

Roll No.

Total Pages : 3

CMDE/M-24

4709

INSTRUMENTAL ANALYSIS-II

Paper-M-FSC-202

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Explain the following : 8×2=16
- (a) DNA Amplification.
 - (b) Properties of cell/tissue culture media.
 - (c) Relationship between 'g' and rpm of centrifuge.
 - (d) Iso-electric focusing.
 - (e) V_{max} and K_m in Enzyme kinetics.
 - (f) Cross over electrophoresis.
 - (g) Immunodiffusion.
 - (h) Source of radiation in UV and visible spectrophotometer.

UNIT-I

2. (a) Explain blotting techniques and their diverse types utilized for detecting various Macromolecules. 8
- (b) Explain the different sterilisation techniques used in tissue culture laboratory. 8
3. Write notes on the following :
- (a) Method of Isolation and purification of DNA. 8
 - (b) Use of PCR machine for DNA Amplification. 8

UNIT-II

4. (a) Explain the basic principles and instrumentation involved in ultra and cold centrifugation. 8
- (b) Write a note on Capillary Electrophoresis. 8
5. Define the Electrophoresis and the principle involved therein. What are the different types of electrophoresis and their applications ? Enlist the factors effecting Electrophoresis. 16

UNIT-III

6. (a) Define the Enzyme kinetics What are the principles of Enzyme kinetics? Explain Michaelis-Menten kinetics. 8
- (b) Explain UV spectrophotometric method of Enzyme assay. 8

7. What are the different types of Radiochemicals? Explain Radiochemical techniques in forensic science. 16

UNIT-IV

8. Elaborate on ELISA, detailing its principle, key steps, and diagnostic capabilities? Also, explain competitive ELISA method, providing a through explanation of its procedure and applications. 16
9. (a) Write a brief note on techniques and forensic applications of RIA. 8
- (b) Explain theory and principle of Antigen antibody reactions. 8