

S6 B/O

BM

N19 - A0117

TED (15) – 6243

Reg. No.

(REVISION — 2015)

Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

MEDICAL IMAGING TECHNIQUES

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define Angiography.
2. Name the system components used in CT machine.
3. List the properties of ultrasound.
4. State 'Precession'.
5. Define half life period.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Describe the generation of X rays.
2. Differentiate between CT and X ray.
3. Identify the applications of ultrasound.
4. Explain the principle of echoencephalography and its clinical application.
5. Name and explain any three magnets used in MRI.
6. Describe the phenomenon of radioactive decay.
7. Write a note on the concept of nuclear imaging.

(5 × 6 = 30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain stationary anode X ray tube with a neat diagram. 7
 (b) Summarize the generations of CT with diagram. 8

OR

- IV (a) Explain the block diagram of X ray machine. 8
 (b) Describe the procedure involved in balloon angioplasty. 7

UNIT — II

- V (a) Illustrate the principle and working of echocardiography. 8
 (b) Describe the types of scanning used in ultrasound imaging. 7

OR

- VI (a) Give an account on the generation of ultrasound. 8
 (b) Write a note on Doppler ultrasound imaging. 7

UNIT — III

- VII (a) Describe the system components of NMR system. 9
 (b) Give an account on relaxation times used in MRI. 6

OR

- VIII (a) Explain the principle of NMR imaging system. 9
 (b) Write notes on :
 (i) Larmour frequency 3
 (ii) Free induction decay 3

UNIT — IV

- IX (a) Summarize the working of PET scan. 9
 (b) Outline the properties of gamma rays. 6

OR

- X (a) Illustrate the setup and working of gamma camera. 8
 (b) Explain the principle and operation of SPECT scanning. 7