


UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES
THIRD YEAR FIRST SEMESTER EXAMINATION – JULY 2013
MLSBM 3103 BIOTECHNOLOGY AND MOLECULAR BIOLOGY 

DATE: 02.08.2013.

TIME: 1 Hour.

1. 1.1 Genetic disorders are either heredity disorders or a result of mutation. In this context, give an example for the following types of heredity disorders:
 - 1.1.1 Autosomal dominant disorder (05 marks)
 - 1.1.2 Autosomal recessive disorder (05 marks)
 - 1.1.3 X-Linked dominant disorder (05 marks)
 - 1.1.4 X-Linked recessive disorder (05 marks)
- 1.2 Describe the molecular genetics and gene function of the CFTR gene. (80 marks)

2. 2.1 List five techniques that can be used to diagnose/identify gene disorders. (20 marks)
- 2.2 Briefly describe the steps involved in the PCR technique. (30 marks)
- 2.3 Describe the Gel Electrophoresis technique. (50 marks)

3. 3.1 What is DNA cloning? (20marks)
- 3.2 Describe two general methods that are used for exogenous DNA transformation. (40 marks)
- 3.3 Describe plasmid as a cloning vector. (40 marks)

4. 4.1 What is gene therapy? (20 marks)
- 4.2 Describe the first successful story of the gene therapy. (20 marks)
- 4.3 Describe the following methods by giving examples.
 - 4.3.1 Virus as a gene delivery system. (30 marks)
 - 4.3.2 Physical methods to enhance delivery. (30 marks)