



1st SEMESTER 2018/2019

PAGE 1 OF 3

UNIVERSITY OF ESWATINI

MAIN EXAMINATION PAPER

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

COURSE CODE: CPR207

TITLE OF PAPER: MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTIONS ONE AND ANY OTHER TWO QUESTIONS

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION ONE IS COMPULSORY

QUESTION 1

- A. Draw the bacterial shapes/arrangements listed below:
- (i) Bacillus that is lophotrichous (3 Marks)
 - (ii) Bacillus that is peritrichous (2 Marks)
 - (iii) Streptobacillus (2 Marks)
 - (iv) Staphylococcus (3 Marks)
- B.
- (i) What is the difference between base substitution and frameshift mutation? (4 Marks)
 - (ii) What is the difference between a catabolic and an anabolic reaction? (4 Marks)
 - (iii) What is the meaning of transcription and translation in microbial genetics? (4 Marks)
- C. In the life-cycle of malaria, what is meant by?
- (i) Schizonts? (2 marks)
 - (ii) Merozoites (2 marks)
 - (iii) Gametocytes? (2 marks)
 - (iv) The ring stage (2 marks)
- D. Define the following:
- (i) A promoter (2 Marks)
 - (ii) A terminator (2 Marks)
 - (iii) An aseptate hyphae (2 Marks)
 - (iv) An enveloped virus (2 Marks)
 - (v) An encapsulated bacterial cell (2 Marks)

[40 MARKS]

QUESTION 2

- A. Describe the different toxic forms of oxygen and how microorganisms overcome their toxicity. (16 Marks)
- B. List the different types of adaptive immunity and explain how each is acquired. (14 Marks)

[30 MARKS]

QUESTION 3

Compare and contrast the following:

- (i) binucleate and dikaryotic hyphae (4 Marks)
- (ii) a plasmid and chromosome in a bacterial cell (6 Marks)
- (iii) *Staphylococcus* and *Staphylococcus* (3 Marks)
- (iv) Differential and selective media (3 Marks)
- (v) Microaerophiles and aerotolerant anaerobes (4 Marks)
- (vi) Eukaryotic and prokaryotic cell, give an example of a microbe with such a cell (6 Marks)
- (vii) simple and negative staining in bacteria (4 Marks)

[30 MARKS]

QUESTION 4

- a. Draw a representative structure of a lichen and explain the function of each component. (12 Marks)
- b. List Koch's postulates (4 Marks)
- c. Describe the lytic cycle in viral multiplication (14 Marks)

[30 MARKS]

HAVE YOU ANSWERED QUESTION ONE (THE COMPULSORY QUESTION)?