Question Paper

Exam Date & Time: 23-May-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MIT DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: MIT3201 - COMPUTED TOMOGRAPHY - II
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Explain the various techniques used to reduce the radiation dose in CT.	(20)
2)	Classify the CT contrast media. Explain various adverse contrast media reactions and management.	(20)
3)	Explain in detail about cause, appearance, and remedy for CT equipment induced artefacts.	(10)
4)	Explain the CT guided Biopsy.	(10)
5A)	Explain post-processing techniques of volume rendering and surface rendering.	(5)
5B)	Explain in detail about high contrast resolution in CT.	(5)
5C)	Explain the role of CT Technologist.	(5)
5D)	Summarize the universal precautions.	(5)
5E)	Explain image processing and formation in CT.	(5)
5F)	Explain in detail the techniques and principles of staff safety in CT.	(5)
6A)	Explain detail about DLP in CT.	(2)
6B)	List the indication and contra-indication of CT guided RF ablation.	(2)
6C)	Define pixel and voxel.	(2)
6D)	Define temporal resolution.	(2)
6E)	Define PACS.	(2)

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Question Paper

Exam Date & Time: 17-May-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MIT DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: MIT3202 - MAGNETIC RESONANCE IMAGING II
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Explain the mechanism, clinical application, parameters, advantages, and disadvantages of spin echo sequences.	(20)
2)	Classify MR artefacts and explain the appearance, cause and remedy of each in detail.	(20)
3)	Explain the mechanism, parameters,clinical application, advantages and disadvantages of Time of Flight MRA.	(10)
4)	Illustrate the various types of flow phenomena.	(10)
5A)	Explain the mechanism, clinical application, parameters, advantages and disadvantages of incoherent gradient echo.	(5)
5B)	Outline the mechanism of action of T1 contrast agents.	(5)
5C)	Plan the image acquisition protocol for MRI Lumbar Spine imaging.	(5)
5D)	Outline different types of cardiac gating techniques.	(5)
5E)	Outline acquisition techniques and clinical applications for single shot k-space filling.	(5)
5F)	Explain the pulse sequence used, parameters,clinical application, advantages and disadvantages of various conventional vascular imaging techniques.	(5)
6A)	Outline the applications of parallel imaging.	(2)
6B)	List the advantages and disadvantages of PC-MRA.	(2)
6C)	List the clinical applications of diffusion weighted imaging.	(2)
6D)	List the significance of documentation during MR examination.	(2)
6E)	List the uses of fat saturation technique.	(2)

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Question Paper

Exam Date & Time: 27-May-2024 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MIT DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: MIT3242 - PROGRAM ELECTIVE - II : BASIC IN NUCLEAR MEDICINE TECHNOLOGY
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1)	Discuss the interaction of charged particles with matter.	(10)
2)	Outline the layout of different types of nuclear medicine laboratories.	(10)
3A)	Explain nuclear medicine imaging for skeletal and thyroid.	(5)
3B)	Explain radioactive waste management in nuclear medicine.	(5)
3C)	Write a short note on properties of gamma-rays and aphaparticles.	(5)
3D)	Explain working of a gas-filled detector.	(5)
4A)	Mention basic three principles for radiation protection.	(2)
4B)	List the radiopharmaceuticals utilized for kidney imaging of tubular secretion and GFR.	(2)
4C)	Define radioactivity.	(2)
4D)	Mention two important functions of PMT.	(2)
4E)	Mention two differences between SPECT and PET.	(2)

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