

# National Board of Examinations

**Question Paper Name :** DNB Nuclear Medicine Paper2  
**Subject Name :** DNB Nuclear Medicine Paper2  
**Duration :** 180  
**Total Marks :** 100  
**Display Marks:** No

**Maximum Instruction Time :** 0

**Question Number : 1 Question Id : 32718733264 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) Describe the principle of operation and components of a dose calibrator with an illustrated diagram. [5]  
b) Attenuation correction in PET. [5]

**Question Number : 2 Question Id : 32718733265 Consider As Subjective : Yes**

- a) Enumerate various Ga-68 radiotracers and their clinical applications. [5]  
b) Enumerate the SPECT radiopharmaceuticals requiring heating/boiling in their preparation and elaborate on one of them. [5]

**Question Number : 3 Question Id : 32718733266 Consider As Subjective : Yes**

- a) Characteristics of radionuclides produced from nuclear reactor. [5]  
b) CXCR4 receptor imaging. [5]

**Question Number : 4 Question Id : 32718733267 Consider As Subjective : Yes**

- a) List out ultrashort lived PET radiopharmaceutical and their clinical applications. [5]  
b) 18 Fluoro-3,4 dihydroxyphenylalanine. [5]

**Question Number : 5 Question Id : 32718733268 Consider As Subjective : Yes**

Describe various SPECT and PET radiotracers used in the diagnosis and therapy of NETs; their advantages and demerits. [10]

**Question Number : 6 Question Id : 32718733269 Consider As Subjective : Yes**

- a) Beta amyloid imaging agents used in PET and their clinical applications. [6]
- b) Zirconium-89 in nuclear medicine. [4]

**Question Number : 7 Question Id : 32718733270 Consider As Subjective : Yes**

Advantages and disadvantages of various types of PET-MRI configurations available for imaging. Discuss the components and design of latest version used with diagram. [4+6]

**Question Number : 8 Question Id : 32718733271 Consider As Subjective : Yes**

- a) QC tests used in/after F-18 FDG synthesis. [5]
- b) PET myocardial perfusion tracers. [5]

**Question Number : 9 Question Id : 32718733272 Consider As Subjective : Yes**

- a) Enumerate the crystals used in PET and their salient characteristics. [5]
- b) Advantages & disadvantages of CZT and its clinical application. [5]

**Question Number : 10 Question Id : 32718733273 Consider As Subjective : Yes**

- a) Artefacts in PET-CT. [5]
- b) Role of preamplifier and amplifier in gamma camera. [5]