



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2024/2025
EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN MEDICAL
MICROBIOLOGY

TMM 3103: MICROBIAL GENETICS

DATE: DECEMBER, 2024

TIME: 3 HOUR

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

QUESTION ONE (25 Marks)

Discuss gene regulation in prokaryotes

QUESTION TWO (25 Marks)

Discuss *Agrobacterium tumefaciens*-mediated transformation in plants

QUESTION THREE

a) Describe the components, procedure, and key practical guidelines of a PCR experiment (17 Marks)

b) Discuss DNA mismatch repair (8 Marks)

QUESTION FOUR (25 Marks)

Discuss homologous genetic recombination

QUESTION FIVE (25 Marks)

Discuss genetic response by quorum sensing in pathogenic bacteria

QUESTION SIX

a) Discuss factors affecting migration of DNA fragments in agarose gels (8 Marks)

b) Describe analytical applications of Gel electrophoreses (17 Marks)