

# National Board of Examinations

<b>Question Paper Name :</b>	DNB Nuclear Medicine Paper1
<b>Subject Name :</b>	DNB Nuclear Medicine Paper1
<b>Creation Date :</b>	2024-10-17 16:12:20
<b>Duration :</b>	180
<b>Total Marks :</b>	100
<b>Display Marks:</b>	No
<b>Share Answer Key With Delivery Engine :</b>	No
<b>Actual Answer Key :</b>	No

## DNB Nuclear Medicine Paper1

<b>Group Number :</b>	1
<b>Group Id :</b>	3271872765
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	180
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	100

## DNB Nuclear Medicine Paper1

<b>Section Id :</b>	3271872768
<b>Section Number :</b>	1
<b>Section type :</b>	Offline
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	10
<b>Number of Questions to be attempted :</b>	10
<b>Section Marks :</b>	100
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	3271872772
<b>Question Shuffling Allowed :</b>	No

**Question Number : 1 Question Id : 32718728934 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

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. Discuss the interaction of electromagnetic radiation with matter. [10]

**Question Number : 2 Question Id : 32718728935 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Specific gamma ray constant and its utility in nuclear medicine. [5]
- b) Linear energy transfer (LET). [5]

**Question Number : 3 Question Id : 32718728936 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

Describe the collimation in nuclear medicine and discuss different collimators used in SPECT and PET imaging. [10]

**Question Number : 4 Question Id : 32718728937 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

Discuss solid state detectors used in nuclear medicine. [10]

**Question Number : 5 Question Id : 32718728938 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Bragg peak in alpha radiation. [5]
- b) Production and decay scheme of Tc-99m. [5]

**Question Number : 6 Question Id : 32718728939 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Partial volume effect and its correction. [5]
- b) HVL and TVL in radiation shielding. [5]

**Question Number : 7 Question Id : 32718728940 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Crystals used in PET detectors. [5]
- b) Decay scheme of Ac-225. [5]

**Question Number : 8 Question Id : 32718728941 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

Discuss the iodine cycle in human body. [10]

**Question Number : 9 Question Id : 32718728942 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Annihilation coincidence detection. [5]
- b) Time of flight imaging. [5]

**Question Number : 10 Question Id : 32718728943 Question Type : SUBJECTIVE Consider As Subjective : Yes**

**Correct Marks : 10**

- a) Chi Square test. [2.5]
- b) Student t test. [2.5]
- c) Normal distribution. [2.5]
- d) Binomial distribution. [2.5]