

# 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>	2024-05-15 21:34:05
<b>Duration :</b>	180
<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>	3271871978
<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>Group Marks :</b>	100
<b>Is this Group for Examiner? :</b>	No
<b>Examiner permission :</b>	Cant View
<b>Show Progress Bar? :</b>	No

## **DNB Nuclear Medicine Paper1**

<b>Section Id :</b>	3271871981
<b>Section Number :</b>	1
<b>Section type :</b>	Offline

<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions to be attempted :</b>	10
<b>Section Marks :</b>	100
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	3271871985
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Number : 1 Question Id : 32718730514 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**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 various types of interactions of radiation with matter and briefly describe its applications in diagnostic and therapeutic nuclear medicine. [5+5]

**Question Number : 2 Question Id : 32718730515 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Describe various alpha emitters which have entered into the therapeutic applications and describe the advantages and disadvantages of targeted alpha therapies. [5+5]

**Question Number : 3 Question Id : 32718730516 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

What is digital PET scanner and how it is going to revolutionising nuclear imaging? [6+4]

**Question Number : 4 Question Id : 32718730517 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Principles of operation of Gas-filled detectors and its application in nuclear medicine. [6+4]

**Question Number : 5 Question Id : 32718730518 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Derive radionuclide decay equation. [10]

**Question Number : 6 Question Id : 32718730519 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Name and discuss the Quality Control parameters in PET/CT. [10]

**Question Number : 7 Question Id : 32718730520 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

a) Name different types of clinical trials. Discuss randomised control trials. [2+3]

b) Receiver operating characteristic curve (ROC). [5]

**Question Number : 8 Question Id : 32718730521 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Describe different types of Filters in SPECT reconstruction and elaborate Butterworth and Shepp-Logan filtre applications in different clinical settings. [4+6]

**Question Number : 9 Question Id : 32718730522 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

a) Photoelectric and Compton Effect. [2.5+2.5]

b) Effect of linear energy transfer (LET) on Survival Curves. [5]

**Question Number : 10 Question Id : 32718730523 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Briefly describe various routine sequences used for tissue characterisation in MRI, and how PET/MR hybrid imaging could change future nuclear medicine practices? [5+5]