

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Third Year (Semester-V)

March 2022 Examination

B.Sc Radiotherapy Technology (RTT)

Time: 3 Hrs.

[Max. Marks: 100]

Radiation Physics Paper-I

Q.P Code: J5610

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 Define workload, use factor and occupancy factor in shielding calculation for a radiation installation. Draw a model layout of a Linear accelerator room and discuss the method of thickness calculation for primary and secondary barriers.
- 2 What are the different types of beam modifying devices used in radiotherapy?

SHORT ESSAY (Answer any Ten)

10 X 5 = 50 Marks

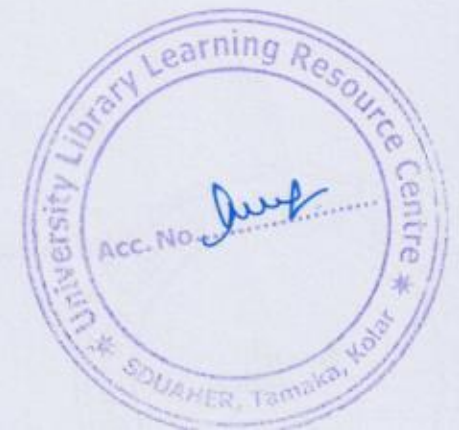
- 3 Explain the importance of Multi leaf collimators in radiotherapy
- 4 Describe in detail of artificial radioactivity.
- 5 Treatment planning system for external beam therapy
- 6 The properties of two sources used in high dose rate remote after loading system and its advantages and disadvantages
- 7 Write a brief note on HDR units
- 8 The various factors influencing percentage depth dose
- 9 What is meant Wedges and types of wedges used in linear accelerators?
- 10 Distinguish between klystron and magnetron
- 11 What is depth of dose maximum? Describe the methods to increase the surface dose.
- 12 What are methods used for applying tissue heterogeneity correction.
- 13 Explain about the measurement of beam quality.
- 14 Write about quality assurance test-Front and back pointer.

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 15 Define GTV, CTV and PTV.
- 16 Define penumbra and write its types.
- 17 What is rectifier and its types.
- 18 What is meant RFA?
- 19 Write advantages of TLD.
- 20 Properties of electromagnetic wave.
- 21 Define atomic number and mass number, give proper example.
- 22 Half-life and tenth-life.
- 23 Write three radionuclides used in medicine.
- 24 Advantage of flattening filter.
- 25 Dose limits to radiation worker and public.
- 26 Principle of dosimeter

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Paper-II

Principle and Practice of Radiotherapy

Q.P Code: J5620

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

2 X 10 = 20 Marks

LONG ESSAY

1. Explain the principle and functioning HDR remote after-loading machine. Mention the radioactive isotopes it can use & 3 applications
2. Planning of 3 field and 4 field techniques for Ca Rectum and mention 3 acute and late complications

10 X 5 = 50 Marks

SHORT ESSAY (Answer any Ten)

3. What is Belly board? Where it used and what are its advantages..?
4. Involved field RT in lymphoma
5. Cranio-spinal axis irradiation
6. Patient positioning and Immobilization in Head and neck malignancies
7. Work up and staging of Ca Cervix
8. Describe in brief about ICBT
9. Squamous cell ca of skin and its management
10. HDR vs LDR brachytherapy in Cancer cervix
11. Describe in brief the management of Anal cell ca
12. German helmet technique for whole brain radiotherapy
13. Different types of pre-treatment position verification techniques
14. Parts of Linear accelerator

10 X 3 = 30 Marks

SHORT ANSWERS (Answer any Ten)

15. Skin care advise during Radiotherapy
16. Symptoms of Cervical cancer
17. Side effects of Pelvic RT
18. Name 3 OARs during Breast Radiotherapy
19. Grades of Mucositis
20. Standard deviation in statistics
21. What is Monophobia
22. Klystron
23. Uses of MLC
24. Mention common 3 pediatric malignancies
25. WHO pain ladder
26. Name 3 situations when patient in prone position is advantageous dosimetrically

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