

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

**July/August 2019 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 Explain in detail about Hemi-body irradiation.
- 2 Write about the construction, properties and use of radioactive isotopes in brachytherapy..

**SHORT ESSAY (Answer any Ten)**

**10 X 5 = 30 Marks**

- 3 What are the dosimetric indices which may be reported for any treatment plan for management of respiratory motion in IGRT?
- 4 Discuss about the advantages and disadvantages of LINAC & Cobalt-60 machine.
- 5 Emergency procedures to be followed in brachytherapy.
- 6 What is IGRT? Write in detail about immobilization, imaging and treatment delivery.
- 7 Type of Patient positions in Total Body irradiation.
- 8 Write about stability of leaf speed and positional accuracy of leaves check in dynamic MLC IMRT.
- 9 Write about megavoltage cone beam CT.
- 10 What is bragg peak? Importance in proton beam therapy.
- 11 Write about high dos rate(HDR) applicators.
- 12 Tomotherapy
- 13 Write about Photoelectric and Compton effect.
- 14 SBRT

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

- 15 Define Dwell position
- 16 Dose volume histogram (DVH)
- 17 Properties of Cobalt 60 isotope
- 18 Define GTV and CTV.
- 19 Fluoroscopy image.
- 20 Types of dose rate in brachytherapy & define their range.
- 21 Advantages of Volumetric Modulated Arc Therapy.
- 22 Define SSD and SAD.
- 23 Why applicators are used during electron beam therapy?
- 24 Advantages of intensity modulated radiotherapy (IMRT) technique
- 25 Hyperthermia and its use in Radiotherapy
- 26 What is Cyber knife?

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**B.Sc. Radiotherapy Technology**

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**[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 Volumetric modulated arc therapy - explain in detail
- 2 Stereotactic radiotherapy - explain in detail

**SHORT ESSAY (Answer any Ten)**

**10 X 5 = 50 Marks**

- 3 Mention the types of IMRT techniques and mention their merits and demerits.
- 4 Enumerate the parts of Tomotherapy machine and their function.
- 5 What is EPID? Mention its types and its uses.
- 6 Immobilization devices used in treatment of Ca Breast.
- 7 Particle beam Radiotherapy.
- 8 3-DCRT.
- 9 The professional role of Radiotherapy technologists.
- 10 Explain CBCT. Its types and advantages.
- 11 Radiation Protectors.
- 12 Hemi body irradiation.
- 13 QA tests for Telecobalt machine.
- 14 Intraoperative Radiotherapy for Ca Breast.

**SHORT ANSWERS (Answer any Ten)**

**10 X 3 = 30 Marks**

- 15 Role of Self-help groups and NGO in Cancer care.
- 16 Tomo-image.
- 17 Write about MLC in Tomotherapy.
- 18 Advantages of VMAT over IMRT.
- 19 Safety at work.
- 20 Name 3 Emergency procedures.
- 21 Name 3 palliative RT regimens.
- 22 What are Dynamic wedges.
- 23 Steps of CPR.
- 24 What are pre-loaded and afterloading brachytherapy applicators.
- 25 Write 3 differences between LDR and HDR Brachytherapy.
- 26 Thermoplastic moulds/ Orfit.