



TECHNICAL UNIVERSITY OF MOMBASA

SUPPLEMENTARY EXAMINATION PAPER

Bachelor of Technology in Industrial Microbiology and Biotechnology

Unit Description: Introduction to Microbiology

Unit Code: AAB 4105

Time: 2hrs

Instructions: Answer question one and any other two questions

1. a) Define the following terminologies in the content of Introduction to Microbiology

- i) Basic dye (5 mks)
 - ii) Mordant
 - iii) Enrichment culture
 - iv) Mycelium
 - v) Culture Medium (5 mks)
- b) Describe sterilization technique as a method of microbial growth control (5 mks)
- c) Describe Gram staining procedure and explain why cells stain differently (5 mks)
- d) Describe microbiology as an applied biological science (5 mks)
- e) Discuss the role of microorganisms in energy and environment (5 mks)
- f) Briefly discuss the distinguishing features of macroscopic fungi (5 mks)
- 2) Discuss the role of the following environmental factors on microbial growth:
- a) Temperature (10 mks)
 - b) Water availability and osmotic potential (10 mks)
- 3a) Describe bacterial chemotaxis as a behavioral response (15 mks)
- b) Discuss scotophobotaxis as a microbial behavioural response mechanism (5 mks)
- 4a) With examples, discuss the adaptation of Methanogens to various habitats (10 mks)
- b) Briefly describe the methanogenic pathways and associated substrates (10 mks)
- 5a.) Describe bacterial growth cycle from inoculation (10 mks)
- 5b.) Phylum Cyanobacteria were critical in the evolution of early life forms. Discuss (10 mks)