Q.P. Code No.31427

Fourth Semester B.Sc., Degree Examinations

May /June 2026

(CBCS NEP Scheme)

Zoology Core Course - IV

NSD0270 : Paper IV : Gene technology, Immunology & Computational Biology

Time: 2 hrs.] [Max.Marks:60

Instructions to the candidates

1. *The students should legibly write Section number along with question numbers within the margin only.*
2. *The answers without Section number and question numbers will not be valued.*
3. *Draw neat and labelled diagrams wherever necessary.*
4. *Answer Section – I Multiple Choice questions should be answered in the first page of the main answer book and same questions shall not be answered repeatedly.*
5. *Any identifications like marking, ticking, dots etc., in the options of MCQ questions (SECTION - I) on the question paper is strictly prohibited. Do not write anything (except Reg No.) on the question paper.*

SECTION – I

I. *Select the most appropriate answer from the options provided :* *10X 1= 10 Marks*

I -1) Malaria is caused by _____

a) Virus
b) Bacteria
c) Parasite
d) None of the above

I -2) Expanded form of BLAST is _____

a) Basic local alignment search tool
b) Biological local alignment search task
c) Basic legal alignment search tool
d) None of the above

I -3) Which of the following vector has 'Cos' site

a) Cosmid vector
b) Plasmid vector
c) Shuttle vector
d) None of the above

I -4) The antibody involved in the allergic reaction is _____

a) Ig G
b) IgE
c) IgM
d) IgA

Contd...2

I -5) Cry protein is _____

a) Endotoxin poisonous to insects
b) Ectotoxin poisonous to insects
c) Both a) & b)
d) None off the above

I -6) Thymus gland is involved in the maturity of _____

a) B – lymphocyte
b) Macrophages
c) T - lymphocyte
d) Platelets

I -7) "Mode" refers _____

a) The value appears in highest frequency
b) The value appears in lowest frequency
c) Both a) & b)
d) None of the above

I -8) Knock out mouse is _____

a) Specific gene added
b) Specific gene inactivated
c) Specific gene expanded
d) None of the above

I -9) Range means in statistics is _____

a) The difference between the highest & lowest values
b) The difference between the lowest and highest values
c) both a) & b)
d) None of the above

I -10) Genome meaning is _____

a) Complete set of genes in a cell or living thing
b) Complete set of RNA
c) Complete set of genes in non-living thing
d) All of the above

SECTION – II

II. ***Answer /Write short notes on any FIVE of the following. :*** ***5X 3= 15 Marks***

II -1) Write a note on biosensors and its applications.

II -2) What is acquired immunity ? Explain the types of acquired immunity.

Contd...3

II -3) Write a note on restriction enzyme.

II -4) Define mean and calculate the mean marks in zoology among the following students.

Roll numbers	1	2	3	4	5	6	7	8	9	10
Marks obtained	33	35	34	41	45	39	46	36	44	47

II -5) Explain the properties of antigens.

II -6) Mention the types of graphical representation. Explain Bar diagram with suitable example.

II -7) Mention the steps involved in recombinant DNA technology

II -8) Write the applications of Bioinformatics.

SECTION –III

III. ***Answer any THREE questions from the following.*** ***3X 5= 15 Marks***

III-1) Explain shot gun gene transfer techniques and write its application.

III-2) Describe the immunization schedule for children.

III-3) Enumerate the applications of monoclonal antibodies.

III-4) Write a note on Histo compatibility complex.

III-5) The following data gives the protein, fat and carbohydrates contents of the milk in human and other animals. Construct a multiple bar diagram.

Milk	Protein	Fat	Carbohydrates
Human	1.2	3.8	7.0
Sheep	5.6	7.5	4.4
Buffalo	3.8	7.0	4.9
Goat	3.8	4.5	4.6
Cow	3.3	3.7	4.8

SECTION - IV

IV. ***Answer the following:*** ***2X 10= 20 Marks***

IV- 1) Explain transgenic animals with suitable examples.

OR

Contd...4

Explain the structure of IgG and functions of different classes of immunoglobulin's.

IV- 2) List the functions of B and T Lymphocytes.

OR

What is measures of dispersion ? Find the variance of the following data.
6, 9, 14, 10, 05, 08, 11

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