



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN MOLECULAR BIOLOGY

SZE 5153: BIOINFORMATICS

DATE: APRIL 2024

TIME: 3 HOURS

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

QUESTION ONE (30 MARKS)

- a) Explain two statistical methods for RNA sequence alignment (4 marks)
- b) Describe the regulation of transcription in gene expression (6 marks)
- c) Describe the structure of proteins (6 marks)
- d) Describe two types of polymerase chain reactions applied in molecular biology (4 marks)

QUESTION TWO (20 MARKS)

Discuss the types of bioinformatics data and their application in the field of biology

QUESTION THREE (20 MARKS)

Discuss four bioinformatics database including their organization and application

QUESTION FOUR (20 MARKS)

- a) Discuss two methods applied in phylogenetic analyses (10 marks)
- b) Explain the methods of protein structure prediction (10 marks)