

**B. Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY) (BRT)
SEMESTER -VI EXAMINATION, SEPTEMBER- 2026**

BRACHYTHERAPY & NUCLEAR MEDICINE -II

[Time allotted: Three Hours]

[Max Marks: 100]

Note: Read all the instructions carefully

Answer all questions in serial order. Draw suitable diagrams wherever necessary

Q. 1. Objective type questions: (Attempt All)**(10 x 02 = 20)**

(Very short/ short answer/ MCQ/ One liners/ Fill in the blanks/ True/False)

- | | |
|--|---------------|
| a. Gloves and tongs should be used while handling radioactive sources. (True/False) | CO1, CO2, CO3 |
| b. Ir-192 is a commonly used isotope in HDR brachytherapy. (True/False) | CO1, CO2 |
| c. PET-CT is used only for treatment, not diagnosis. (True/False) | CO2, CO3 |
| d. I-131 is used in the treatment of thyroid cancer. (True/False) | CO2 |
| e. HDR brachytherapy delivers dose over days to weeks. (True/False) | CO1 |
| f. The unit of radioactivity is Gray (Gy). (True/False) | CO1 |
| g. LDR brachytherapy involves continuous radiation delivery at a low dose rate. (True/False) | CO2 |
| h. Brachytherapy gives high dose to tumor with rapid fall-off to surrounding normal tissue. (True/False) | CO2, CO3 |
| i. The half-life of Ir 192 is about 8 days. (True/False) | CO2 |
| j. Brachytherapy means treatment using radioactive sources placed close to or within the tumor. (True/False) | CO1, CO2 |

Q. 2. Short notes/ Short answer type questions (Attempt any Five)**(05 x 04 = 20)**

- | | |
|---|----------|
| a. Define Brachytherapy. Write different types of brachytherapy with examples | CO1. |
| b. Draw the iso dose curve of a brachytherapy source. | CO2, CO3 |
| c. Write a short note on applications of nuclear medicine in oncology. | CO3 |
| d. Describe Safety precautions during handling of unsealed sources. | CO1, CO2 |
| e. Write brief note on mechanism of PET CT Scans. | CO3 |
| f. Write down Advantages of HDR over LDR brachytherapy. | CO1 |
| g. Brief note on intracavitary brachytherapy in carcinoma endometrium. | CO2, CO3 |

Q. 3. Structured questions (Attempt any Three)**(03 x 10 = 30)**

- | | |
|---|---------------|
| a. Briefly explain the importance of effective communication in oncological care. | CO1, CO2, CO3 |
| b. (i) What is a remote after loading machine? | CO1, CO2 |
| (ii) Write two benefits of remote after loading over manual system. | CO2, CO4 |
| (iii) Mention two safety features in remote after loading. | CO2, CO4 |
| c. What is Consent? Describe the different types of consent and discuss its importance in oncological practice. | CO2, CO3 |
| d. What is the Manchester system of brachytherapy? Explain its principles and limitations. | CO1, CO2 |

Q. 4. Long Answer/ Essay type questions (Attempt any Two)**(02 x 15 = 30)**

- | | |
|--|---------------|
| a. Define Point A and Point B in brachytherapy. Discuss their significance in dose prescription and planning | CO2, CO3 |
| b. What are the radioactive sources used in brachytherapy? Explain in detail. | CO2, CO3 |
| c. Write an essay on Iridium-192: its physical properties, clinical applications in HDR brachytherapy, and radiation safety precautions. | CO1, CO2, CO3 |