



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR

OF SCIENCE IN MEDICAL LABORATORY SCIENCES

MML 302 – MOLECULAR BIOLOGY AND GENETICS

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question ONE any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A - ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) Differentiate between template and antisense DNA strands. (5 marks)
- b) Describe the types of RNA. (5 marks)
- c) Describe DNA transcription. (5 marks)
- d) Describe the classes of genetic recombination events. (5 marks)
- e) State the main classes of DNA manipulative enzymes. (5 marks)
- f) Name the types of DNA nucleases. (5 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

Describe the standard operating procedure for polymerase chain reaction. (20 marks)

QUESTION THREE (20 MARKS)

Discuss DNA mutations and their role in disease. (20 marks)

QUESTION FOUR (20 MARKS)

Discuss examples of DNA molecular markers. (20 marks)