Question Paper

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

MANIPAL ACADEMY OF HIGHER EDUCATION

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

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

Answer all the questions.

1)	Explain cause, appearance, and remedy of CT artefacts.	(20)
2)	Summarize the CT guided Biopsy and FNAC.	(20)
3)	Define and classify the types of CT contrast media. Add a note on administration of contrast media.	(10)
4)	Explain the various techniques used to reduce the radiation dose in CT.	(10)
5A)	Define resolution. Add a note on low contrast resolution in CT.	(5)
5B)	Explain the role of CT Technologist.	(5)
5C)	Summarize the principle and techniques for patient safety.	(5)
5D)	Explain in detail about personal dosimeter used in CT.	(5)
5E)	Explain in detail about CT documentation.	(5)
5F)	Explain the post-processing techniques of multiplanar reconstruction.	(5)
6A)	List the drugs and volume used for allergic reactions in CT.	(2)
6B)	Define window width and their significance.	(2)
6C)	List the advantage and disadvantage of the volume rendering.	(2)
6D)	Define temporal resolution.	(2)
6E)	Define DLP.	(2)

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Question Paper

Exam Date & Time: 24-Jul-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

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

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

Answer all the questions.

1)	Classify gradient echo pulse sequences and explain the mechanism, clinical application, parameters, advantages and disadvantages of each.	(20)
2)	Illustrate the principle and technique of Diffusion Weighted Imaging.	(20)
3)	Explain the appearance, cause and remedy of different MR Artefacts.	(10)
4)	Illustrate principle, mechanism, parameters and clinical applications of BOLD imaging.	(10)
5A)	Explain mechanism, clinical application, parameters, advantages and disadvantages of inversion recovery pulse sequences.	(5)
5B)	Plan image acquisition and acquire appropriate MR images for diagnosis for Stroke.	(5)
5C)	Explain the mechanism of action of T2 shortening agents.	(5)
5D)	Explain the various flow phenomena compensation techniques.	(5)
5E)	Illustrate parallel imaging technique.	(5)
5F)	Compare 2D and 3D TOF MRA.	(5)
6A)	Outline the various types of blood flow.	(2)
6B)	Define MR Spectroscopy. List the types of MRS.	(2)
6C)	Outline the significance of documentation during MR examination.	(2)
6D)	Outline the types of cardiac gating.	(2)
6E)	Define SWI.	(2)

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Question Paper

Exam Date & Time: 25-Jul-2024 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

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

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

Answer all the questions.

1)	Explain the interaction of charged particles with matter.	(10)
2)	Discuss in detail different types of gas filled detectors used in nuclear medicine.	(10)
3A)	Write a short note on radiation safety measures and waste management in nuclear medicine.	(5)
3B)	Write a short note on transport of radioactive materials.	(5)
3C)	Write a short note on radionuclide generators.	(5)
3D)	Explain working principle of a SPECT camera.	(5)
4A)	Mention radiopharmaceuticals used for the assessment of skeleton pathologies.	(2)
4B)	Mention two radiopharmaceuticals used for the assessment of liver pathologies.	(2)
4C)	Define photoelectric effect.	(2)
4D)	Define effective half-life.	(2)
4E)	Which scintillator is commonly used in Gamma ray spectrometer?	(2)

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