

6. (a) Describe the responsibilities, composition and challenges of Institutional Animal Ethics Committee. What are the main criteria they use to evaluate and approve an animal research protocol? (9)
- (b) Distinguish between acute and chronic toxicity studies in preclinical drug testing. (6)
7. Write short notes on **any three** of the following : (3×5)
- (a) Zebrafish as an animal model
- (b) Anxiety tests
- (c) Tissue collection and processing
- (d) Significance of animals in biomedical research
- (e) Principles of the 3Rs

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 507

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Unique Paper Code : 2232014701

Name of the Paper : DSC-19, Animal Models and Experimentation

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

Semester : VII, NEP-UGCF 2022

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. Attempt any **four** questions including Question No. 1 which is compulsory.

1. (a) Define **any five** of the following : (5)

(i) Isogenic model

(ii) Organoid

(iii) Bias

(iv) Preclinical trial

(v) Restraint

(vi) Necroscopy

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

(i) Inbred and outbred animal models

(ii) Rat and mice

(iii) Xenotransplantation and allotransplantation

(iv) Hypothesis and objectives

(v) Animal welfare and animal rights

(c) Expand the following terms **(any four)** : (2)

(i) ADME

(ii) CRISPR

(iii) IAEC

(iv) SOP

(v) MCI

2. (a) Explain the animal models that are used for studying neurological disorders and discuss their applications. (9)

(b) What ethical guidelines must be followed when conducting animal experiments? (6)

3. (a) Explain randomization and sample size estimation in the research studies for using animal models. (9)

(b) Give details of the regulatory framework prevalent in India with regards to animal research. (6)

4. (a) Define Gene editing. Describe the use of CRISPR-Cas9 technology in creating knockout animal models. (9)

(b) What are 'Good Laboratory Practices' for animal studies? (6)

5. (a) Are there any alternatives to animal studies? Elaborate on any two of the models, giving their advantages and limitations. (9)

(b) Describe the chemical induction of Type I & Type II diabetic model in mice using Streptozotocin (STZ). (6)