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THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
ACADEMIC YEAR 2020/2021 – SEMESTER I



BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

MDU6301 – CYTOGENETICS AND MOLECULAR GENETICS

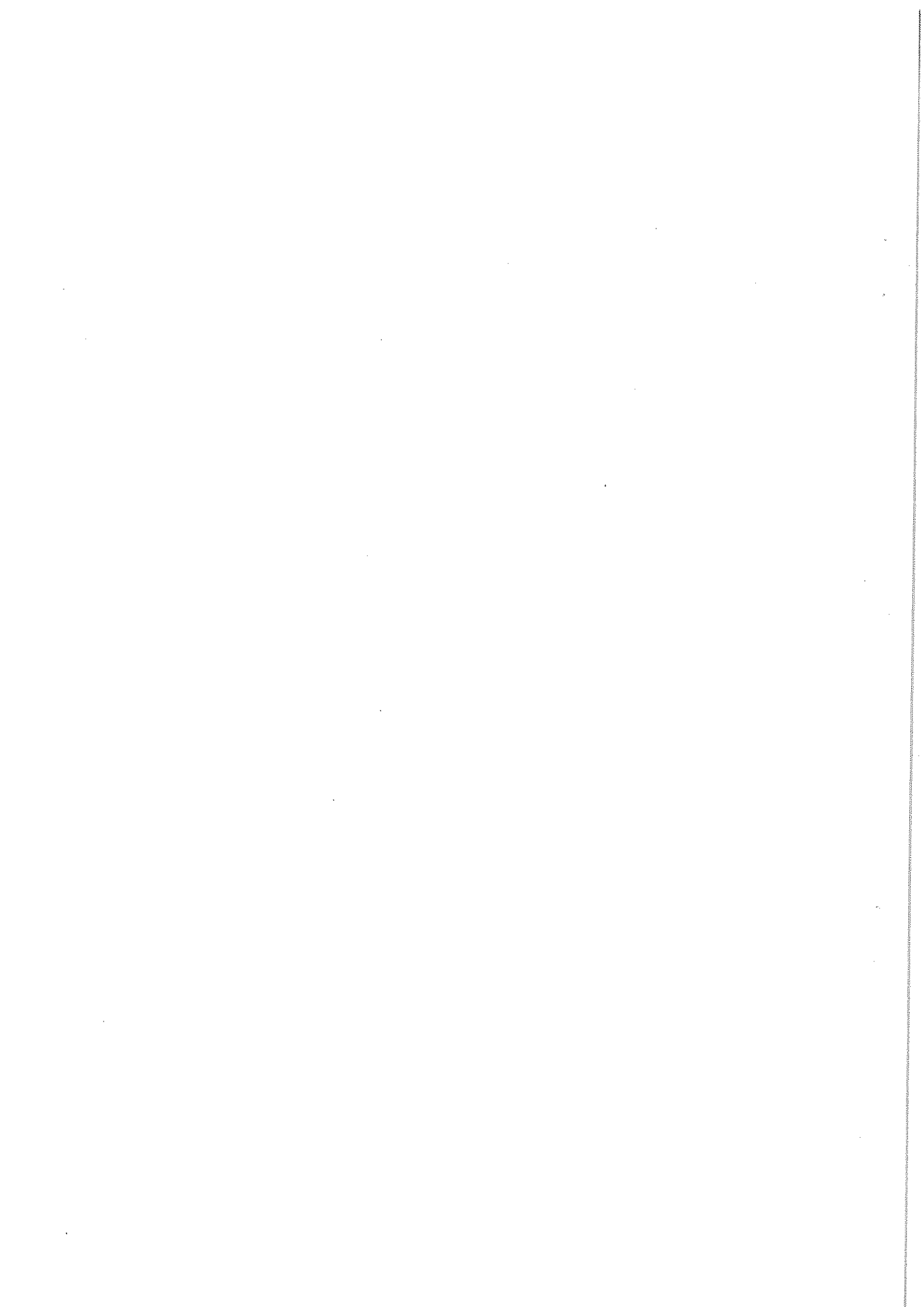
FINAL EXAMINATION

DURATION: 03 HOURS

DATE: 15th MARCH 2022

TIME: 09.30 AM – 12.30 PM

INDEX NO:



Part B: Structured Essay Questions (40 marks)

Question 01

1.1 List three (03) assisted reproductive techniques (ART) used to improve fertilization other than In Vitro Fertilization (IVF) method. (03 marks)

- (i)
- (ii)
- (iii).....

1.2 Who are eligible for ART? (02 marks)

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1.3 Briefly explain In Vitro Fertilization (IVF). (02 marks)

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1.4 List the five (05) steps of IVF method. (03 marks)

- (i)
- (ii)
- (iii).....
- (iv).....
- (v)

(Total: 10 marks)

Question 02

2.1 What do you mean by the term “bioinformatics”? (02 marks)

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2.2 Briefly explain one (01) importance of BLAST (Basic Local Alignment Search Tool) in bioinformatics. (03 marks)

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2.3 List three (03) applications of Bioinformatics. (03 marks)

- (i)
- (ii)
- (iii)

2.4 State four (04) principal requirements of a public database. (02 marks)

- (i)
- (ii)
- (iii)
- (iv)

(Total: 10 marks)

Question 03

3.1 List two (02) methods of genotyping (02 marks)

- (i)
- (ii)

3.2 List three (03) basic requirements of PCR. (03 marks)

- (i)
- (ii)
- (iii).....

3.3. Mention three (03) applications of genotyping. (03 marks)

- (i)
- (ii)
- (iii).....

3.4 State two (02) challenges associated with genotyping methods. (02 marks)

- (i)
- (ii)

(Total: 10 marks)

Question 04

4.1 What do you mean by a "Karyogram"?

(02 marks)

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4.2 Briefly describe two (02) characteristics of a karyotype.

(04 marks)

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4.3 Briefly describe how you would identify below chromosomal abnormalities using karyotyping.

(03 marks)

Chromosomal abnormalities	Karyotype	Specific characteristic/s used to identify the chromosomal abnormality using karyotyping
Down's syndrome		
Edward's syndrome		
Turner syndrome		

4.4 State two (02) techniques that have been developed to overcome the weaknesses of classical karyotyping.

(01 mark)

- (i)
- (ii)

(Total: 10 marks)

Part C: Essay Questions (30 marks)

Question 01

Explain the ethical issues that may arise by the use of gene therapy. (15 marks)

Question 02

Describe the inheritance of thalassemia from thalassemia carrier parents to offspring. (15 marks)

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