Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – APRIL-2019

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

RADIOTHERAPY PART –II – A
Radiation physics (RS -2)
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. Draw a linear accelerator and explain it's parts in detail?
2. Describe the components of HDR brachytherapy machine and brief its clinical application?
3. Describe the various interaction of X-rays with matter?

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

4. Define linear energy transfer (LET) and relative biological effectiveness (RBE) and explain the relation with each other?
5. What is half value layer and describe its application in shielding?
6. Explain the x-ray tube and it parts with a neat diagram?
7. Describe the type of transformers used in X-ray equipment?
8. What is a phantom? How it is helpful in radiotherapy practice?
9. How the junctions between two fields are matched and what is the formula to calculate the gap between 2 adjacent fields?
10. Write short notes on electron beam characteristics?

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

11. Compensators.
12. Bolus.
13. Multi leaf collimator
14. Primary radiation barrier
15. Geiger muller counter
16. Kilovoltage cone beam CT (KVCTBCT)
17. TLD badge

Rajiv Gandhi University of Health Sciences, Karnataka

*****

III year B.Sc. Radiotherapy Technology Examination – APRIL-2019

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

Principles & Practice of radiotherapy (RS2)

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. Explain the radiotherapeutic management in treatment of seminoma.
2. Discuss the management of Ca cervix – stage III.

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

3. QA procedures in LINAC
4. Radiation safety of patients and personel during RT
5. Management of skin cancer

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

6. PET scan
7. Daily QA procedures in teletherapy
8. Therapeutic ratio
9. Mantle field
10. Sources used in brachytherapy
11. Radiation protectors

Section – B

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

12. Describe the process of CT simulation for 3DCRT. What are the mould room techniques used for patient positioning for 3DCRT of bone tumour.
13. Discuss the various rehabilitation programs for cancer patients.

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

14. Explain the aseptic techniques used in OT to prevent infection.
15. Bring out the importance of play therapy for children.
16. Define statistics and its methodologies.

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

17. Support group in cancer care
18. Amifostine
19. Significance of "p" value
20. Institutional review board
21. Gross tumour volume
22. Morphine

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – OCT-2019

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

RADIOTHERAPY PART –II – A
Radiation physics (RS -2)
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 in detail the construction, parts, set up of a teletherapy CO60 unit. Discuss the various safety measures in telecobalt.
2. Discuss various beam modifying devices.
3. Explain the interaction of gamma rays with matter.

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

4. Radiosensitivity and radio curability
5. Simulator in radiotherapy
6. Stereotactic radiosurgery
7. Intensity modulated proton therapy
8. Genetic effects of radiation
9. Rotation therapy
10. Wedges

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

11. Roentgen and rad
12. Bolus
13. Thimble chamber
14. X-ray tube
15. Filaments in X-ray unit and LINAC
16. ALARA
17. Maze in LINAC

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – OCT-2019

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

Principles & Practice of radiotherapy (RS2)

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. Describe in detail the process involved in radiotherapy planning of a patient with oral cancer. Elaborate on the mould room techniques used and simulation techniques used.
2. Outline the staging for carcinoma of the rectum. What is the usual prescription for radiotherapy for pT3 No disease? Describe how you will position, plan simulate and calculate the dose for one technique for External Beam Radiotherapy.

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

3. Describe in brief an intracavitory brachytherapy procedure and its simulation procedure
4. Tomotherapy
5. Pediatric radiotherapy

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

6. Mould
7. Normal tissue shielding methods
8. G2-M phase of cell cycle
9. Skin cancers
10. Boost in Radiotherapy
11. Breast cone

Section – B

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

12. Describe the emergency procedure to be followed by the technologist in Telecobalt machine when the source get stuck during treatment of a patient.
13. Describe in detail the procedures involved in radiotherapy planning of a patient with carcinoma bladder, elaborate on the mould room techniques used and simulation techniques used.

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

14. Personal monitoring devices used during radiotherapy
15. IGRT
16. Wedges

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

17. Cyber knife
18. OER
19. Inward planning
20. MLC
21. Iodine 131
22. SRS

*****