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**BRAINWARE UNIVERSITY**

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Barasat, Kolkata -700125

Term End Examination 2025-2026**Programme – M.Sc.(BT)-2025****Course Name – Advances in Animal Biotechnology****Course Code - MBT27506 (T)****(Semester II)****Full Marks : 40****Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 10=10

1. Choose the correct alternative from the following :

- (i) What is the temperature of liquid nitrogen?
 - a) -120 degree C
 - b) 0 degree C
 - c) -150 degree C
 - d) -196 degree C
- (ii) Describe the pH indicator in animal cell culture medium
 - a) HEPES
 - b) Phenol Red
 - c) FBS
 - d) L- glutamine
- (iii) What is the primary function of acrosome?
 - a) Fertilization
 - b) Genetic Storage
 - c) Protection
 - d) Motility
- (iv) Which of the following is a parameter for measuring the sperm quality?
 - a) Sperm concentration
 - b) Sperm motility
 - c) Ejaculation volume
 - d) All of these
- (v) Illustrate the primary goal of embryo transfer is to
 - a) Increase number of superior embryo in minimum time
 - b) Increase quality of genes
 - c) Manipulating genes of embryo
 - d) Obtaining Stem cells
- (vi) In Bt crops, the gene responsible for insecticidal activity codes for:
 - a) RNA polymerase
 - b) Cry protein
 - c) Protease inhibitor
 - d) Chitinase
- (vii) Which disease is targeted by the Rinderpest vaccine?
 - a) Rabies
 - b) Anthrax
 - c) Cattle plague
 - d) Blue tongue
- (viii) CPCSEA stands for:
 - a) Committee for the Purpose of Control and Supervision of Experiments on Animals
 - b) Central Panel for Clinical and Scientific Ethical Approval

- c) Council for Prevention of Cruelty and Scientific Animal Experiments
 d) Committee for Public Control of Science and Ethical Activities
- (ix) Evaluate probiotics vs hormone supplements. Which is preferable for sustainable farming?
 a) Probiotics, as they improve gut health naturally
 b) Hormones, as they act faster
 c) Hormones, as they are cheaper
 d) Both are equally harmful
- (x) Evaluate rabies vaccine application in stray dogs. Main challenge?
 a) Weak immune memory
 b) Poor antigen specificity
 c) Large-scale coverage and cost
 d) Lack of diagnostic kits

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Distinguish between adherent and suspension animal cell cultures. (3)
3. What is somatic cell nuclear transfer (SCNT). Explain briefly how is it used in animal cloning? (3)
4. Evaluate the effectiveness of cell synchronization in studying the cell cycle. (3)
5. What is meant by Bt genes? (3)
6. Analyse the differences between somatic cell fusion and cloning. (3)

OR

Compare CPCSEA and IAEC guidelines.

(3)

Group-C

(Long Answer Type Questions)

5 x 3=15

7. Illustrate the structure of male reproductive system and cells in animals. Describe the process of isolating the sperms for Artificial Insemination. (5)
8. Evaluate the effectiveness of insects as bioreactors compared to microbial systems. (5)
9. Evaluate the potential of fusion protein vaccines compared to whole-pathogen vaccines. (5)

OR

Judge the success of biotechnology in developing vaccines for bluetongue disease. (5)

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