

# National Board of Examinations

**Question Paper Name :** DNB Radiation Oncology Paper4  
**Subject Name :** DNB Radiation Oncology Paper4  
**Duration :** 182  
**Total Marks :** 100  
**Display Marks:** No

**Maximum Instruction Time :** 0  
**Is Section Default? :** No

**Question Number : 1 Question Id : 32718745420 Consider As Subjective : Yes**

**Please write your answers in the answer booklet within the allotted pages as follows:-**

Question Number	Answer to be attempted within	Question Number	Answer to be attempted within
Q. 1	Page 1-5	Q. 6	Page 26-30
Q. 2	Page 6-10	Q. 7	Page 31-35
Q. 3	Page 11-15	Q. 8	Page 36-40
Q. 4	Page 16-20	Q. 9	Page 41-45
Q. 5	Page 21-25	Q. 10	Page 46-50

1. a) Cobalt-60 teletherapy source. [5]
- b) Strontium-90 radioisotope and its uses. [5]

**Question Number : 2 Question Id : 32718745421 Consider As Subjective : Yes**

- a) Radioiodine therapy. [2]
- b) Indications of radioiodine therapy, doses and side effects. [2+2+2]
- c) Low dose vs High dose radioiodine therapy. [2]

**Question Number : 3 Question Id : 32718745422 Consider As Subjective : Yes**

Describe three brachytherapy radioactive sources in detail. [10]

**Question Number : 4 Question Id : 32718745423 Consider As Subjective : Yes**

- a) Cell survival curve. [4]
- b) Linear-quadratic model. [3]
- c) Multi-target model. [3]

**Question Number : 5 Question Id : 32718745424 Consider As Subjective : Yes**

- a) Cell cycle. [3]
- b) Cell cycle checkpoints. [3]
- c) Clinical use of various check points and its inhibitors. [4]

**Question Number : 6 Question Id : 32718745425 Consider As Subjective : Yes**

- a) Stochastic vs deterministic effects. [4]
- b) Oxygen enhancement ratio. [3]
- c) Relative biological effectiveness. [3]

**Question Number : 7 Question Id : 32718745426 Consider As Subjective : Yes**

- a) What steps you would take if a radioactive source is stuck in HDR brachytherapy machine during treatment? [5]
- b) How will you investigate the case of radiation overexposure due to source stuck in HDR brachytherapy machine? [5]

**Question Number : 8 Question Id : 32718745427 Consider As Subjective : Yes**

- a) SPECT CT and its uses. [5]
- b) TARE and its indications. [5]

**Question Number : 9 Question Id : 32718745428 Consider As Subjective : Yes**

- a) Acute Radiation Syndrome (ARS) and its four phases. [5]
- b) Explain hematopoietic syndrome and its management. [5]

**Question Number : 10 Question Id : 32718745429 Consider As Subjective : Yes**

- a) Principles of imaging in a suspected case of high grade glioma. [5]
- b) Molecular pathways and markers in a case of high grade glioma. [5]