SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2022 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 What is PCPNDT and explain it in detail

2 Describe the construction and types of ultrasound transducer with neat labelled diagram.

SHORT ESSAY (Answer any six) **6 X 5 = 30 Marks**

3 Describe the construction and types of ultrasound transducer with help of neat labelled diagram.

4 Write about the characteristic nature of ultrasound

5 Discuss the Doppler effect & types

6 Discuss about 3D and 4D ultrasound.

7 USG guided procedures

8 Time gain compensation

9 Write about ultrasound interaction

10 Physical principles of ultrasound

SHORT ANSWERS (Answer any Ten) **10 X 3 = 30 Marks**

11 Reverberation artefact

12 What is meant by comet tail artefact? Give an example. Where it is seen?

13 Mirror image artefact

14 Ultrasound resolution

15 What is M mode ultrasound?

16 Power Doppler

17 Doppler shift

18 Write about acoustic impedance.

19 Ultrasound transducers

20 Piezoelectric effect

21 What is tissue harmonic imaging?

22 Side lobe artefact

* * * * *

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2022 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 Mention the artefacts in CT. Explain any four artefacts?

2 Explain in detail about the detectors and detector array in CT scan.

SHORT ESSAY (Answer any six) **6 X 5 = 30 Marks**

3 Describe the procedure of CT guided lung biopsy. Advantages of CT guided lung biopsy.

4 Explain in detail about CT number?

5 Write about window level and window width?

6 Write about 3D image reconstruction in brief?

7 Write about patient positioning in CT?

8 Write about CT machine parts?

9 Write a short note on spiral CT?

10 What is HU? How it plays on various tissues?

SHORT ANSWERS (Answer any Ten) **10 X 3 = 30 Marks**

11 What are the indications for CT brain?

12 Define the term CTDI vol.

13 Write about oral contrast in CT?

14 Give a short note on simple back projection.

15 Write about patient preparation before contrast study?

16 What is effective dose?

17 Name the phases in CECT abdomen?

18 Write about documentation in CT?

19 Name the CT guided interventions?

20 Write a short note on quality control in CT?

21 Classify iodinated contrast media.

22 Give a short note on 3rd generation CT scan?

* * * * * *

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2022 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 Describe basic principle, design & working of gamma camera?

2 Define radionuclides & write about production of radionuclides in detail.

SHORT ESSAY (Answer any six) **6 X 5 = 30 Marks**

3 Write about Radio immune assay?

4 Write about the functioning SPECT?

5 Advantages of Digital Radiography over Computed Radiography?

6 Write about the principle computed radiography?

7 What are the precautions are taken during handling of radiopharmaceuticals?

8 What is PACS? Its uses?

9 Uses of PET scan?

10 Describe in detail about mammography?

SHORT ANSWERS (Answer any Ten) **10 X 3 = 30 Marks**

11 Write about alpha and beta decay?

12 What is mini PACS?

13 FDG storage container?

14 What is Photomultiplier tube?

15 Write about properties of technetium?

16 Uses of SPECT scan?

17 Principles of tracer technique?

18 Define radioactivity and give its unit?

19 What is multihole collimator?

20 Radionuclide Iodine-131.

21 Charged coupled device.

22 What is half-life?

* * * * * *