



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2023/2024

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF  
BACHELOR OF BIOCHEMISTRY

### SZL 3250: MOLECULAR BIOLOGY

DATE: APRIL 2024

TIME: 2 HOURS

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

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#### QUESTION ONE (30 MARKS)

- a) Give three differences between purines and pyrimidines (3 marks)
- b) List any three forms of DNA (3 marks)
- c) Describe briefly the key steps involved in PCR process (5 marks)
- d) Draw the structure of  $\beta$ - 2- ribose sugar (4 mark)
- e) Outline steps involved in molecular cloning with any vector (4 marks)
- f) Draw a sketch of linear chromosome showing multiple replicons (4 marks)
- g) Explain briefly any four biological importance of RNA (4 marks)
- h) Give any three important features of Watson and Crick model of DNA (3 marks)

#### QUESTION TWO (20 MARKS)

Discuss the applications of molecular biology techniques

**QUESTION THREE (20 MARKS)**

Discuss the molecular activities at the replication fork

**QUESTION FOUR (20 MARKS)**

Discuss the process of cDNA library construction