

B.Sc. Allied Health Sciences Third Year Semester-VI

March 2021 Examination

B.Sc. Radiotherapy Technology

Time : 3 Hrs.

Paper – I

[Max. Marks : 100]

Subject : Radiotherapy-I

Q.P Code: J6631

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 What are the emergency procedures to be carried out in a telecobalt unit when the source is struck in ON position even after completion of treatment and what are the apparatus used for it?
- 2 What is quality assurance? What are monthly QA tests that need to be done for linear accelerator? Explain any three.

SHORT ESSAY (Answer any Ten)

10 X 5 = 30 Marks

- 3 Discuss about the advantages of LINAC & Cobalt-60 machine.
- 4 What are the parameters that need to be checked in treatment chart before starting treatment of a patient?
- 5 Write about bolus and their preparation.
- 6 Explain about total body irradiation.
- 7 Treatment technique for Ca.Breast.
- 8 Define SSD , SAD ,Dmax , Field Size and PDD.
- 9 Stereotactic Body Radiation therapy.
- 10 Advantages & disadvantages of Gamma knife over Cyberknife.
- 11 Write a short note on Geiger Muller Counter.
- 12 Difference between Teletherapy and Brachytherapy. Write strengths and weakness of each?
- 13 Types of Brachytherapy with examples.
- 14 a. A reading of 287 mr/hr is obtained at a distance of 1.5cm from a point source. What would be the reading at a distance of 15cm.
b. A reading of 100 mr/hr is obtained at a distance of 1cm from a point source. What would be the reading at a distance of 1mm.

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 15 Why applicators are used during electron beam therapy?
- 16 Block thickness required for 4MV, 6MV, 10MV, 15 MV and electrons.
- 17 Usage of Fiducial implants in radiotherapy.
- 18 MLC and its advantages.
- 19 What is Hypo fractionated Radiotherapy and Hyper fractionated Radiotherapy?
- 20 Define KERMA, Absorbed dose and exposure.
- 21 Radiation dose limits recommended by AERB for radiation workers.
- 22 Optical Distance Indicator.
- 23 What are primary and secondary barriers?
- 24 Hemi-body irradiation.
- 25 What is swipe test performed in brachytherapy?
- 26 Hyperthermia and its use in Radiotherapy.



B.Sc. Allied Health Sciences Third Year Semester-VI

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B.Sc. Radiotherapy Technology

Time : 3 Hrs.

Paper – II

[Max. Marks : 100]

Subject : Radiotherapy-II

Q.P Code: J6632

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

- 1 Tomotherapy.
- 2 Explain Patient Setup, Immobilisation and devices used for immobilisation for various radiotherapy treatments.

SHORT ESSAY (Answer any Ten)

10 X 5 = 50 Marks

- 3 QA tests for Telecobalt machine.
- 4 Enumerate about the importance of written informed consent in Radiotherapy
- 5 What is EPID? Mention its types and its uses.
- 6 Explain the steps of Brachytherapy CT simulation
- 7 The professional role of Radiotherapy technologist
- 8 Gene therapy
- 9 Define Adjuvant and Neoadjuvant Radiotherapy. What are the advantages of each? Explain with few examples.
- 10 Explain Conformity index and Homogeneity index with examples.
- 11 Explain Conformal radiotherapy
- 12 Explain Step and Shoot IMRT, Dynamic MLC IMRT and VMAT
- 13 Hemi body radiotherapy - Definition, Uses, Technique and side effects
- 14 3D-CRT

SHORT ANSWERS (Answer any Ten)

10 X 3 = 30 Marks

- 15 What is Tomo-direct? Write about its applications?
- 16 Difference between stereotactic radiotherapy and stereotactic radiosurgery
- 17 Write 3 drawbacks of Tomotherapy over conventional LINAC
- 18 Write 3 advantages of HDR Brachytherapy over LDR Brachytherapy
- 19 What is Last man out switch? How does it function? Write about its importance.
- 20 What is Brag peak and write about SOBP
- 21 Three Examples of Intraoperative Brachytherapy
- 22 Define Radical and Palliative radiotherapy
- 23 Name 3 funding agencies for research in radiation oncology
- 24 Non-discriminatory practice in Radiation oncology
- 25 Patient setup/Positioning - Explain its importance and characteristics
- 26 Invasive and non-invasive frames for SRT

