

National Board of Examinations

Question Paper Name :	DNB Nuclear Medicine Paper1
Subject Name :	DNB Nuclear Medicine Paper1
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Actual Answer Key :	No

DNB Nuclear Medicine Paper1

Group Number :	1
Group Id :	3271871142
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

DNB Nuclear Medicine Paper1

Section Id :	3271871145
Section Number :	1

Section type :	Offline
Mandatory or Optional :	Mandatory
Number of Questions to be attempted :	10
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	3271871149
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 32718710472 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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) Working principle of SPECT Gamma Camera. [3]

b) Quality Control of SPECT system. [7]

Question Number : 2 Question Id : 32718710473 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) What are the kinds of radiation interactions with matter? [5]

b) What is the significance of understanding such interactions? [5]

Question Number : 3 Question Id : 32718710474 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

a) Stochastic and Deterministic Effects of Radiation. [5]

b) Scintillation Detectors in SPECT and PET. [5]

Question Number : 4 Question Id : 32718710475 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the importance of Half value layer (HVL) and Tenth value layer (TVL)? Enumerate three applications of each in day to day Nuclear Medicine practice. [4+6]

Question Number : 5 Question Id : 32718710476 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) 't' Test and Chi Square test. [5]

b) Gaussain and Poisson distribution. [5]

Question Number : 6 Question Id : 32718710477 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Recovery Coefficients and Partial volume Effects. [10]

Question Number : 7 Question Id : 32718710478 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Explain the working and Types of Cyclotrons. [10]

Question Number : 8 Question Id : 32718710479 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Compare and contrast the fundamental physics of Beta and Alpha radionuclides being used in Radionuclide therapy in Nuclear Medicine. [10]

Question Number : 9 Question Id : 32718710480 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Describe in detail regarding attenuation correction, different methods and their advantages and disadvantages in PET/CT and PET/MR. [2+5+3]

Question Number : 10 Question Id : 32718710481 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Physical half life, Effective half life and Biological half life. [3]
- b) DICOM & PACS. [7]