

B.Tech. SEM -VI Bio Medical 2014 Course (CBCS) : WINTER - 2018

SUBJECT: MEDICAL IMAGING TECHNIQUES

Day: Thursday
Date: 15/11/2018

W-2018-2509

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat diagram **WHEREVER** necessary.
 - 4) Assume suitable data **WHEREVER** necessary.
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Q.1 List and explain various methods of controlling radiation exposure. **(10)**

OR

- a) Explain various reactions involved in X-ray film development process. **(05)**
- b) With schematic explain the working of Image Intensifier Tube. **(05)**

Q.2 With help of a block diagram explain A-scan ultrasonic display mode. Also list the applications of ultrasonography. **(10)**

OR

- a) With constructional detail explain ultrasound transducer. **(05)**
- b) Explain the concept of Doppler color flow imaging. **(05)**

Q.3 Explain basic principle of computer tomography. Also write a note on resolution and artifacts in CT. **(10)**

OR

- a) Explain in detail algorithms for image reconstruction. **(05)**
- b) Describe first and second generation CT scanner. **(05)**

Q.4 Describe the basic principle of Gas filled detector. Also explain in detail various types of gas filled detectors. **(10)**

OR

- a) Draw and explain the block diagram of a single channel pulse height analyzer. **(05)**
- b) Write a short note on Gamma Ray Spectrometry. **(05)**

Q.5 Define MRI. Describe the basic principle of MRI and also explain period T_1 and T_2 in detail. **(10)**

OR

- a) Enumerate the various applications of thermography. **(05)**
- b) Explain the applications of MRI. **(05)**

Q.6 What is Image Restoration? Explain the basic principle. Also give the applications of digital image processing in various field. **(10)**

OR

- a) Explain JPEG image format in detail. **(05)**
- b) Explain BMP image format in detail. **(05)**

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