



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

April 2023 Examination

B.Sc. Radiotherapy Technology

Time : 2.30 Hrs.

[Max. Marks : 80]

Subject: Fundamentals of Physics

Q.P Code : K3520

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain conductors, insulators and semiconductors in brief
2. Describe about the structure of atom.

SHORT ESSAY

6 X 5 = 30 Marks

3. What are the Properties of Electromagnetic radiation and X-rays.
4. Define Radioactive equilibrium and explain the types of it.
5. Write in detail about the various Cooling method of X-ray tube.
6. What is a Transformer? Mention the types of transformers?
7. Explain about the Quantum theory of radiation(Planck's constant)
8. Describe the Construction and working of x-rays.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Define Electric charges and its units.
10. Define Half-life and Tenth-life.
11. Name any three radioactive nuclides and give explain.
12. Define Electric potential and potential difference.
13. Radioactive disintegration law and Ohm's law.
14. Write about properties of alpha and beta.
15. Define Inverse square law.
16. Write about properties of Radium.
17. What is meant Florescence and Phosphorescence?
18. Define Rectifier and mention its types.

* * *



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

April 2023 Examination

B.Sc. Radiotherapy Technology

Time : 2.30 Hrs.

[Max. Marks : 80]

Subject: Radiation safety

Q.P Code : K3530

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Write in detail about Radioactive Decay with an example
2. Explain the Thermoluminescence Dosimeter (TLD) with the working principle.

SHORT ESSAY

6 X 5 = 30 Marks

3. Explain the production of bremsstrahlung x-rays
4. Define: Ionization, Excitation, and Binding energy.
5. Write in detail about the Ionization chamber with a neat diagram
6. Explain about equivalent dose and effective dose with weighting factors.
7. Write a short note on heavy-charged particle interaction
8. What is the importance of time, distance, and shielding in radiation protection

SHORT ANSWERS

10 X 3 = 30 Marks

9. How does the kVp affect the intensity and quality of x-rays?
10. What is Half value thickness (HVT) and tenth-value thickness (TVT)?
11. What is natural radioactivity? Give example
12. What is the importance of shielding in radiation protection?
13. Define workload and occupancy factor
14. Differentiate stochastic and deterministic effects?
15. What are the annual dose limits for radiation workers and the public?
16. How does the atomic number of the target material affect the intensity and quality of x-rays?
17. What are acute and late effects? give example.
18. Write the working principle of GM counter

*** * ***



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

April 2023 Examination

B.Sc. Radiotherapy Technology

Time : 2.30 Hrs.

[Max. Marks : 80]

Subject: Medical Physics

Q.P Code : K3540

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Write briefly about Mammography with neat diagram.
2. Define rectifier and mention its types with circuit diagram.

SHORT ESSAY

6 X 5 = 30 Marks

3. Explain about filters, types and uses.
4. Describe in detail about the Construction of C-arm and its applications.
5. Explain in detail about the Quality assurance of X-ray machine.
6. Enumerate about the Mass Miniature Radiography.
7. Explain about High Tension (HT) cable.
8. What are the Factors affecting quality and quantity of x-ray.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Define Ammeter and voltmeter.
10. What is the use of shunts?
11. Write the properties of x-ray.
12. What is meant Heel effect?
13. Write about properties of tungsten and molybdenum
14. Define Velocity , frequency and wavelength
15. Explain about Insulator and earthing
16. What is meant Conductors and Insulators.
17. Draw and label the parts of the x-ray tube.
18. What are the of uses electrical energy with proper example?

*** * ***