



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF ENVIRONMENT AND HEALTH SCIENCES

DIPLOMA IN COMMUNITY HEALTH AND HIV MANAGEMENT
(DCH 13M)

AAB 2105 : GENERAL MICROBIOLOGY

SPECIAL /SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper

- *Answer booklet*

This paper consists of **FIVE** questions.

Answer Question **ONE (compulsory)** and any other **TWO** questions

This paper consists of 3 PRINTED pages

Question ONE

- a) (i) By use of diagrams, illustrate different forms of flagella distribution on bacterial cell wall. **(4marks)**
(ii) Bacteria growing under optimum conditions was incubated for 6 hours. If the initial population was 4 cells determine the final population **(3marks)**
- b) (i) Describe how dark field microscope operate **(4marks)**
(ii) Mention the advantage and disadvantage of the above microscope **(2marks)**
- c) Compare and contrast prokaryotic and Eukaryotic cells **(5marks)**
- d) Define
(i) Selective media **(2marks)**
(ii) Aseptic technique **(2marks)**
(iii) Incubation **(2marks)**
- e) Explain the most common method for media sterilization in the laboratory **(6marks)**

Question TWO

- a) The sterilization of culture media containers and instruments is essential in bacteriological work. Describe sterilization methods under the following headings;
(i) Sterilization by heat in the absence of moisture **(6marks)**
(ii) Sterilization by heat in the presence of moisture **(4marks)**
- b) Explain how you can test the sterility of the following
(i) Media **(2marks)**
(ii) Petri-dishes **(3marks)**

Question THREE

- a) Describe the pour plate technique as used in isolation of pure colonies **(6marks)**
b) What are the limitations of viable plate count procedure in enumeration of bacteria. **(2marks)**
c) List the methods which can be used to improve observation of bacteria through optical systems. **(3marks)**
- d) In a direct microscopic count procedure the diameter of field was determined 0.04mm. If the average number of cells per field was 12, work out the number of cells in the original sample. **(4marks)**

Question FOUR

- a) State SIX precautions to observe while working in the laboratory **(6marks)**

- b) Describe step by steps the Gram's stain procedure and ingredients used **(9marks)**

Question FIVE

- a) Use a diagram to show the “pathways and cycling” that constitute the nitrogen cycle. **(12marks)**
- b) Define the following terms
- (i) Putrifaction **(1mark)**
 - (ii) Ammonification **(2marks)**