

6. Write short notes on any **three** of the following:  
3×5=15

- (a) Restriction enzymes
- (b) Chimeric DNA
- (c) Knockout mice
- (d) Cloning Vectors

\*\*\*

[This question paper contains 4 printed pages]

**Your Roll No.** : .....

**Sl. No. of Q. Paper** : **1738** **I**

Unique Paper Code : 2232013601

Name of the Paper : Animal Biotechnology  
NEP-UGCF

Name of the Course : **B.Sc.(H) Zoology**

Semester : VI

**Time : 2 Hours** **Maximum Marks : 60**

**Instructions for Candidates :**

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
- (b) Attempt **four** questions including Question No. 1 which is compulsory.

1. (a) Define (any **three**): 1×3=3

- (i) Insertional inactivation
- (ii) In vivo gene therapy
- (iii) Transgenesis
- (iv) Expression vector

- (b) Distinguish between **(any three)**:  $2 \times 3 = 6$
- (i) Blunt and Cohesive ends
  - (ii) Isochizomers and Isocaudomers
  - (iii) Dolly and Polly
  - (iv) M13 phage and lambda phage
- (c) Expand the following:  $0.5 \times 4 = 2$
- (i) OLA-PCR
  - (ii) SCNT
  - (iii) TALEN
  - (iv) ASO
- (d) Give the important contributions of the following scientists:  $1 \times 4 = 4$
- (i) D. T. Burke and G. F. Carle
  - (ii) H. W. Boyer and S. N. Cohen
  - (iii) Ian Wilmut
  - (iv) Werner Arber
2. (a) Describe the method of construction of cDNA library with the help of suitable diagram 8

- (b) Explain Colony hybridization method for screening of genomic libraries. 7
3. (a) Describe microinjection method for production of transgenic animals. 8
- (b) Explain application of transgenic animals in production of pharmaceuticals. 7
4. (a) Describe the procedure of production of Humulin by recombinant DNA technology 8
- (b) Explain molecular diagnostic techniques for detection of Sickle cell anemia. 7
5. (a) Explain the CRISPR/Cas9 system and its applications in gene editing 8
- (b) Explain SCID. Describe method used for its gene therapy 7