SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Second Year (Semester-III)
February - 2016 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 structure of an atom. Describe the production of X-Rays.
2. What are radio nuclides? Describe the production of radionuclide and its medical uses.

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

3. Concept of Chromosomal aberrations and mutations of X-Rays.
4. Types of transformers used in X-Ray machines.
5. Diode.
6. Anode.
7. Personal monitoring devices.
8. Compton scattering and its effect.
9. Rectifiers and uses.
10. X-Ray filters and their uses.

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

11. Fluorescence.
12. Half value thickness.
13. Annual dose equivalent.
14. Scintillation detectors.
15. Linear energy transfer.
16. Phosphorescence.
17. Photoelectric emission.
18. Attenuation coefficient.
19. Capacitors.
20. Half life of radioactive material.
21. Cooling of X-Ray tube.
22. Pair production.

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Paper-II

MEDICAL PHYSICS

Q.P. Code : AHS-111

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Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe in detail about the working principles of X-ray tube.
2. With neat diagram explain the principles and working of half waves and full wave rectifier. Mention the uses of rectifier.

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

3. GRID control X-ray tube with diagram.
4. Principles of line focus.
5. Types of collimator.
6. Filters.
7. Mammography.
8. Explain direct and alternative current.
9. Write in briefly about effect of an electric current.
10. Voltmeter and ammeter.

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

11. Define SI unit of power.
12. Defined SI unit of electric current.
13. Filament circuit.
14. Define GRID Ratio.
15. General principles of cleaning routine.
16. Three phase circuit.
17. Optical centering devices.
18. Draw a neat diagram of image intensifier.
19. Flemings left hand rule.
20. Mass miniature radiography.
21. Define electric current.
22. Thermal capacity.

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