



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2013/2014

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF  
SCIENCE IN PUBLIC HEALTH

### AFS 2201: INTRODUCTION TO MICROBIOLOGY

DATE: APRIL 2014

TIME: 2 HOURS

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

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#### QUESTION ONE – (30 MARKS)

- (a) Micro organisms are largely classified as viruses, prokaryotes and eukaryotes.  
Enumerate the differences between eukaryotes and prokaryotes. (10 Marks)
- (b) A patient presented himself to a hospital for diagnosis of a respiratory disease. The laboratory conducted a test on his sputum sample (gram staining) and the results showed bacteria that were spherical in shape and in chains. They had stained purple.
- (i) List the steps of gram staining procedure. (5 Marks)
- (ii) State the nature of the bacteria based on the colour and shape. (5 Marks)
- (c) Explain briefly the scope of microbiology. (10 Marks)

#### QUESTION TWO – (20 MARKS)

Bacterial growth requirements are important to note when selecting culture media required in diagnostic microbiology.

- (a) Discuss the various important requirements of bacterial growth. (5 Marks)
- (b) Discuss the different types of culture media used in the growth of bacteria in-vitro. (10 Marks)
- (c) When bacteria are grown in liquid media, their growth can be monitored by using a growth curve. Illustrate the growth curve and discuss the four stages/phases of the growth curve. (5 Marks)

**QUESTION THREE – (20 MARKS)**

- (a) (i) Discuss briefly the difference between viruses and prions. (4 Marks)  
(ii) Discuss the general life-cycle of a virus in a host cell. (6 Marks)
- (b) Fungi belong to the kingdom mycetozoa and are further classified into different phyla.  
Discuss five phyla of fungi, giving their characteristics. (10 Marks)

**QUESTION FOUR – (20 MARKS)**

Discuss, citing examples the economic importance of microbiology. (20 Marks)