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

(a) ASO-dot blot assay

(b) Phage based cloning vectors

(c) Knock out mice

(d) Animal cloning

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5520 **J**

Unique Paper Code : 2232013601

Name of the Paper : Animal Biotechnology

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

Semester : VI NEP-UGCF

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. Answer any **FOUR** questions including **Question No.1** which is compulsory.

1. (a) Define the following (any three): (3)

(i) Cosmid

(ii) Polylinker

(iii) Plaque

(iv) Packaging cell line

(b) Differentiate between the following **(any four):** (8)

(i) Expression vector and cloning vector

(ii) Knockout animal and Transgenic animal

(iii) TALEN and ZFN

(iv) Primer and Probe

(v) BACs and YACS

(c) Mention the contribution of the following scientists to the field of biotechnology: (4)

(i) Herbert Boyer

(ii) Jennifer Doudna

(iii) Ian Wilmut

(iv) Werner Arber

2. (a) What are restriction enzymes? Describe their types and their role in genetic engineering with suitable examples. (8)

(b) Illustrate the colony hybridization method for screening of Genomic library. (7)

3. (a) Describe CRISPR/Cas9 system as a targeted gene-editing tool. (8)

(b) What is gene therapy? How can this technique be employed to treat or prevent a disease? (7)

4. (a) Describe the DNA microinjection method for production of transgenic animals. Add a note on the application of these animals in pharmaceutical industry. (8)

(b) Discuss various transformation techniques that can be used for introducing foreign DNA into host cells. (7)

5. (a) Explain the use of PCR-oligonucleotide ligation assay in diagnosis of cystic fibrosis. (8)

(b) Describe the approach used for production of Recombinant Insulin in bacterial system. (7)

P.T.O.