

**School of Biomedical Science****Bachelor of Science Honours in Forensic Science  
Semester End Examination - Jun 2024****Duration : 180 Minutes  
Max Marks : 100****Sem IV - Q1UA404B - DNA Profiling***General Instructions**Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Find one common source of biological samples used for DNA extraction. K1(2)
- 2) Explain the significance of positive and negative controls in a PCR Experiment K2(4)
- 3) Outline the karyotyping and briefly explain its primary purpose in genetic analysis K2(6)
- 4) Make use of your DNA technology knowledge enlist some common contaminants that may affect the PCR Process, and how can they be minimized? K3(9)
- 5) Make use of knowledge and determine most appropriate DNA fingerprinting technique for a specific forensic case? K3(9)
- 6) Evaluate the ethical considerations associated with the establishment and maintenance of DNA databanks for forensic purposes, addressing concerns related to privacy, consent, and data security. K5(10)
- 7) Analyze the process of RFLP in DNA fingerprinting, outlining the key steps involved for forensic analysis. K4(12)
- 8) Determine the step involved in solid phase DNA extraction K5(15)
- 9) Assess the role of SNP (Single nucleotide polymorphism) in DNA fingerprinting. Discuss their advantages over other DNA profiling techniques and provide examples of their practical applications. K5(15)
- 10) Elaborate the process of chromosome packaging, elucidating the role of histones, nucleosomes and higher- order chromatin structure K6(18)