



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **ENVIRONMENT AND HEALTH SCIENCE**

DIPLOMA IN ENVIRONMENT AND HEALTH SCIENCES

(DES 12S)

AES 2107 : ENVIRONMENTAL MICROBIOLOGY

SEMESTER: SPECIAL/SUPPLEMENTARY EXAMINATIONS

SERIES: JULY, 2012

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 2 PRINTED pages

Question ONE (Compulsory)

- (a) Define the following terms:
- (i) Biochemical oxygen demand (2 marks)
 - (ii) Synergism (2 marks)
 - (iii) Biofilm (4 marks)
- (b) State the significance of determining B.o.D (4 marks)
- (c) Explain the principle of using stable isotopes to measure microbial activities in this environment. (5 marks)
- (d) Differentiate between commensalism and Amensalism as forms of microbial interactions. (2 marks)
- (e) State characteristics of Biofilms. (5 marks)
- (f) Give examples of:
- (i) Water borne viruses (2 marks)
 - (ii) Water borne bacteria (2 marks)
- (g) Outline the disadvantages of enrichment media in isolation of microbes. (2 marks)

Question TWO

Discuss bioremediation as a method of controlling environmental pollution. (15 marks)

Question THREE

- (i) Soil habitat is a heterogeneous environment. Discuss factors that influence availability of microorganisms. (10 marks)
- (ii) State the methods of accessing microbial diversity in this environment. (10 marks)

Question FOUR

- (i) Discuss factors affecting overall numbers of microbes in raw water supply. (10 marks)
- (ii) Outline the limitations of resistive media and state the remedy to overcome this above problems. (5 marks)

Question FIVE

- (i) Describe how oxygen concentration in a soil particles affects microbial population. **(7 marks)**
- (ii) State the importance of environments microbiology. **(3 marks)**
- (iii) Briefly the relation between Bacterial flora and Human Health. **(5 marks)**