# Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – 29-Dec-2020

**Time: Three Hours** **Max. Marks: 60 Marks**

## Radiotherapy (Part– I – A)

## Fundamental of Physics (RS - 2)

## Q.P. CODE: 1356

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

**LONG ESSAYS (Answer any Two)** **2 x 10 = 20 Marks**

1. Discuss the Radioactive Equilibrium with examples.
2. Discuss in detail the structure of an X-ray unit / equipment with its electrical circuit diagram.
3. Discuss the various interactions of an electron with target.

**SHORT ESSAYS (Answer any FIVE)** **5 x 5 = 25 Marks**

4. Production of artificial radioactive isotopes
5. Properties of alpha, beta and gamma radiation
6. Electric charges and units of electric charge
7. Wave particle duality of nature
8. Transmission of a heterogenous X-ray beam
9. Line focus and Large focus
10. Types of beam limiting devices

**SHORT ANSWERS (Answer any FIVE)** **5 x 3 = 15 Marks**

11. Curie
12. Properties of Radium
13. Compton scattering
14. Cobalt 60
15. Pauli exclusion principle
16. Radiochromic films
17. Definition of REM and Sievert

# Rajiv Gandhi University of Health Sciences, Karnataka

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**II Year B.Sc. Radiotherapy Technology Degree Examination – 05-Jan-2021**

**Time: 3 Hours** **Max. Marks: 30 Marks**

## Radiation Biology, Applied Anatomy and Pathology

## Q.P. Code: 1357

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

**(Note: Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)**

**LONG ESSAYS (Answer any One)** **1 x 10 = 10 Marks**

1. Explain the anatomy of the GI tract and discuss cancers of the oesophagus, rectum and anus.
2. Explain the cell cycle and effects of radiation on the normal cell and abnormal cell.

**SHORT ESSAYS (Answer any Two)** **2 x 5 = 10 Marks**

3. Discuss oxygen effect and re-oxygenation
4. Time, dose and fractionation
5. Dose response relationship for normal tissues

**SHORT ANSWERS (Answer any Five)** **5 x 2 = 10 Marks**

6. CHART
7. TNM classification
8. Total body irradiation
9. ALARA
10. Relative biologic effectiveness
11. Cell survival curves

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# Rajiv Gandhi University of Health Sciences, Karnataka

**II Year B.Sc. Radiotherapy Technology Degree Examination – 05-Jan-2021**

**Time: 3 Hours** **Max. Marks: 30 Marks**

## Principles of Radiotherapy

## Q.P. Code: 1358

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

**(Note: Both QP Codes 1357 and 1358 are to be answered within total duration of 3 hours)**

**LONG ESSAYS (Answer any One)** **1 x 10 = 10 Marks**

1. Describe in detail the simulation and planning process in electron beam therapy.
2. Complications associated with cancers and its treatment

**SHORT ESSAYS (Answer any Two)** **2 x 5 = 10 Marks**

3. Time, dose and fractionations
4. Clinical signs and symptoms of Neoplasia
5. Acute and late effects of radiation therapy

**SHORT ANSWERS (Answer any Five)** **5 x 2 = 10 Marks**

6. Staging of cancer
7. ALARA
8. Altered fractionation schedule
9. Multidisciplinary clinic
10. Blood count during radiotherapy
11. Acute and chronic side effects of radiation therapy

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