

Question Paper

Exam Date & Time: 01-Sep-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. (MEDICAL IMAGING TECHNOLOGY) DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: MIT5202 - RADIATION EVALUATION AND PROTECTION
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain the Interaction of radiation at the cellular and molecular level. List all the stochastic and deterministic effects of radiation. (20)
- 2) Discuss briefly the factors affecting the calculation for primary and secondary barrier shielding. (20)
- 3A) Outline the techniques used to reduce radiation dose to the radiation worker. (10)
- 3B) Explain in detail the effect of filtration on radiation dose and also on the image quality. (10)
- 3C) Thermoluminescence dosimeter. (10)
- 3D) Outline the eligibility criteria for radiation workers. (10)

4. Explain in detail:
 - 4A) Cardinal principle of radiation protection. (5)
 - 4B) Radiolysis of water. (5)
 - 4C) Linear Energy Transfer. (5)
 - 4D) LD50/60 (5)

-----End-----

Question Paper

Exam Date & Time: 02-Sep-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: MIT5203 - ADVANCED INSTRUMENTATION AND TECHNIQUES IN MRI - I
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain gradient echo pulse sequences. Classify the various gradient pulse sequences and its clinical applications. (20)
- 2) Discuss flow phenomenon. Identify the appropriate technique to compensate for different types of flow. Compare the various MRI techniques to evaluate the vascular system. (20)

3. Explain the following:

- 3A) Explain the significance of radiofrequency waves in MR imaging. Elaborate on the types of RF coil. (10)
- 3B) Summarize the types of MR contrast media. Add a note on the importance of contrast media in head and spine region. (10)
- 3C) Discuss the various requirements during installation of MR scanner. (10)
- 3D) Compare types of magnets. Explain the types of magnetic shielding. (10)

4. Short notes:

- 4A) Outline phase encoding gradient. (5)
- 4B) Define TR. Discuss FOUR consequences of decreasing the TR. (5)
- 4C) Explain factors affecting T1 and T2 time. (5)
- 4D) Compare rewinders and spoilers. (5)

-----End-----

Question Paper

Exam Date & Time: 03-Sep-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - SEPTEMBER 2022
SUBJECT: MIT5204 - CARE OF PATIENTS IN DIAGNOSTIC IMAGING
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain the safe techniques for patient moving and transferring using the principle of body mechanics. (20)
- 2) Elaborate age-specific care for pediatric and geriatric patients in the radiology department. Add a note on special patient conditions that affect communication. (20)

3. Explain the following:

- 3A) Outline the role of radiographers in protecting the patients right. (10)
- 3B) Elaborate the patient care provided to a patients with head and spinal injury. (10)
- 3C) Discuss the legal consideration for professional misconduct by radiographers in the practice of health care delivery. (10)
- 3D) Explain the precautions to be taken when doing a bedside radiography of a critical neonate in the intensive care unit (ICU). (10)

4. Short notes:

- 4A) Summarise medical asepsis in radiology department. (5)
- 4B) Discuss fire safety rules in hospital. (5)
- 4C) Outline the techniques of obtaining the vital signs. (5)
- 4D) Discuss the emergency drugs used in radiology department with their specific action and dosage. (5)

-----End-----