UNIVERSITY OF JAFFNA, SRI LANKA

FACULTY OF ALLIED HEALTH SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION IN BScHons (MLS) - 2021

MLSBM 3212 BIOTECHNOLOGY AND MOLECULAR BIOLOGY

Date: 20.10.2023 **Time: 1 Hour**

ANSWER ALL THREE QUESTIONS.

1.

1.1. Define the following,

1.1.1. Gene (05 Marks)

1.1.2. Gene expression (05 Marks)

1.1.3. Codon (05 Marks)

1.1.4. Promoter (05 Marks)

1.2. Explain the process of transcription in Eukaryotes. (50 Marks)

1.3. Briefly describe how post-transcriptional modification takes place in eukaryotes. (30 Marks)

2.

2.1. Write the karyotypes of the following genetic disorders.

2.1.1. Trisomy 21 in a male (05 Marks)

2.1.2. Trisomy 13 in a female (05 Marks)

2.1.3. Klinefelter syndrome (05 Marks)

2.1.4. Turner syndrome (05 Marks)

2.2. List Two (2) methods that can be used to detect Down syndrome. (20 Marks)

2.3. Explain the term "Isochromosome" (30 Marks)

2.4. Write a note on "Principle and applications of Fluorescence in Situ Hybridization" (30 Marks)

3.

3.1. Briefly describe the phases of Real-Time Polymerase Chain Reaction (qPCR). (25 Marks)

3.2. Differentiate conventional PCR with that of qPCR. (30 Marks)

3.3. Briefly describe five uses of cell cultures. (15 Marks)

3.4. Discuss the advantages and disadvantages of adherent cell cultures and suspension cell cultures. (30 Marks)