

# National Board of Examinations

<b>Question Paper Name :</b>	DNB Biochemistry Paper4
<b>Subject Name :</b>	DNB Biochemistry Paper4
<b>Creation Date :</b>	2024-05-18 18:52:04
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## DNB Biochemistry Paper4

<b>Group Number :</b>	1
<b>Group Id :</b>	3271871914
<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 Biochemistry Paper4

<b>Section Id :</b>	3271871917
<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>	3271871921
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Number : 1 Question Id : 32718718752 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. a) Discuss how does real-time PCR differs from conventional gradient PCR. [3]
- b) Write the principle of SYBR green based qPCR and Taq man assay. [4]
- c) Explain the importance of melting curve analysis in real time PCR. [3]

**Question Number : 2 Question Id : 32718718753 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Discuss the principle, broad steps and interpretation of serum protein electrophoresis. How is immune-fixation electrophoresis carried out and how is it interpreted? [6+4]

**Question Number : 3 Question Id : 32718718754 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Differentiate between:

- a) LCMS and GCMS. [2]
- b) Chemiluminiscence and Electro chemiluminiscence. [2]
- c) Photometry and spectrophotometry. [2]
- d) Nephelometry and turbidimetry. [2]
- e) Confocal microscopy and electron microscopy. [2]

**Question Number : 4 Question Id : 32718718755 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Define tandem mass spectroscopy. Discuss the use of mass spectroscopy in metabolomic studies. Add a short note on MALDI- TOF. [1+5+4]

**Question Number : 5 Question Id : 32718718756 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 10**

Compare and contrast ELISA and sandwich ELISA. Discuss their diagnostic applications. [10]

**Question Number : 6 Question Id : 32718718757 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) Microarray based comparative genomic hybridisation. [2.5]
- b) CAR (chimeric antigen receptor) T cells. [2.5]

c) NMR spectroscopy. [2.5]

d) Flow cytometry. [2.5]

**Question Number : 7 Question Id : 32718718758 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) Describe the tests for evaluating fetal lung maturity. [5]

b) Describe implementation research. [2]

c) How artificial intelligence can be used in designing diagnostic instruments? [3]

**Question Number : 8 Question Id : 32718718759 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 genomic editing? Discuss the various tools/mechanisms of genomic editing and their applications in medicine. [4+6]

**Question Number : 9 Question Id : 32718718760 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) Describe various type of point-of-care testing (POCT) devices mentioning their principle and clinical applications. [6]

b) What are the quality control methods used with POCT? [4]

**Question Number : 10 Question Id : 32718718761 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) Discuss the applications of preparative and analytical centrifugation. [5]

b) Explain why there is need for sample extraction and derivatization in sample preparation for HPLC. [5]