

B.Tech. SEM -VI Bio Medical 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: MEDICAL IMAGING TECHNIQUES

Day: Monday
Date: 27/05/2019

S-2019-2774

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 diagram **WHEREVER** necessary.
 - 4) Assume suitable data **WHEREVER** necessary.
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Q.1 List the apparatus of X-ray machine and with constructional detail explain (10)
working of rotational anode X-ray tube.

OR

- a) What is angiography? Explain various angiographic techniques. (05)
- b) Explain various safety specifications of X-ray equipment. (05)

Q.2 Mention various applications of A-scan, M-scan and B-scan ultrasound (10)
imaging and explain with the help of block diagram B-scan ultrasound display
mode.

OR

- a) Define Doppler effect with block diagram explain continuous wave Doppler. (05)
- b) Define basic principle of ultrasonography. List the applications of (05)
ultrasonography.

Q.3 Define SPECT. With the help of block diagram explain SPECT. (10)

OR

- a) Compare various generations of computed tomography. (05)
- b) Write a note on ray-by-ray iterative reconstruction in computed tomography. (05)

Q.4 List the various collimators used with Gamma camera. Explain any two (10)
collimators in detail.

OR

- a) With the help of block diagram explain Scintillation camera. (05)
- b) What is the main function of pulse height analyzer? Draw and explain (05)
scintillation detector.

Q.5 Describe the basic principle of MRI and thermography. Also explain period (10)
 T_1 and T_2 in MRI.

OR

- a) Write about the physics of thermography. (05)
- b) Explain the applications of MRI and thermography. (05)

Q.6 What is image restoration? Compare the following image formats (10)
i) BMP ii) JPEG iii) TIFF

OR

- a) Write a short note on image restoration techniques. (05)
- b) Write a short note on image enhancement technique. (05)

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