



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2022/2023**

**EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN
MEDICAL MICROBIOLOGY**

TMM 3104: ANTIMICROBIAL AGENTS

DATE: FEBRUARY 2022

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

Q1. Describe the principles, performance, interpretation, and reporting of antimicrobial susceptibility testing of a pure culture of *Salmonella Enteritidis* from an infant patient [25 Marks].

Q2. Giving examples, describe four main drug hypersensitivity reactions [25 Marks].

Q3. (a) Describe the various steps involved in the industrial production of antimicrobials [20 Marks].

(b) Outline challenges faced by industry in introduction of new antimicrobials [5 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) Briefly describe the antibiotics produced by *Penicillium* and *Cephalosporium* Spp and *Streptomyces* species [8 Marks].

(b) Explain the various modes of action of antibiotics produced by *Penicillium* and *Cephalosporium* Spp and *Streptomyces* species against bacteria [17 Marks].

Q6. (a). Internal Quality Control (IQC), External Quality Assessment (EQA) and Continuous quality Improvement (CQI) are pillar components of quality assurance systems. Explain key components of microbiology quality management program [15 Marks].

(b). Outline factors affecting antimicrobial activity [10 Marks].