



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2022/2023

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN BIOTECHNOLOGY

SHD 3251: BACTERIOLOGY

DATE: APRIL 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Distinguish between the following:
- (i) Spheroplasts and protoplasts (3 marks)
 - (ii) Cophotricious and monotricious (3 marks)
 - (iii) Cilia and pilli (3 marks)
- b) Explain how gram-negative bacteria resist penicillin treatment (4 marks)
- c) Explain the process of endospine formation in bacteria (5 marks)
- d) Describe locomotion in flagellated bacteria (4 marks)
- e) Outline any three possible morphological formations from a spherical bacteria observable under microscope (3 marks)
- f) Explain the results of the gram staining in bacteria based on the cell wall structure (5 marks)

QUESTION TWO (20 MARKS)

Discuss the various surface structure found exterior to the bacterial cell wall (20 marks)

QUESTION THREE (20 MARKS)

Discuss the bacterial cytoplasmic membranes structure and modifications for its function
(20 marks)

QUESTION FOUR (20 MARKS)

Discuss anti-bacterial medication mode of action against bacteria and the process of anti-bacterial resistance.