Rajiv Gandhi University of Health Sciences

I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - OCT - 2017

[Time: 3 Hours] [Max. Marks: 80]

Radiographic Procedure and Principles of Radiographic Exposure

Q.P. CODE: 9541

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer Any Two) **2 X 10 = 20 Marks**

1. Describe in details about Interaction of Radiation with matter.
2. Discuss the indication, contraindication and technique of HSG.
3. Explain in detail about various projection of chest radiography.

SHORT ESSAY (Answer Any Eight) **08 X 05 = 40 Marks**

4. Describe OPG. Enumerate its Advantages over intra and extra oral views.
5. Explain Contrast media reaction and patient management.
6. Discuss indication, contraindication and technique of MCU.
7. T- Tube Cholangiography., explain in detail
8. Discuss in detail about construction and types of X-Ray cassettes.
9. Fallopian Tube Recanalization.
10. Explain about micro and macro radiography.
11. Explain Pelvimetry in detail.
12. Explain routine and supplementary views of C-Spine.
13. Discuss formation of Latent Image.

SHORT ANSWERS (Answer Any Ten) **10 X 02 = 20 Marks**

14. Lordotic view of Chest.
15. Types of Sharpness and unsharpness.
16. Magnification.
17. Stress View.
18. BIRADS.
19. Dacro Cystography.
20. Requirements for X-Ray production.
21. Line spread function.
22. Administration of contrast medium.
23. Various views of Sternum.
24. Oblique view of Lumbar Spine.
25. Photoelectric Effect.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - OCT-2017

[Time: 3 Hours] [Max. Marks: 80]

Instrumentation of conventional X-Ray Equipments and Instrumentation of Specialized Radiology Equipments – PAPER-II
Q.P. CODE: 9542

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer Any Two) **2 X 10 = 20 Marks**

1. Discuss about rectifier and mention the type of rectifiers.
2. Describe the construction and working principle of transformers.
3. Describe the working principle of Tomography and its types.

SHORT ESSAY (Answer Any Eight) **08 X 05 = 40 Marks**

4. Various types of circuit breakers used in X-Ray equipment.
5. Capacitor discharge X-Ray equipment.
6. Grid controlled X-Ray tube.
7. Care and maintenance of X-Ray equipment.
8. Exposure switch and its application.
9. Describe about electromagnetic relay.
10. General care of X-Ray equipment.
11. Digital mammography unit.
12. Pantomography equipment.
13. Photo timers.

SHORT ANSWERS (Answer Any Ten) **10 X 02 = 20 Marks**

14. Switches.
15. Cones.
16. Earthing.
17. Types of rectifiers.
18. Spot film device.
19. Eddy current.
20. Thermal relay.
21. Serial changer.
22. X-Ray filter.
23. Brightness gain of image intensifier.
24. Basic control of mobile X-Ray unit.
25. Electronic timer.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - OCT-2017

[Time: 3 Hours] [Max. Marks: 80]

Advanced Technique and Instrumentation of Ultrasonography – PAPER-III
Q.P. CODE: 9543

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer Any Two) **2 X 10 = 20 Marks**

1. Describe formation of image in ultrasound.
2. Describe working principle of colour Doppler ultrasound.
3. 3D and 4D ultrasonography.

SHORT ESSAY (Answer Any Eight) **08 X 05 = 40 Marks**

4. Doppler spectral analysis.
5. Harmonic imaging.
6. Intraoperative ultrasound.
7. Power Doppler.
8. Cause, manifestation and rectification of ultrasound artefacts.
9. Colour flow imaging.
10. Components of transducer, piezoelectric effect and types.
11. Explain acoustic impedance, reflection and refraction of scattering.
12. Difference between high frequency and low frequency ultrasound.
13. Explain about ultrasound guided interventional procedures.

SHORT ANSWERS (Answer Any Ten) **10 X 02 = 20 Marks**

14. Transrectal transducer.
15. Acoustic impedance.
16. Ultrasound artefacts.
17. Beam former and scan converter.
18. Aliasing artefacts.
19. Ultrasound monitors.
20. Types of piezoelectric crystals.
21. Methods to improve image resolution.
22. Name the various Doppler methods.
23. Cavitation and heating effect of ultrasound.
24. Probes used for ophthalmic ultrasonography.
25. Transmitters and receiver.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - OCT 2017

[Time: 3 Hours] [Max. Marks: 80]

Advanced Technique and Instrumentation of Computed Tomography – PAPER-IV
Q.P. CODE: 9544

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer Any Two) **2 X 10 = 20 Marks**

1. Describe about multi detector CT.
2. Explain about single and multi slice CT.
3. Procotol for adult whole body CT scan.

SHORT ESSAY (Answer Any Eight) **08 X 05 = 40 Marks**

4. Discuss CT dose issues, methods by which CT dose can be reduced.
5. HRCT of lungs and their technical aspects.
6. Methods to improve image resolution in CT scan.
7. CT Bronchoscopy
8. Difference between 3D and 4D CT imaging.
9. Protocol for CT Coronary Angiogram.
10. CT Pulmonary Angiogram.
11. HRCT artefacts.
12. CT number.
13. Multidimensional reformation.

SHORT ANSWERS (Answer Any Ten) **10 X 02 = 20 Marks**

14. DLP.
15. Any 5 CT artefacts.
16. Contrast media reaction in CT and patient management.
17. Filtered back projection.
18. Name any 5 CT guided interventional procedures.
19. 3rd generation CT scanner.
20. Define motion artefacts and how it is rectified.
21. Isotropic imaging.
22. MIP.
23. ECG monitoring.
24. Data acquisition of CT scan.
25. General care of CT scan equipment.