

# Question Paper

Exam Date & Time: 18-Feb-2019 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - FEB/MAR 2019**  
**SUBJECT: BMIT 301 - IMAGING PHYSICS AND DARKROOM TECHNIQUES (PART I)**  
**(2016 SCHEME)**

**Monday, February 18, 2019 (14.00 - 16.00)**

**Answer ALL questions.**

**Marks: 50**

**Duration: 120 mins.**

- 1) Explain in detail about types of X-ray Generators (10)
- 2) Discuss in detail on Characteristic Curve. (10)

**3. Discuss the following:**

- 3A) Double Emulsion Film Construction (5)
- 3B) Unsharpness (5)
- 3C) Biological effect of radiation (5)
- 3D) Rectifiers (5)

**4. Discuss the following:**

- 4A) Luminescence (2)
- 4B) Difference between characteristic radiation and auger electron (2)
- 4C) Requirements for X-ray Production (2)
- 4D) Physical properties of silver halide (2)
- 4E) Optical density (2)

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# Question Paper

Exam Date & Time: 01-Mar-2019 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - FEB/MAR 2019**  
**SUBJECT: BMIT 305 - RECENT TRENDS IN ULTRASONOGRAPHY**  
**(2016 SCHEME)**

**Friday, March 01, 2019 (14.00 - 16.00)**

**Answer ALL questions.**

**Marks: 50**

**Duration: 120 mins.**

- |     |  |      |
|-----|--|------|
| 1)  | Explain Doppler effect. Describe briefly instrumentation of Doppler.       | (10) |
| 2)  | Explain piezoelectric effect in detail.                                    | (10) |
| 3A) | Explain interactions of ultrasound with matter.                            | (5)  |
| 3B) | Explain two useful artifacts in ultrasound imaging.                        | (5)  |
| 3C) | Write a note on patient preparation for USG guided procedures.             | (5)  |
| 3D) | Explain Spectral Analysis.   | (5)  |
| 4A) | Name the applications of curvilinear transducer.                           | (2)  |
| 4B) | Name any two difference between continuous wave doppler and power doppler. | (2)  |
| 4C) | Define Mirror artifact.  | (2)  |
| 4D) | Define doppler shift.  | (2)  |
| 4E) | Name the contrast agents used in ultrasound imaging.                       | (2)  |

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# Question Paper

Exam Date & Time: 23-Feb-2019 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FIFTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - FEB/MAR 2019**  
**SUBJECT: BMIT 309 - RECENT TRENDS IN NUCLEAR MEDICINE TECHNOLOGY**  
**(2016 SCHEME)**

**Saturday, February 23, 2019 (14.00 - 16.00)**

**Answer all questions.**

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

**Marks: 50**

**Duration: 120 mins.**

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|-----|---|------|
| 1)  | Discuss in detail Indian guidelines for transport of radioactive materials.   | (10) |
| 2)  | Discuss in detail working of Gamma ray spectrometer.  | (10) |
| 3A) | Write short note on waste management of radioactive materials in nuclear medicine facilities.   | (5)  |
| 3B) | Explain Bohr's atomic model.  | (5)  |
| 3C) | Compare SPECT and PET systems used in nuclear medicine.   | (5)  |
| 3D) | List radiopharmaceuticals used for studying renal system, hepatobiliary system, pulmonary system, skeletal system and cardiac system. | (5)  |
| 4A) | What is radioactivity?  | (2)  |
| 4B) | What is decay constant?   | (2)  |
| 4C) | What are half life of I-131 and Tc-99m?   | (2)  |
| 4D) | What is Photomultiplier tube?   | (2)  |
| 4E) | How is 1 mCi defined in terms of disintegrations per second (dps)?  | (2)  |

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