



UNIVERSITY OF JAFFNA, SRI LANKA  
FACULTY OF ALLIED HEALTH SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION IN BScHons (MLS) – 2020  
MLSBM 3131 BIOTECHNOLOGY AND MOLECULAR BIOLOGY 1

Date: 27.04.2022

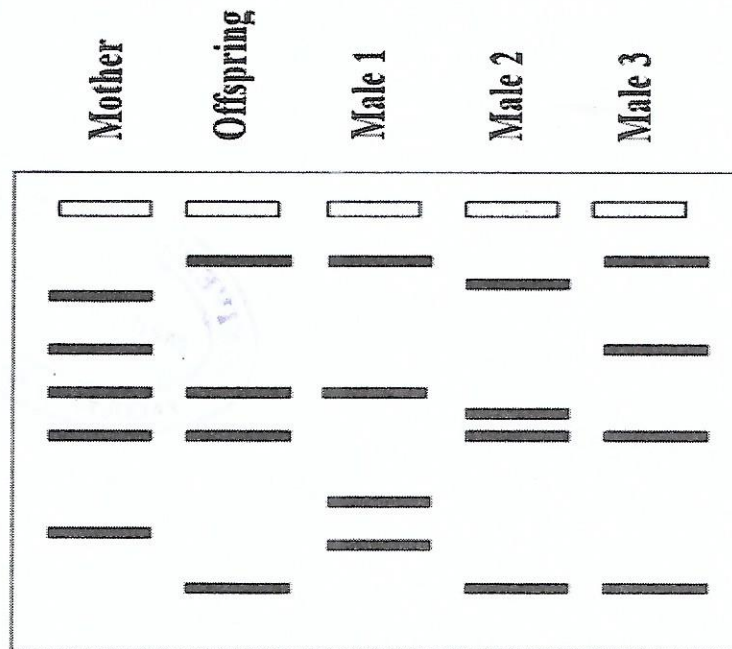
Time: 1 Hour

**ANSWER ALL FOUR QUESTIONS**

1.

- 1.1 Explain the southern blotting technique with the help of a diagram. (70 marks)
- 1.2 Give two methods to improve the efficiency of DNA transfer in the above mentioned technique (1.1). (10 marks)
- 1.3 Compare the Southern Blotting with Western Blotting. (20 marks)

2. The given gel electrophoretogram shows the DNA fingerprint constructed for an offspring, its mother and those of 3 possible fathers.



- 2.1 Define the term DNA Fingerprinting. (10 marks)
- 2.2 Based on the electrophoretogram, find the most possible father of the offspring.  
Explain your answer with justification. (55 marks)
- 2.3 Assess the use of short tandem repeats (STRs) in DNA Fingerprinting. (35 marks)

3. Write short notes on

3.1 Base substitution mutation

(60 marks)

3.2 X-Linked Recessive Inheritance

(40 marks)

4.

4.1. The changes in the sequence of a mRNA is given below.

AUG-GUC-CCU-AAA.....



AUG-AGU-CCC-UAA-A.....

4.1.1 Give the type of mutation and the changes that would have occurred in the DNA.

(15 marks)

4.1.2 Explain how these changes would affect the translation product of this mRNA.

(15 marks)

4.2 Briefly explain how the germ line mutations differ from somatic mutations.

(40 marks)

4.3 Compare the balanced and unbalanced Chromosome Rearrangements.

(30 marks)

