



2nd SEMESTER 2010/2011

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR 2, BACHELOR OF SCIENCE IN ANIMAL SCIENCE YEAR 2, BACHELOR OF SCIENCE IN ANIMAL SCIENCE (DAIRY OPTION) YEAR 2, BACHELOR OF SCIENCE IN FOOD SCIENCE, NUTRITION AND TECHNOLOGY YEAR 2, BACHELOR OF SCIENCE IN CONSUMER SCIENCE YEAR 2 AND YEAR 3, BACHELOR OF SCIENCE IN CONSUMER SCIENCE EDUCATION YEAR 2 AND YEAR 3, AND BACHELOR OF SCIENCE IN HORTICULTURE YEAR 2.

COURSE CODE: CP 204

TITLE OF PAPER: MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE WHICH IS COMPULSORY AND ANY OTHER TWO QUESTIONS

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THIS QUESTION IS COMPULSORY**QUESTION 1**

- A. Before staining (e.g. simple staining), the bacterial smear is fixed.
- (i) How is a bacterial smear prepared? (3 Marks)
 - (ii) How is it fixed? (2 Marks)
 - (iii) Why is it fixed? (2 Marks)
- B. (i) What is a plasmid? (3 Marks)
- (ii) What role does a plasmid play in a bacterial cell? (3 Marks)
- (iii) When combining the energy and carbon sources of microorganisms, discuss their different nutritional classification. (12 Marks)
- (iv) What are:
- a. Acidophiles (2 Marks)
 - b. Halophiles (2 Marks)
 - c. Facultative halophiles (2 Marks)
 - d. Transposones (3 Marks)
 - e. Lichens (3 Marks)
 - f. Interferons (3 Marks)

[40 Marks]**QUESTION 2**

- A. Describe the different toxic forms of oxygen. (10 Marks)
- B. In microbial genetics, what is meant by:
- a. A promoter (3 Marks)
 - b. A terminator (3 Marks)
 - c. Translation (3 Marks)
 - d. A codon (2 Marks)
 - e. Degeneracy (2 Marks)
- C. What is meant by:
- (i) Generation time (2 Marks)
 - (ii) Thermal death point (DTP) (2 Marks)
 - (iii) Polymerase chain reaction (PCR) (3 Marks)

[30 Marks]

QUESTION 3

- A. When culturing bacteria, what is the:
- (i) Pour plate method (3 Marks)
 - (ii) Spread plate method (3 Marks)
 - (iii) Which method do you think is better and why? (4 Marks)
- B. What is the difference between:
- (i) Fission and budding yeast. (4 Marks)
 - (ii) Nonsense and missense mutation (4 Marks)
 - (iii) Facultative saprophyte and facultative parasite. (4 Marks)
 - (iv) Mutualism and commensalisms. (4 Marks)
 - (v) A capsule and an envelop (4 Marks)
- [30 Marks]**

QUESTION 4

Discuss four (4) economic uses of the following microorganisms:

- a. Fungi (10 Marks)
 - b. Algae (10 Marks)
 - c. Lichens (10 Marks)
- [30 Marks]**