



W1-2-60-1-6

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

**TMM 3104: ANTIMICROBIAL AGENTS**

**DATE: DECEMBER, 2024**

**TIME: 3 HOUR**

**INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS**

- Q1. Describe the principles, performance, interpretation, and reporting of antimicrobial susceptibility testing of a pure culture of *Salmonella Typhimurium* from an infant patient [25 Marks].
- Q2. Describe laboratory evaluation of hypersensitivity reactions [25 Marks].
- Q3. Giving examples, explain mechanisms of chromosomal mutation leading to antimicrobial resistance (AMR) and why AMR has become a global concern. [25 Marks].
- Q4. (a) Describe commonly encountered extended spectrum beta lactamases among Gram negative bacteria [20 Marks].
- (b) Mention the laboratory tests that can be used for detection of extended spectrum beta lactamases among Gram negative bacteria [5 Marks].
- Q5. (a) Explain key characteristics an effective antimicrobial agent possess that make them ideal for controlling infections [17 Marks].
- (b) Briefly describe the antibiotics produced by *Penicillium* and *Cephalosporium* Spp and *Streptomyces* species [8 marks]
- Q6. Elucidate why quality control procedures are critical in antimicrobial susceptibility testing [25 Marks].