

# National Board of Examinations

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| <b>Question Paper Name :</b>                   | DNB Biochemistry Paper3 |
| <b>Subject Name :</b>                          | DNB Biochemistry Paper3 |
| <b>Creation Date :</b>                         | 2024-05-17 19:22:03     |
| <b>Duration :</b>                              | 180                     |
| <b>Share Answer Key With Delivery Engine :</b> | No                      |
| <b>Actual Answer Key :</b>                     | No                      |

## DNB Biochemistry Paper3

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|--------------------------------------|------------|
| <b>Group Number :</b>                | 1          |
| <b>Group Id :</b>                    | 3271871913 |
| <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 Paper3

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|-------------------------|------------|
| <b>Section Id :</b>     | 3271871916 |
| <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>   | 3271871920 |
| <b>Question Shuffling Allowed :</b>                                 | No         |
| <b>Is Section Default? :</b>  | null       |

**Question Number : 1 Question Id : 32718718742 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) List five proteins involved in DNA replication and their functions. [5]
- b) Discuss the role of modifications of histones in gene expression. [5]

**Question Number : 2 Question Id : 32718718743 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) Classify eukaryotic RNAs. [3]
- b) Discuss the molecular mechanism of action of siRNA and Write its role in deciphering pathogenesis of diseases. [7]

**Question Number : 3 Question Id : 32718718744 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) How insulin regulates eIF-4E and causes a marked post-transcriptional increase in protein synthesis. [2.5]
- b) How RNA can act as ribozyme with suitable examples. [2.5]
- c) Mechanism of action of drug Puromycin. [2.5]
- d) The mechanism of Degeneracy of genetic code. [2.5]

**Question Number : 4 Question Id : 32718718745 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 oncogenes? Discuss various mechanisms of activating oncogenes. How do they differ from tumour suppressor genes? [2+4+4]

**Question Number : 5 Question Id : 32718718746 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 various mechanisms by which cancer cells can develop Drug resistance. [6]
- b) Discuss how chronic inflammation and obesity can predispose to cancers. [4]

**Question Number : 6 Question Id : 32718718747 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) cDNA Library. [2.5]
- b) Pedigree analysis. [2.5]

c) Role of Cell free DNA in prenatal diagnosis. [2.5]

d) DNA binding motifs. [2.5]

**Question Number : 7 Question Id : 32718718748 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) Explain various mechanisms of antibody diversity. [6]

b) Discuss the role of NK cells in immune system. Explain how NK cells can be used in cancer therapy. [4]

**Question Number : 8 Question Id : 32718718749 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 role of MHC in generation of immune response. [5]

b) Explain importance of HLA typing in transplantation. [5]

**Question Number : 9 Question Id : 32718718750 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 role of following tumour markers in assessment of various tumours:

a) Human chorionic gonadotrophin (HCG). [2]

b) HER-2/neu amplification. [2]

c) Prostate specific antigen. [2]

d) Ca-125. [2]

e) BCR –ABL. [2]

**Question Number : 10 Question Id : 32718718751 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 genetic material of Nipah virus. Name the receptors for this virus. Discuss the pathogenesis and symptoms of Nipah virus disease in human. [6]

b) Discuss the role of CRISPER CaS 9 in diagnosis of SARS COV2 infection. [4]