



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2022/2023

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN BIOCHEMISTRY AND BACHELOR OF SCIENCE IN
BIOTECHNOLOGY

SZL 3250: MOLECULAR BIOLOGY

DATE: APRIL 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Differentiate between the following;
- (i) Nucleotide and Nucleoside
 - (ii) Transcription and Translation (4 marks)
- b) Write a structural equation on formation of a DNA dinucleotide (5 marks)
- c) Name any two types of RNA and their function (2 marks)
- d) Draw a sketch of linear chromosome showing multiple replicons (4 marks)
- e) Outline the requirements of PCR process (4 marks)
- f) Outline steps involved in molecular cloning with any vector (4 marks)
- g) Explain briefly any five biological importance of DNA (5 marks)
- h) Explain briefly genetic transformation (2 marks)

QUESTION TWO (20 MARKS)

Discuss the process of cDNA library construction (20 marks)

QUESTION THREE (20 MARKS)

Discuss the semi conservative method of DNA replication (20 marks)

QUESTION FOUR (20 MARKS)

Describe the applications of molecular biology techniques (20 marks)