Rajiv Gandhi University of Health Sciences

I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - SEP-2018

[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 detail about process of X-Ray production.
2. Discuss the indication, contraindication and technique of IVU.
3. Discuss about contrast media, its application, types, administration technique and safety aspects.

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

4. Write about automatic film processing.
5. Explain the radiographic technique of Barium meal with its indication and contraindication.
6. High KvP technique in chest radiography.
7. Routine and supplimentry views of Hip Joint.
8. Towne's View.
9. Plain radiograph of genito urinary system.
10. Describe radiographic density, contrast, opacity and transmission.
11. Contraindication and complication of Barium Enema.
12. Routine and supplementary views of SI joint.
13. Explain about characteristic curve.

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

14. General precaution of dental radiography.
15. X-Ray of acute abdomen.
16. Various layers of X-Ray film.
17. Apicogram.
18. Intensifying screen.
19. Contraindication of HSG.
20. Inter condylar view.
21. Tunnel's view.
22. Differentiate between Ionic and Non Ionic contrast media.
23. Scaphoid view.
24. Axial view of calcanium.
25. Photo disintegration.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - SEP-2018

[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. Describe in detail about construction and working of mammographic X-Ray unit.
2. Describe in detail about tube rating chart and anode cooling curve.
3. Give an account on three phase X-Ray generators.

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

4. Safety rules for radiographer.
5. Portable and Mobile equipments.
6. Various quality assurance test done in X-Ray.
7. High Voltage X-Ray circuits.
8. Comparison of darkroom fluoroscopy and digital fluoroscopy.
9. Types of X-Ray filters.
10. Types of transformer loss.
11. Explain about battery powered generators.
12. Construction of X-Ray tube and explain about stationary and rotating anode.
13. Uses of electricity in hospital.

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

14. Tube overload protection.
15. Exposure timers.
16. Various types of tomographic movements.
17. Mobile X-Ray equipment.
18. Device improving radiographic quality.
19. Polyphase supply.
20. Hystersis loss
21. Types of generators.
22. Exposure switches and its application.
23. Uses of electrical energy.
24. Mammography X-Ray tube.
25. Acceptable limits of X-Rays.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - SEP-2018

[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. Interaction of ultrasound with matter.
2. Different types of ultrasound display mode. Give description of each.
3. Various Doppler ultrasound techniques.

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

4. Explain the properties of ultrasound.
5. Brief explanation of ultrasound contrast agents and uses.
6. Explain real time ultrasound.
7. Mention about the modern transducer design.
8. Discuss the quality assurance of ultrasound equipment.
9. Explain Doppler instrumentation with a neat labelled diagram.
10. Write about the artefact seen in ultrasound.
11. Explain about linear and phased array.
12. Controls in ultrasound machines.
13. Ophthalmic ultrasonography.

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

14. Piezoelectric effect.
15. Harmonic imaging.
16. 4D imaging of ultrasound.
17. Safety consideration in ultrasound.
18. M mode.
19. Principle of Doppler.
20. Resistive index of ultrasound.
21. Explain about housing of transducer.
22. Probe used for ophthalmic ultrasonography.
23. Black diagram of ultrasound instrumentation.
24. Curvilinear transducer.
25. Ultrasound beam focusing.

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I YEAR M.Sc MEDICAL IMAGING TECHNOLOGY - SEP-2018

[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. Instrumentation and generation of CT.
2. Discuss about CT Coronary Angiography.
3. Discuss about high resolution computed tomography and briefly about HRCT lung and HRCT temporal bone.

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

4. Contrast agents used in CT and methods of administration.
5. Explain about slip ring technique.
6. Brief about image reconstruction of CT.
7. Spatial resolution and noise resolution.
8. Care, maintenance and quality assurance.
9. Various reformation that can be done in volumetric date.
10. Protocols used for paediatric CT.
11. Discuss CT artefacts.
12. CT perfusion.
13. Types of detectors in CT.

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

14. Define helical CT.
15. Multi planar reconstruction.
16. Reconstruction algorithms.
17. Factors affecting spatial resolution.
18. Expiratory HRCT.
19. How is CTDi volume related to patient dose?
20. CT fluoroscopy.
21. CT calcium scoring.
22. Acceptable limits of variation in CT.
23. Image display in CT.
24. Electron beam CT.
25. Cine CT system.

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