

**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH**

**(A DEEMED TO BE UNIVERSITY)**

**B.Sc. Allied Health Sciences Second Year (Semester-III)**

**February - 2018 Examination**

**B.Sc. Imaging Technology (IMT)**

**Time : 2.30 Hrs.**

**[ Max. Marks : 80]**

**Paper-I**

**Physics of Radiology & Radiation Physics**

**Q.P Code : AHS-110**

*Your answers should be specific to the questions asked.*

*Draw neat labeled diagrams wherever necessary.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

1. Describe the discovery of X-rays. Describe the construction and working of modern day X-Ray tube.
2. Concepts of radiation protection. Describe in detail about personal monitoring devices.

**SHORT ESSAY (Answer any Six)**

**6 X 5 = 30 Marks**

3. Attenuation coefficients and half value.
4. Types of transformers used in X-Ray machine.
5. Phosphorescence.
6. Rectifiers and uses.
7. Scintillation detectors.
8. Types of anode and uses.
9. Principles of semiconductors and uses.
10. Concept of X-Ray filters and uses.

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

11. Fluorescence.
12. Fixed anode.
13. X-Filament.
14. Half wave rectifiers.
15. PN Junction diode.
16. Annual dose equivalent.
17. Half value thickness.
18. Compton effect.
19. Electromagnetic induction.
20. Phosphorescence.
21. Photoelectric emission.
22. Properties of an X-Ray filament.

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**Paper-II**

**Medical Physics**

**Q.P Code : AHS-111**

*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 rectification? Use of rectification in modern day X-Ray tube.
2. Principles of construction of image intensifiers. Describe the methods of viewing the intensified image.

**SHORT ESSAY (Answer any Six)**

**6 X 5 = 30 Marks**

3. Anode.
4. Rating and use of rating chart in X-Ray machine.
5. Fluoroscopy.
6. Grids.
7. Mammography.
8. Collimators.
9. Concept of mobile X-Ray machine.
10. Describe the filament circuit.

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

11. Rotating anode.
12. Half wave rectification.
13. Exposure timers.
14. Switch.
15. Capacitor and discharge.
16. Kilovoltage compensation on X-Ray machine.
17. Cones.
18. Types of grids.
19. Mammography cassette.
20. Wisconsin test tool.
21. Collimators.
22. Spot film.