Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – MAR/APR 2017

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. Explain the basic interaction of X and gamma radiation with matter.
2. Construction and working of fixed and rotating anode X-ray tube
3. What are the different radioactive nuclides used in medicine. Explain the characteristics of any three radionuclides.

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

4. Ionization and excitation process
5. Properties of radium and its daughter products
6. Principles of nuclear reactor
7. Transformer losses
8. P-n junction diodes
9. Equivalent dose and effective dose
10. Radioactive decay

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

11. Focal spot size
12. Inverse square law
13. Exponential law
14. Isotope
15 HVT
16. Resistance
17. Anode heel-effect

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – MAR/APR 2017

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

Radiation Biology, Applied Anatomy and Pathology

Q.P. Code : 1357

our 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. What are the Biological effects of ionizing radiation on living cell?
2. Write a note on Epidemiology, pathology and spread of Nasopharyngeal Carcinoma.

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

3. Viral Etiology of Cancer
4. Describe in detail the cell cycle.
5. Describe the tumors of Maxillary antrum and its spread.

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

6. Linear quadratic equation in Radiotherapy
7. Mammogram
8. 3D Conformal Radiotherapy
9. Radiation Myelitis
10. Treatment Planning System
11. Risk factors for development of Gastric cancer

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II Year B.Sc. Radiotherapy Technology Degree Examination – MAR/APR 2017

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. Discuss in detail patient preparation, positioning and field arrangements for external beam therapy of Ca Breast.
2. Prevention and treatment of acute side effects of radiotherapy for head and neck cancers

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

3. TNM classification
4. Clinical signs and symptoms of neoplasia
5. Brachytherapy for Ca Cervix

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

6. Brachytherapy
7. Erythema of skin
8. Blood count during Radiotherapy
9. Bladder complications after RT for Ca Cervix
10. Hyper fractionation
11. Effect of radiation on Spinal cord

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – SEP-2017

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. Construction and working of rotating and fixed anode X-ray tubes
2. Explain with diagram half-wave and full-wave rectifier.
3. Interaction of X and gamma radiation with matter

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

4. Production of artificial radionuclides
5. Ohm's law and kirchoff's law
6. Mutual induction and self induction
7. Principles of semiconductor
8. Continuous and characteristics spectrum
9. Practical aspects of x-ray absorption and transmission in a body
10. Relation between kerma and absorbed dose

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

11. LET
12. Exposure
13. Isotope
14. Half-life
15 Anode heel effect
16. HVL
17. Effective dose

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Radiotherapy Technology Degree Examination – SEP 2017

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 anatomy and lymphatic drainage of breast. Write about the epidemiology, etiology and natural history of carcinoma breast.
2. Explain with examples various fractionation schedules in radiotherapy.

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

3. Etiology of esophageal cancer
4. Radiation induced cancer
5. Modes of spread of cancer

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

6. OER
7. IGRT
8. Hypofractionation
9. Testicular lymphatics
10. High LET Radiation
11. Protons

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II Year B.Sc. Radiotherapy Technology Degree Examination – SEP 2017

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. What is neoplasia and mention clinical signs and symptoms of neoplasia.
2. Write about rationale, preparation of patient and simulation for External Beam radiotherapy for upper esophageal cancer.

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

3. Explain uses of TNM staging
4. Acute effects of Radiotherapy
5. Brachytherapy in carcinoma cervix

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

6. Radiation dermatitis management
7. Osteoradionecrosis
8. Care of patient during radiotherapy
9. Isocenter technique
10. Intraoperative Radiotherapy
11. Interstitial brachytherapy

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