[This question paper contains 4 printed pages.]

Your Roll No. .....

Sr. No. of Question Paper : 1235 A

Unique Paper Code : 32237903

Name of the Paper : Animal Biotechnology

Name of the Course : **B.Sc. (H) Zoology Examination, 2022-LOCF**

Semester : VI – Theory Examination

Duration : 3 hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Write your Roll No., Name of the paper, Course, Semester, and Date of examination on the first page of answer sheet.
3. Attempt **five** questions in all.
4. Question No. **1** is compulsory.

1. (a) Define the following terms : (5×1=5)

(i) Transfection

P.T.O.

(ii) Transgene

(iii) Plasmid

(iv) Polylinker

(v) DNA microarray

(b) Expand the following terms : (5×1=5)

(i) TALEN

(ii) MAC

(iii) VNTR

(iv) RFLP

(v) ASO

(c) Differentiate between the following : (6×2=12)

(i) Real time PCR and Reverse transcription PCR

(ii) Cosmid and phagemid

(iii) Westem and Southern blotting

(iv) Agarose gel and polyacrylamide gel electrophoresis

(v) Isoschizomer and Isocaudomer

(vi) Insertion and Replacement lambda vector.

(d) Explain the contribution of following scientists in the field of Biotechnology : (5×1=5)

(i) Watson and Crick

(ii) Sanger

(iii) Sir Alec JefFerey

(iv) Fredrick Griffith

(v) Arber, Nathans and Smith

2. (a) Explain the Embryonic Stem Cell method of producing transgenic animals. (6)

(b) Discuss the use of Ti plasmid for introduction of genes into plants. (6)

3. (a) Explain the principle of Sanger's chain termination method. (6)

(b) Discuss the applications of PCR. (6)

4. (a) Describe the CRISPR-CAS system as a gene editing tool. (6)

(b) Explain the process of genetic recombination with Cre-lox P recombination system. (6)

5. Explain the process of molecular diagnosis of Cystic Fibrosis. (12)

6. Write short note on the following **(Any two)** : (6×2=12)

(i) Recombinant Growth Hormone

(ii) DNA Microarray

(iii) Insect Resistant Plants

(iv) Type II restriction endonucleases