

CBCS SCHEME

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18BM81

Eighth Semester B.E. Degree Examination, Jan./Feb. 2023 Medical Imaging Systems

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Briefly explain the Compton scattering with a neat diagram. (10 Marks)
b. Describe the generation of X-rays. (10 Marks)

OR

- 2 a. Discuss the physical construction of xeroradiographic system with a neat diagram. (10 Marks)
b. With a neat sketch, explain DSR. (10 Marks)

Module-2

- 3 a. Describe Doppler effect with a neat diagram. (10 Marks)
b. With a neat sketch, explain the arrays of ultrasound. (10 Marks)

OR

- 4 a. Elaborate ultrasound bioeffects. (10 Marks)
b. Explain: (i) Ultrasonic texture or speckle (ii) Speckle reduction (10 Marks)

Module-3

- 5 a. Discuss about the nuclear activity and half-life and write down the units for measuring nuclear activity. (10 Marks)
b. Explain the properties of ideal radionuclides for medical diagnosis. (10 Marks)

OR

- 6 a. Elaborate the diagnostic methods using radiation detector probes. (10 Marks)
b. With a neat sketch, explain positron emission tomography. (10 Marks)

Module-4

- 7 a. Describe the angular momentum of NMR. (10 Marks)
b. Discuss the Fourier spectrum of NMR signal. (10 Marks)

OR

- 8 a. Write a brief note on NMR coil probe. (10 Marks)
b. Explain spin-echo imaging. (10 Marks)

Module-5

- 9 a. Write a brief note on pyroelectric Vidicon camera. (10 Marks)
b. Write down the physics of thermography. (10 Marks)

OR

- 10 a. Explain stereotactic neurosurgery based on digital image volumes. (10 Marks)
b. Discuss intraoperative diagnostic imaging. (10 Marks)

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