



DCZO401

Reg. No.

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IV Semester B.Sc. Degree Examination, July/August -2024

ZOOLOGY

GeneTechnology Immunology and Computational Biology

(CBCS Scheme NEP F and R)

Paper - IV



Time : 2½ Hours

Maximum Marks : 60

*Instructions to Candidates :*

1. Draw diagrams wherever necessary.
2. Answers should be completely in English.

**PART - A**

**I. Answer the following questions in one word or one sentence each. (5×1=5)**

1. What are molecular scissors?
2. Define hapten.
3. What is Graft rejection.
4. Expand FASTA.
5. Calculate range for following data  
54, 78, 4, 84, 70, 95

**PART - B**

**II. Answer any FIVE of the following questions. (5×3=15)**

1. What are plasmids? Give an example.
2. Define transgenic animals. Mention any two applications of it.
3. List any three applications of gene therapy in SCID.
4. Draw the structure of IgG.
5. Mention any three types of vaccines.
6. What is sequence data base? Give one example.
7. Mention any three applications of probability.

[P.T.O.]



## PART - C

## III. Answer any FOUR of the following questions.

(4×5=20)

1. Explain the micro injection method of gene transfer.
2. What is the role of B. lymphocytes in humoral immunity.
3. Briefly explain functional aspects of spleen and thymus in immunity.
4. What is organ transplantation? Explain the types of transplantation.
5. Calculate mean, median and mode for the ungrouped data of student heights in centimeters.

147	150	170	159	154	166	147	142	153	155
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6. Define Bar diagram. Draw bar diagram for the percentage marks obtained by a student in different year.

Year	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
Percent of marks	60	90	70	80	50	80

## PART - D

## IV. Answer any TWO of the following.

(2×10=20)

1. Explain in the steps involved in human recombinant insulin production.
2. Write a note on
  - a) Properties of antigen
  - b) Structure of MHC-I
3. Explain immunity against Bacterial infections.
4. Calculate standard deviation and variance of the given grouped data

Height of students incentimeter	Number of students (Frequency)
120-124	6
125-129	12
130-134	18
135-139	9
140-144	8

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