Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Radiotherapy Technology Examination – 16-May-2023

Time: Three Hours | Max. Marks: 60 Marks

RADIOTHERAPY PART –II – A
Radiation physics (RS -3)
Q.P. CODE: 2915

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 effects of interaction of photons with matter with examples.
2. Explain the functioning of a linear accelerator.
3. What is the principle of TLD? Explain the parts of a TLD holder and badge.

SHORT ESSAYS (Answer any Five) 5 x 5 = 25 Marks

4. Write about a GM survey **METER**.
5. Write a note on the types of source drawers available for a Telecobalt machine.
6. Difference between PDD and TAR
7. Write a note on EPID.
8. Write a note on simulator and its uses in RT.
9. What is wedge angle? Explain the different types of wedges used in RT.
10. Explain skin sparing effect with MV beams.

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

11. MLC
12. Types of electron interaction
13. Bolus
14. Flattening filter
15. Methods to verify patient positioning during RT
16. Types of films used for film dosimetry
17. Primary and secondary collimators

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Third Year B.Sc. Radiotherapy Technology Degree Examination – 16-May-2023

Time: Three Hours | Max. Marks: 100 Marks

RADIOTHERAPY – PAPER – II A (RS-4)

Q.P. CODE: 3288

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Describe the various interaction of radiation with matter
2. Explain in the components of HDR Brachytherapy machine and brief its clinical applications
   OR
   Describe in detail about primary, secondary and tertiary **COLLIMATOR** system

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Mark

3. Describe linear energy transfer and relative biological effectiveness
4. Application of IMRT
5. Personal monitoring system
   OR
   Treatment time and Isodose calculation
6. Brachytherapy sources
7. X-ray production
8. Respiratory gating
9. Write a note on 3DCRT
10. What are the daily quality assurance (QA) procedures for LINAC?
    OR
    Electron beam therapy
11. Discuss steps taken to minimize radiation exposure to public and radiation workers in a R department
12. Bremsstrahlung and characteristic X-rays

SHORT ANSWER 10 x 3 = 30 Marks

13. Bolus
14. Thermoplastic mould
15. Wedges
16. Tissue compensators
17. TLD badge
18. Hyperbaric oxygen therapy
19. Therapeutic ratio
20. Integral dose
21. MLC
22. ALARA

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Radiotherapy Technology Examination – 18-May-2023

Time: Three Hours | Max. Marks: 60 Marks

PRINCIPLES AND PRACTICE OF RADIOTHERAPY (RS3)

Q.P. CODE: 2916

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

Section – A

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

1. What are the Benign tumors treated with radiotherapy? How will you treat a case of Keloid postoperatively with electrons?
2. What is 3 field technique? How will you plan and treat a case of Ca oesophagus with 3 field technique in conventional way?

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

3. Hemibody radiation techniques and indications, and side effects.
4. **Intracavitary Brachytherapy**
5. Normal tissues to be spared in brain radiotherapy.

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

6. Intraoral prosthesis making in teletherapy.
7. Irradiated volume.
8. EPID.
9. Belly board.
10. Osteoradionecrosis.
11. SSD and SAD technique.

Section – B

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

12. What are the roles of a radiotherapy technologist in cancer management?
13. What are the procedures involved in the radioactive source change of teletherapy and Brachytherapy Machines? Enumerate the procedures in commissioning of new source in teletherapy machine.

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

14. Enumerate the problems encountered while treating geriatric patients.
15. Handling the patient with spinal cord injury.
16. Hyperbaric oxygen therapy.

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

17. Complementary therapies.
18. extra corporal irradiation.
19. Effective communication.
20. Lasers in Radiotherapy.
21. Rehabilitation of cancer patients.
22. Breast board.

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Third Year B.Sc. Radiotherapy Technology Degree Examination – 18-May-2023

Time: Three Hours | Max. Marks: 100 Marks

RADIOTHERAPY – PAPER – II B (RS-4)

Q.P. CODE: 3289

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Explain the radiotherapeutic management in treatment of seminoma
2. Steps involved in preparing a patient for Brachytherapy

   OR

   Discuss the importance of 3D image verification over 2D verification with some examples

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Advantages and challenges of image guided radiation therapy
4. Describe the emergencies in radiation oncology
5. Safety practicing in radiotherapy

   OR

   Stereotactic body radiotherapy and its fractionation regime
6. steps involved in QA of CBCT
7. Radiotherapy for Benign tumors
8. Difference between SSD and SAD setup
9. Explain the aseptic techniques used in OT to prevent infection
10. CT simulation for Ca esophagus

    OR

    Adaptive radiotherapy
11. Discuss the various rehabilitation programs for cancer patients
12. Explain the various Brachytherapy techniques

SHORT ANSWER 10 x 3 = 30 Marks

13. Amifostine
14. Gross tumor volume
15. TNM staging
16. Paediatric Radiotheraphy
17. bone tumors
18. Support group in cancer care
19. Institutional review board
20. cell survival cure
21. Respiratory gating technique
22. Systemic error and random error