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[This question paper contains 4 printed pages.]

Your Roll No.....

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Sr. No. of Question Paper : 1638

Unique Paper Code : 42237903

Name of the Paper : DSE: Animal Biotechnology

Name of the Course : B.Sc. (Prog.) Life Sciences,
LOCF

Semester : V, Theory Exam-Nov/Dec,
2022

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. Attempt ANY FIVE questions. Question number 1 is compulsory. Substantiate your answer with diagrams wherever necessary.

1. (a) Define the following :

(1×5=5)

(i) Transformation

(ii) Biotechnology

(iii) Metagenomics

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(iv) Edible vaccine

(v) Plasmid vector

(b) Write the importance of the following: ($4 \times 1 = 4$)

(i) Taq polymerase

(ii) Nitrocellulose membrane

(iii) Ethidium Bromide

(iv) Agarose

(c) Distinguish between : ($2 \times 4 = 8$)

(i) Genomic and cDNA library

(ii) Cohesive and Blunt ends

(iii) Probe and Primer

(iv) Transgenic animal and cloned animal

(d) Expand the abbreviations: ($1 \times 5 = 5$)

(i) RFLP

(ii) YAC

(iii) GMO

(iv) STR

(v) Taq

(e) Give the contributions of the following scientists.
(1×5=5)

(i) Karry Mullis

(ii) E. M. Southern

(iii) Allec Jeffrey

(iv) Ian Willmut

(v) Neal Burnette

2. Describe DNA microinjection method of production of transgenic animals with appropriate diagrams. What are the major disadvantages of the technique?
(12)

3. (a) Give a brief account of in-vivo gene therapy.
(4)

(b) Explain the method of production of humulin by recombinant DNA technology.
(8)

4. (a) Explain the methodology of Polymerase Chain Reaction in detail with suitable diagrams.
(8)

- (b) Add a note on Real Time PCR. (4)
5. Explain in detail the methodology of molecular diagnosis of sickle cell anaemia in detail with appropriate diagrams. (12)
6. (a) What are DNA modifying enzymes? Discuss the role of any three enzymes used in gene cloning. (7)
- (b) What are cloning vectors? Describe any one in detail. (5)
7. Write short note on **any three** of the following : (3×4=12)
- (i) CRISPR Cas-9
 - (ii) Insecticide resistant transgenic plants.
 - (iii) DNA fingerprinting
 - (iv) Golden rice
 - (v) Metagenomics