

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)



B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Time: 2.30 Hrs.

Paper-I

[Max. Marks: 80]

Sub: MRI Physics and Instrumentation

Q.P Code: J6440

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

02 x 10 = 20 Marks

1. MRI Image quality.
2. Write about MRI Instrumentation.

SHORT ESSAY (answer any six)

06 x 05 = 30 Marks

3. Relaxation
4. Precession, Precessional and Larmor frequency with equation
5. Explain magnet and shim coils.
6. Signal to Noise Ratio
7. Resolution
8. Contrast to Noise Ratio
9. Safety Consideration in MRI
10. Motion artefact in MRI

SHORT ANSWERS (answer any ten)

10 x 03 = 30 Marks

11. General care of MRI equipment's
12. Scan time
13. Matrix
14. Matrix size
15. Pixel
16. Voxel
17. K-space
18. Hydrogen proton
19. FID
20. Flip angle
21. T2 weighting
22. Precessional frequency.

* * * *

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)



B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Time: 2.30 Hrs.

Paper-II

[Max. Marks: 80]

Sub: MRI Imaging basics and advances in MRI

Q.P Code: J6450

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

02 x 10 = 20 Marks

1. Add a note on DWI
2. MR contrast agents

SHORT ESSAY (answer any six)

06 x 05 = 30 Marks

3. Write a note on Conventional spin echo.
4. Patient preparation and Positioning of MR spine
5. Indications for MR Brain
6. Safety Consideration for MR equipment
7. Patient preparation and Positioning of MR Mammogram
8. Adverse reactions of Contrast Agents
9. TE, TR and flip angle
10. STIR and FLAIR

SHORT ANSWERS (answer any ten)

10 x 03 = 30 Marks

11. Phase encoding
12. CNR
13. Sequences of MRI lumbar Spine
14. Dual spin echo sequence
15. Chemical pre-saturation
16. Patient Motion Artefacts
17. Resolution
18. SNR
19. Chemical shift
20. Indications for MR Mammogram
21. Flip Angle
22. Contraindications for MR Mammogram

* * * *



B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Time: 2.30 Hrs.

Paper-III

[Max. Marks: 80]

Interventional radiological procedures

Q.P Code: J6460

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

02 x 10 = 20 Marks

1. What is Thermography? Write it in detail.
2. Write about Equipment's and accessories used in DSA

SHORT ESSAY (answer any six)

06 x 05 = 30 Marks

3. Write about Operation theater radiography
4. Write a short note on Brain angiography
5. Write about patient preparation in interventional radiology
6. Write a note on catheter.
7. Post-operative Cholangiography
8. Percutaneous nephrostomy
9. Write about IVU
10. Macro radiography

SHORT ANSWERS (answer any ten)

10 x 03 = 30 Marks

11. High kV Technique
12. CR
13. Biopsy
14. Indications for peripheral angiography
15. Write about computed tomography
16. Write about the indication of MCU
17. Write about CR
18. Write the application of DSA
19. Seldinger technique
20. Draw a neat labeled diagram of Renal system
21. Contraindications for Lower limb angiography
22. DR

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)



B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Time: 2.30 Hrs.

Paper-I

[Max. Marks: 80]

Sub: MRI Physics and Instrumentation

Q.P Code: K6420

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain in detail factor affecting image quality.
2. Explain in detail about MRI instruments.

SHORT ESSAY

6 X 5 = 30 Marks

3. Write in detail about T1 contrast.
4. Write in detail about MRI image formation.
5. Write in detail about Proton density contrast
6. Write in detail about Magnets in MRI.
7. Write in detail T2 contrast.
8. Write in detail about Contrast to Noise ratio.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Write a note Scan time.
10. Write a difference between T1&T2 weighting
11. Write a note on Contrast Mechanism
12. Write a note on indication &contraindication of lumbar spine.
13. Write a note on how scan time can be reduced in MRI.
14. Write a note on Extravasation of contrast Media.
15. Write a note on Matrix.
16. Draw a neat labeled diagram of Brain arties.
17. Draw a labeled Diagram of abdominal arteries.
18. Write a note on RF Transmitter coil.

*** * ***



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Paper-II

Time: 2.30 Hrs.

[Max. Marks: 80]

Sub: MRI Imaging basics and advances in MRI

Q.P Code: K6430

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain detail about Spine echo sequence.
2. Explain detail about MR Spectroscopy.

SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note on STIR
4. Write a note on adverse reaction of contrast media.
5. Write a note on Ramping in MRI
6. Write a note on Techniques of MR Perfusion.
7. Write a note on MRI Dorsal spine
8. Write a note on Mammography.

SHORT ANSWERS

10 X 3 = 30 Marks

9. List the Applications of MRI DWI.
10. Write a note MRI signal.
11. Write a note on MRI Zones.
12. Write a note on Contrast mechanism in MRI.
13. Write a note on Matrix.
14. Write a note on Multi voxel techniques.
15. Write a note on instruments of mammography.
16. What is FLAIR& its applications.
17. List the indications of MR breast.
18. Write a note on Voxel.

*** * ***

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)



B.Sc. Allied Health Sciences Third Year Semester-VI

November 2024 Examination

B.Sc. Imaging Technology

Paper-III

[Max. Marks: 80]

Time: 2.30 Hrs.

Interventional Radiological Procedures

Q.P Code: K6440

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain in detail about DSA.
2. Explain in detail about Pressure injector.

SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note on Catheter.
4. Write a note on Cholecystography.
5. Write a note on Indication, Contraindication and preparation in Peripheral venography
6. Write a note on Portable x-ray units.
7. Write a note on Retrograde pylourethrogram
8. Write a note on Modes of administration of contrast media.

SHORT ANSWERS

10 X 3 = 30 Marks

9. What is thermography & write its application.
10. Write a note on radiation protection devices.
11. Write about TLD.
12. Write about Gonad shield.
13. Write about adverse contrast reactions.
14. Write about Dual energy subtraction.
15. Write the difference between Intervention radiology & CT scan.
16. List the arteries of brain.
17. List the ideal characteristics of guide wire.
18. Write about peak kilo voltage.

*** * ***