOGY
THIRD YEAR (Regulation 2014-2015 onwards)
PAPER II – MODERN IMAGING TECHNIQUES AND RECENT TRENDS IN IMAGING
Q.P. Code: 801837

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

I. Elaborate on: **(3 x 10 = 30)**

1. Explain about Radiation dose and recent advances in Mammography techniques, their advantages and limitations.
2. Discuss in detail principal and working of PET-CT Scanner.
3. Types of Contrast in imaging CT and MRI.

II. Write notes on: **(8 x 5 = 40)**

1. Renal artery stenosis – doppler imaging.
2. Injection techniques in CT scan.
3. USG Transducers.
4. Dynamic Liver Imaging using MRI-Indications, protocol, preparation, procedure.
5. Pituitary adenoma – MRI protocol.
6. Instruction and positioning of a patient for TAS and TVS.
7. Nuclear Imaging in Myocardial perfusion.
8. MR Angiography – Circle of Willis.

III. Short answers on: **(10 x 3 = 30)**

1. Image display in CT.
2. kV and mA.
3. TACE.
4. Aortic dissection.
5. Venography.
6. BOLD.
7. MRCP.
8. Stent.
9. Bolus tracking.
10. Components of Ultrasound Gel.

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