

**B.TECH. SEM -VI BIO MEDICAL 2014 COURSE (CBCS) :
SUMMER - 2018**

SUBJECT : MEDICAL IMAGING TECHNIQUES

Day : **Wednesday**
Date : **06/06/2018**

S-2018-2454

Time : **02.30 PM TO 05.30 PM**
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

Q.1 List the apparatus of X-ray machine and with constructional detail. Explain [10]
working of rotational anode X-ray tube.

OR

Write a short note on production of X-rays. Also explain how to control X-ray dose in an X-ray image intensifier system.

Q.2 Describe the various display modes of ultrasound. Also explain in detail any [10]
one application of A-Scan.

OR

What are the characteristics of piezoelectric crystal? Explain the transducer used for continuous wave Doppler.

Q.3 Explain the advantage of image reconstruction in Computed Tomography. [10]
With one example explain ray by ray iterative reconstruction in Computed Tomography.

OR

Write a note on resolution and various artifacts in CT and patient dose in CT scanner.

Q.4 What is the main function of the Pulse Height Analyzer and Gamma Ray [10]
Spectrometer?

OR

Draw the functional block diagram of thyroid uptake system and explain it.

Q.5 With block diagram explain Thermographic equipment. [10]

OR

Describe the basic principle of MRI and also explain period T_1 and T_2 in detail.

Q.6 Compare the following image formats: [10]
a) BMP b) JPEG c) TIFF

OR

List and explain various image formats. Explain BMP format in detail.

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