

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

RADIATION SAFETY & QUALITY ASSURANCE-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)

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| <p>a. The annual dose limit for Trainee is: (CO1, PO1)</p> <p>i. 1 mSv</p> <p>ii. 2 mSv</p> <p>iii. 20 mSv</p> <p>iv. 6 mSv</p> <p>b. TL Dosimeter measure the: (CO2, PO3)</p> <p>i. X-ray</p> <p>ii. Gamma Ray</p> <p>iii. Both i & ii</p> <p>iv. Neutron</p> <p>c. Shielding material for neutron in Linac is: (CO3,PO3)</p> <p>i. Lead</p> <p>ii. Wood</p> <p>iii. Carbon</p> <p>iv. Cerrobond</p> <p>d. Well type chamber is used in the QA of: (CO2, PO2)</p> <p>i. HDR Brachytherapy</p> <p>ii. LINAC</p> <p>iii. Simulator</p> <p>iv. Cobalt-60</p> <p>e. TLD is not used by: (CO2, PO3)</p> <p>i. Radiation Worker</p> <p>ii. General Public</p> <p>iii. Trainee</p> <p>iv. Nursing Staff</p> | <p>f. Radiation Survey meter used in Gamma rays is..... based. (CO2, PO3)</p> <p>i. Ion chamber</p> <p>ii. GM counter</p> <p>iii. Both i & ii</p> <p>iv. None of the above</p> <p>g. The Dose Limit for general public is: CO1, PO1)</p> <p>i. 1mSv</p> <p>ii. 1/20th of ALI</p> <p>iii. 20 mSv</p> <p>iv. 40 mSv</p> <p>h. The Radiation source used in LINAC is. CO3, PO3)</p> <p>i. Ir-192</p> <p>ii. Co-60</p> <p>iii. Tungsten Target</p> <p>iv. Scattering Foil</p> <p>i. The annual dose limit for Radiation worker is: (CO1,PO3)</p> <p>i. 1 mSv</p> <p>ii. 2 mSv</p> <p>iii. 40 mSv</p> <p>iv. 20 mSv</p> <p>j. HDR Brachytherapy machine consist source(s). (CO2, PO3)</p> <p>i. 1</p> <p>ii. 2</p> <p>iii. 5</p> <p>iv. 10</p> |
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Q. 2. Short notes/ Short answer type questions (Attempt any Five)

(05 x 04 = 20)

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| a. Background radiation | (CO1, PO1) |
| b. Secondary Barrier | (CO3, PO3) |
| c. Medical exposure | (CO2, PO2) |
| d. Maze wall significance in 15MV Linac | (CO2, PO3) |
| e. Equivalent dose | (CO1, PO1) |
| f. Scattered Radiation | (CO3, PO3) |
| g. Inverse square law | (CO2, PO2) |

Q. 3. Structured questions (Attempt any Three)

(03 x 10 = 30)

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| a. Describe Type of exposure by category in detail. | (CO1, PO2) |
| b. Radiation survey procedure in the HDR brachytherapy machine with room layout. | (CO1, PO3) |
| c. Describe dose limits for workers, general public, trainee and pregnant woman. | (CO3, PO2) |
| d. Explain the use of T-Rod in source stuck condition in Co-60 machine. | (CO1, PO1) |

Q. 4. Long Answer/ Essay type questions (Attempt any Two)

(02 x 15 = 30)

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| a. Write down the time, distance and shielding in detail. | (CO2, PO2) |
| b. Write down the emergency procedure in LINAC. | (CO1, PO1) |
| c. What are the QA mainly done when new source loaded in HDR machine? | (CO2, PO2) |