



SEMESTER III SPECIAL ASSESSMENT 2020/2021

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UNIVERSITY OF ESWATINI

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 BACHELOR OF SCIENCE IN HORTICULTURE YEAR 2

COURSE CODE: CPR207

TITLE OF SPECIAL PAPER: MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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QUESTION 1

a. It is possible to purchase the following microorganisms in a retail store. Provide a reason for buying each.

i. *Saccharomyces cerevisiae* (2 Marks)

ii. *Bacillus thuringiensis* (3 Marks)

c. Explain the following media used in a Microbiology laboratory:

i. Complex media (2 Marks)

ii. Differential media (2 Marks)

iii. Selective media (3 Marks)

iv. Chemically defined media (3 Marks)

d. List Koch's postulates (10 marks)

[25 Marks]

QUESTION 2

a. Differentiate the following:

i. Fimbriae and pili in bacteria (4 Marks)

ii. A Gram-positive and Gram-negative cell wall (7 Marks)

iii. Psychrophiles and psychrotrophs (4 Marks)

iv. The enzymes catalase and peroxidase in bacterial respiration (4 Marks)

b. Explain how microbes are used in the following:

i. Bioremediation (3 marks)

ii. Insect pest control (3 marks)

[25 Marks]

QUESTION 3

- (a) With the aid of a diagram, describe the different phases of microbial growth, explain what happens at each phase. (15 Marks)
 - (b) List the different types of microorganisms based on their oxygen requirement (10 Marks)
- [25 Marks]**

QUESTION 4

List five properties of the following microorganisms:

- (a) Bacteria (5 Marks)
 - (b) Fungi (5 Marks)
 - (c) Viruses (5 Marks)
 - (d) Algae (5 Marks)
 - (e) Mycoplasmas (5 Marks)
- [25 Marks]**

QUESTION 5

- a. Describe any three physical methods used to control microorganisms. (9 Marks)
 - b. In microbial genetics, how is translation different from transcription? (4 Marks)
 - c. What is an anticodon in microbial genetics? (2 Marks)
 - d. Explain how you would go about performing Gram staining in a Microbiology Lab (10 Marks)
- [25 Marks]**