



B.Sc. Imaging Technology Third Year (Semester-V)

March 2023 Examination

Time: 2.30 Hrs.

Paper-I

[Max. Marks: 80]

Sub: Physics of Ultrasound with PCPNDT act

Q.P Code: J5410

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 Explain briefly about modes of ultrasound. Define pulsed Doppler and Real time colour flow imaging.
- 2 Describe the construction and working of transducer. Explain about different types of probes used?

SHORT ESSAY (Answer any six)

6 X 5 = 30 Marks

- 3 Write about diagnostic procedures using ultrasound?
- 4 What is meant by ultrasound artefacts? And what are the types of the artefacts?
- 5 What is meant by PCPNDT Act & Explain it?
- 6 Explain about acoustic impedance with examples?
- 7 Write about sterilisation of ultrasound probes?
- 8 Write about piezoelectric effect?
- 9 What is meant by Fresnel and Fraunhofer field in an ultrasound beam? What is its importance?
- 10 Write about patient preparation for ultrasound?

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 11 Define reflection and refraction.
- 12 Display Mode of ultrasound.
- 13 Define quality assurance for safety considerations in ultrasound.
- 14 What are the different types of arrays used in ultrasound?
- 15 Electronic acoustic coupling media.
- 16 Properties of ultrasound.
- 17 Write indications for upper limb doppler studies?
- 18 Write about tissue harmonic imaging.
- 19 What is meant by aliasing?
- 20 patient preparation for ultrasound abdominal?
- 21 Write three therapeutic procedures using ultrasound?
- 22 What is 3D ultrasound?

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B.Sc. Imaging Technology Third Year (Semester-V)

March 2023 Examination

Time: 2.30 Hrs.

Paper-II

[Max. Marks: 80]

Sub: Physics of CT & Imaging Techniques

Q.P Code: J5420

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 What is the basic principle of CT? Write short note on spiral CT?
- 2 Write in detail about the reconstruction technique of CT scanning?

SHORT ESSAY (Answer any six)

6 X 5 = 30 Marks

- 3 Indications for CT brain?
- 4 Explain in detail about CT number?
- 5 Write about window level and window width?
- 6 What are the factors affecting image quality in CT?
- 7 Write a note on CT guided procedures?
- 8 Write briefly about CT artifacts?
- 9 Write about contrast reactions in brief?
- 10 Write about single and multiple detector array?

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 11 Emergency drugs in radiology department?
- 12 Write about patient positioning in CT?
- 13 What is pixel and voxel?
- 14 What are the steps during CECT abdomen?
- 15 Give a short note about 64 slice CT scan?
- 16 Define the term CTDI vol?
- 17 What is HU?
- 18 What is slip ring technology?
- 19 Write about 2nd generation CT machine?
- 20 What are the QA tests performed monthly?
- 21 What are the detectors used in CT scan?
- 22 Write about patient preparation before contrast study?

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SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

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March 2023 Examination

Time: 2.30 Hrs.

Paper-III

[Max. Marks: 80]

Mammography and Nuclear Medicine

Q.P Code: J5430

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 Write about principle & working of SPECT and its uses?
- 2 Write about the principle and working of digital radiography?

SHORT ESSAY (Answer any six)

6 X 5 = 30 Marks

- 3 Write about PET CT uses?
- 4 Define radiopharmaceuticals and their uses in nuclear medicine.
- 5 Write about half-life and mean-life.
- 6 Write about PACS in brief?
- 7 Describe in detail about mammography.
- 8 Rectilinear scanner.
- 9 Write a short note on Radioactivity.
- 10 Write about preparation of radiopharmaceuticals?

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 11 What is Computer radiography?
- 12 Types of gamma cameras.
- 13 Safety considerations of radiation dose in PET.
- 14 Daily QA test for nuclear medicine.
- 15 What is mini PACS?
- 16 CCD & PMT
- 17 Write about properties of gamma rays
- 18 Uses of technetium 99m
- 19 Multihole collimator
- 20 External factors affecting gamma camera performance.
- 21 Define radio immune assay.
- 22 Write about properties of technetium.

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