National Board of Examinations

Question Paper Name :	DNB Biochemistry Paper4
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DNB Biochemistry Paper4

Group Number :	1
Group Id :	3271871072
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 Biochemistry Paper4

Section Id :	3271871075
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	Voc	
Clear Response :	165	
Maximum Instruction Time :	0	
Sub-Section Number :	1	
Sub-Section Id :	3271871079	
Question Shuffling Allowed :	No	

Question Number : 1 Question Id : 3271879772 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) Write down principle and clinical applications of Nephelometry. [5]

b) Describe the principle and applications of Real Time PCR. [5]

Question Number : 2 Question Id : 3271879773 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) State the principle of autoradiography. [2]

b) What are radioisotopes? Explain their applications in health and disease with suitable examples.

[4]

c) List different types of scintillation counters being used to measure radioactivity and their uses in the laboratory. [4]

Question Number : 3 Question Id : 3271879774 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) Describe the principle of SDS-PAGE. How can it be used for the determination of molecular weight of a protein? [5]

b) List five different types of electrophoresis stating a pecularity in each. [2]

c) Define biosensor and give examples of biosensors used in a clinical setting. [3]

Question Number : 4 Question Id : 3271879775 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) Describe the distinguishing features of transcriptomics and proteomics with examples. [3]

b) What are the potential benefits and challenges of genome-guided personalized medicine? [4]

c) Describe major features of computer aided drug design and discovery. [3]

Question Number : 5 Question Id : 3271879776 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) Southern blotting. [5]

b) CRISPR system in genetic engineering. [5]

Question Number : 6 Question Id : 3271879777 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) What is meant by a 'primer pair' used in the polymerase chain reaction? What do you understand by 'Ct value' and how is it interpreted? [5]

b) Describe the uses of hybridization and PCR technology in molecular medicine and diagnosis. [5]

Question Number : 7 Question Id : 3271879778 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Exome sequencing. [5]
- b) Prenatal diagnosis and its implications. [5]

Question Number : 8 Question Id : 3271879779 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Write down the principle of:

- a) Dry chemistry. [4]
- b) Flow cytometry. [3]
- c) Ultracentrifugation. [3]

Question Number : 9 Question Id : 3271879780 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

a) Explain the basic procedures and methods used in DNA technology and genetic engineering. [6] b) What is the rationale behind the methods used to synthesize, catalyse and sequence DNA and RNA? [4]

Question Number : 10 Question Id : 3271879781 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe nuclear magnetic resonance and its applications in biochemistry and medicine. [5]
- b) Describe MALDI-TOF mass spectrometry and its applications in proteomics. [5]