



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment Test I, August 2025
SEMESTER V

Class: III UG
Major: Zoology

Time : 2 Hours
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

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|----|---|-----|----|
| 1. | Who is the father of Microscopy?
a) Galileo Galilei b) Robert Hook c) Anton Von Leuwenhoek d) Ernst Ruska | CO1 | K1 |
| 2. | FoV stands for
a) Field of View b) Fluorescence of View c) Field of Visit d) Focal of View | CO2 | K2 |
| 3. | The first microtomy device was invented by
a) George Adams b) Paldwell Trefall c) Queckett d) Sir Horace Darwin | CO2 | K2 |
| 4. | The most common buffers in the human body are _____ ion
a) hydrogen b) sodium c) Carbonate d) Bicarbonate | CO5 | K2 |
| 5. | The ultracentrifuge can sediment _____ in the bioseparation technique.
a) Colloidal particles b) Huge particles c) Solution d) Non-colloidal | CO3 | K1 |
| 6. | Electrophoresis was developed by:
a) Tswett b) Tsvedber c) Tiselius d) Sanger | CO2 | K1 |

Part B

Answer ALL questions

3 x 6 = 18

Each answer should not exceed 400 words or two pages

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|------|--|-----|----|
| 7.a | Define resolving power, limit of resolution and magnification.
(or) | CO1 | K2 |
| 7.b | Differentiate SEM and TEM. | CO1 | K2 |
| 8.a | Describe the different types of saline solutions used in medicine.
(or) | CO1 | K3 |
| 8.b | State and explain Beer-Lambert's Law and its applications in pharmaceutical and clinical analysis. | CO2 | K2 |
| 9. a | Compare the analytical performance of a colorimeter and a spectrophotometer.
(or) | CO2 | K3 |
| 9.b | Discuss how agarose gel electrophoresis separates nucleic acids. | CO3 | K4 |

Part C

Answer ALL questions

3x12 = 36

Each answer should not exceed 800 words or four pages

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|-------|--|-----|----|
| 10.a | Enumerate the types of microscopes with optical illustration. (any 3)
(or) | CO1 | K3 |
| 10.b | Discuss the procedure and application of microtomy. | CO1 | K4 |
| 11.a | Explain the principle of a pH meter and its components, calibration process, applications in laboratory and clinical settings.
(or) | CO1 | K3 |
| 11.b | Elucidate the principle and procedure of density gradient centrifugation and How does it differ from differential centrifugation? | CO3 | K2 |
| 12. a | Illustrate the ultracentrifugation principle, types, and applications in biological and pharmaceutical sciences.
(or) | CO3 | K2 |
| 12.b | Describe the principle, procedure, and applications of 2D Native PAGE in the separation of biomolecules. | CO2 | K3 |