

Roll No.

Total Pages : 3

CMDQ/M-24

5614

**FORENSIC GENETICS, SEROLOGY AND
BIOINFORMATICS**

Paper–M-FSC-403

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) Fluorescence test for Blood identification.
 - (b) Mechanism of Catalytic test for blood.
 - (c) Use of Bayes' theorem.
 - (d) Allele frequency.
 - (e) Confirmatory test for semen.
 - (f) Define monoclonal and Polyclonal antibody.
 - (g) Define enzyme polymorphism.
 - (h) Forensic use of Prosthetic protein.

UNIT-I

2. Explain in detail mutation types and their significance in forensic analysis. 16
3. What do you mean by Polymorphism and Heterozygosity? Explain the type of DNA polymorphism. 16

UNIT-II

4. Describe the Biochemistry and Inheritance of ABO typing. 16
5. Explain the following :
- (a) Secretors and non-secretors' population. 6
 - (b) Write principle of Absorption elution method for identification of Blood group. 6
 - (c) Cross over electrophoresis for species identification from Blood stains. 4

UNIT-III

6. Give a through explanation on composition and analysis of Seminal stains. 16
7. Elaborate the following :
- (a) Test for identification of menstrual blood. 6
 - (b) RNA based assay for semen identification. 4
 - (c) Role of sero-genetic markers in individualization. 6

UNIT-IV

8. What is Bioinformatics? Enlist the types of data bases with suitable examples. 16
9. Explain the following :
 - (a) DNA Microarray. 6
 - (b) Probability, Bayesian analysis, Likelihood ratio test and its Forensic use. 10