



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS  
2021/2022 ACADEMIC YEAR**

**SECOND-YEAR FIRST SEMESTER**

**SCHOOL OF NATURAL RESOURCE, TOURISM  
AND HOSPITALITY**

**BACHELOR OF SCIENCE IN ANIMAL HEALTH  
AND PRODUCTION**

**COURSE CODE: AHP 2103-01**

**COURSE TITLE: BACTERIOLOGY,  
RICKETTSIA, AND MYCOPLASMA**

**DATE: 4<sup>TH</sup> APRIL, 2022**

**TIME: 0830-1030**

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**INSTRUCTIONS TO CANDIDATES**

Answer **ALL** questions.

*This paper consists of 2 printed pages. Please turn over*

- 1 a Define the following terms:
  - i. Basic stain (2 marks)
  - ii. Compound microscope (2 marks)
  - iii. Virulence factors (2 marks)
  
- b Define the terms resolution and magnification, and state the relationship between them. (4 marks)
  
- c Discuss the difference between Gram-positive and Gram-negative bacteria, highlighting the bacterial properties that bring out the differences. (10 marks)
  
2. a With the aid of a diagram, describe the morphology of spirochaetes. (10 marks)
  
- b Name four genera of Family Rickettsiae and name a disease caused by each genera named. (8 marks)
  
- c Name the natural hosts of rickettsiae organisms. (2 marks)
  
- 3 a State the differences between clinical and microbiological resistance. (4 marks)
  
- b Name four mechanisms of antimicrobial resistance. (4 marks)
  
- c In detail, discuss one (1) of the antimicrobial resistance mechanisms used by microbes. (6 marks)
  
- d Discuss the importance of antimicrobial resistance in global health. (6 marks)
  
- 4 a With relevant examples, state the difference between disinfection and sterilisation. (4 marks)

- b Name the portals of entry and an example of a disease-causing organism that gains access through each portal. (8 marks)
- c Describe the structure and physiology of *Mycoplasma*. (6 marks)
- d Name two (2) diagnostic tests used for *Mycoplasma* infections. (2 marks)
5. a Discuss five (5) factors that affect the metabolism and growth of bacteria. (10 marks)
- b Explain very briefly the importance of VITEK technology as a diagnostic tool and its advantage over the traditional media culture and staining. (6 marks)
- c State the Koch Postulate. (4 marks)
- 6 a With relevant examples, describe the two types of mollicutes. (6 marks)
- b Describe the morphology, structure, and composition of the mollicutes. (14 marks)

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PRACTICAL EXAMINATION

1. What part of the bacterial cells is most involved with Gram staining, and why? (3 marks)

2. State five biosafety measures that are taken in the laboratory, explaining their importance. (10 marks)

3. Name the following parts of the microscope and state its function:

A. ....  
.....  
..... (3 mark)

B. ....  
.....  
..... (3 mark)

C. ....  
.....  
..... (3 mark)

D. ....  
.....  
..... (3 mark)

4. Briefly compare bright field and dark field microscope. (4 marks)

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5. Name the two (2) types of electron microscopes.

1..... (1 marks)

2..... (1 marks)