



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

**THIRD YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN MEDICAL
LABORATORY SCIENCE; PHARMACEUTICAL SCIENCE AND
MEDICAL BIOTECHNOLOGY WITH INFORMATION
TECHNOLOGY**

PMT 315: MEDICAL BACTERIOLOGY

Date: 31st March, 2014

Time: 11.15 a.m. – 1.30 p.m.

INSTRUCTIONS:

SECTION A: Answer ALL QUESTIONS from this Section (40 marks)

**SECTION B: Answer Question 11 (COMPULSORY) and ANY 1 QUESTION
from this Section (30 marks).**



SECTION A: Answer ALL QUESTIONS from this section (40 marks)

1. What two physiological changes occur in stationary phase of bacterial growth and how do these changes impact the organism's ability to survive? (4 mks)
2. Why would bacterial cells that are vigorously growing when inoculated into fresh culture medium have a shorter lag phase than those that have been stored in a refrigerator? (4 mks)
3. Briefly describe each technique by which microbial population numbers may be determined. (4 mks)
4. With examples describe metabolic and structural adaptations by psychrophilic and thermophilic bacteria. (4mks)
5. What are the characteristics of an ideal antimicrobial drug? (4mks)
6. Briefly describe the modes of action of the following antibiotics. (4mks)
 - a) ciprofloxacin
 - b) Rifamycin
 - c) Penicillins
 - d) Streptomycin
7. Differentiate the following terminologies (4mks)
 - a) *Pathogenesis* and *virulence*
 - b) LD₅₀ and ED₅₀.
8. Why must bacterial cells maintain an acceptable cell size? (4mks)
9. List and describe the functions of bacterial cell inclusion bodies. (4mks)
10. Describe in detail the composition and structure of the bacterial peptidoglycan. (4mks)

SECTION B: Answer Question 11 Compulsory and ANY 1 QUESTIONS from this section (30 marks)

11. With examples discuss the process of host invasion by a bacterial pathogen. (15 mks).
12. Discuss the disc diffusion method of antimicrobial susceptibility testing. (15 mks).
13. Discuss bacterial typing as a method of identification for pathogenic bacteria. (15 mks)