Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)
Re-accredited with an 'A++' Grade by NAAC CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India
Continuous Internal Assessment Test II, October 2025
SEMESTER V

Class: III UG **Time : 2 Hours**
Major: Zoology **Maximum Marks : 60**

23BZOC10 BIOTECHNIQUES

Course Outcomes:

CO1: Understand the purpose of the technique, its proper use and possible modifications/ improvement.
CO2: Learn the theoretical basis of technique, its principle of working and its correct application.
CO3: Gain knowledge about the construction repair and adjustment of any equipment required for a technique.
CO4: Analyse the technique of cell and tissue culture and preparation of solution of given percentage and molarity.
CO5: Imparting the process of preparation of buffer and techniques of separation of amino acids, proteins and nucleic acids.

Part A

Choose the correct answers **1 X 6 = 6**
Answer all questions

1.	Thin Layer Chromatography (TLC) is commonly used for a) Protein sequencing b) Qualitative analysis of biomolecules c) Antigen-antibody reactions d) Only amino acid separation	CO3	K1
2.	The Ouchterlony double diffusion test is used to detect a) Radioactive isotopes b) Antigen-antibody interactions in a gel medium c) DNA-protein interactions d) Hormone level fluctuations	CO3	K2
3.	In a Western blot, proteins are first separated by a) Paper chromatography b) SDS-PAGE c) Immunodiffusion d) HPLC	CO4	K2
4.	Nutrient media for cell culture is supplemented with a) Distilled water only b) Only inorganic salts c) Growth factors, amino acids, glucose, and serum d) Hormones only	CO4	K2
5.	Cryopreservation of cells primarily involves a) Fixation with formalin b) Freezing cells using liquid nitrogen and cryoprotectants c) Drying cells under vacuum d) Staining cells to identify morphology	CO5	K1
6.	Which model organism is widely used in molecular genetics due to its transparent body? a) Drosophila melanogaster b) Caenorhabditis elegans c) Xenopus laevis d) Mus musculus	CO5	K1

Part B

Answer ALL questions **3 x 6 =18**
Each answer should not exceed 400 words or two pages

7.a	Give an account on the principle of chromatography.	CO3	K2
	(or)		
7.b	Comment on the antigens and its types	CO3	K2
8.a	Describe the monoclonal antibodies	CO4	K3
	(or)		
8.b	Discuss on the cell harvesting and storing methods	CO4	K2
9. a	Write a short note on cryopreservation.	CO5	K3
	(or)		
9.b	Comment on the maintenance and handling of laboratory rats	CO5	K4

Part C

Answer ALL questions **3x12 = 36**
Each answer should not exceed 800 words or four pages

10.a	Comment on the principle and applications of paper chromatography.	CO3	K3
	(or)		
10.b	Elucidate the various antigen –antibody interactions.	CO3	K4
11.a	Write briefly on the different steps involved in Western blotting techniques	CO4	K3
	(or)		
11.b	List out the sterilization methods used for culture wares and media.	CO4	K2
12. a	Enumerate the types of animal cell culture and its maintenance.	CO5	K2
	(or)		
12.b	Describe about the in-vitro culture of Caenorhabditis elegans.	CO5	K3