

# Question Paper

Exam Date & Time: 21-Apr-2022 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - APRIL 2022  
SUBJECT: BMIT 305 - RECENT TRENDS IN ULTRASONOGRAPHY  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) What is piezoelectric effect? Discuss types of transducers used in ultrasound imaging and their application. (10)
- 2) List the artefacts in Ultrasound. Explain any five in detail. (10)
- 3A) List the various Ultrasound Display modes. Explain grey scale imaging. (5)
- 3B) List the types of Doppler techniques and explain briefly continuous wave doppler. (5)
- 3C) Write down the protocol for ultrasound abdomen. (5)
- 3D) List the controls of ultrasound and its application. (5)
- 4A) Write a short note on transducer Q factor. (2)
- 4B) List down the factors affecting the thermal effects of ultrasound. (2)
- 4C) List the factors affecting absorption. (2)
- 4D) Define Acoustic impedance. (2)
- 4E) Define Doppler shift. (2)

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# Question Paper

Exam Date & Time: 22-Apr-2022 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - APRIL 2022  
SUBJECT: BMIT 301 - IMAGING PHYSICS AND DARKROOM TECHNIQUES (PART I)  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Explain in detail about film construction. (10)
- 2) Explain in detail the devices used for personal radiation monitoring (10)

3. Discuss the following:

- 3A) Beta decay (5)
- 3B) Geometric unsharpness (5)
- 3C) Properties of X-ray (5)
- 3D) Care and maintenance of intensifying screens (5)

4. Discuss the following:

- 4A) Wave and particle concept of electromagnetic radiation (2)
- 4B) Contrast (2)
- 4C) P-N junction (2)
- 4D) Difference between internal conversion and isomeric transition. (2)
- 4E) Structure of atom (2)

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# Question Paper

Exam Date & Time: 26-Apr-2022 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - APRIL 2022  
SUBJECT: BMIT 307 - RECENT TRENDS IN DIGITAL IMAGING  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Explain the principle behind CR. Add a note on the construction of an Imaging plate used in CR cassette. (10)
- 2) Explain in detail about the principle of DSA and its types. (10)
- 3A) Write a short note on the advantages and disadvantages of PACS. (5)
- 3B) Write a note on the importance of compression in Mammography. (5)
- 3C) Explain Orthopantomography. (5)
- 3D) Define Macroradiography. Add a note on its principle and technique. (5)
- 4A) Name the different types of PACS. (2)
- 4B) List any two advantages and disadvantages of DR. (2)
- 4C) Name the catheters used for cerebral angiography. (2)
- 4D) Type of filters used in mammography equipment. (2)
- 4E) Dental formula and terminologies. (2)

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# Question Paper

Exam Date & Time: 27-Apr-2022 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - APRIL 2022  
SUBJECT: BMIT 309 - RECENT TRENDS IN NUCLEAR MEDICINE TECHNOLOGY  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

**Answer all the questions.**

**Draw neat and labelled diagram as and when required.**

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|-----|--|------|
| 1)  | Discuss the principle and working of a Positron Emission tomography scanner. | (10) |
| 2)  | Discuss the Indian guidelines for transport of radioactive materials.        | (10) |
| 3A) | Describe briefly about management of radioactive waste.                      | (5)  |
| 3B) | Explain beta decay with the help of a diagram.                               | (5)  |
| 3C) | Write short note on radioactive spill management.                            | (5)  |
| 3D) | Write short note on medical cyclotron.                                       | (5)  |
| 4A) | Differentiate static and dynamic in vivo nuclear medicine imaging.           | (2)  |
| 4B) | Enlist some of the radiopharmaceuticals for kidney imaging.                  | (2)  |
| 4C) | What is half life?   | (2)  |
| 4D) | What is the difference between contamination monitor and survey meter?       | (2)  |
| 4E) | What are characteristic X-rays?  | (2)  |

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