



1st SEMESTER RESIT EXAMINATION 2019/2020

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UNIVERSITY OF ESWATINI

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 amphitrichous (3 Marks)
 - (ii) Bacillus that is peritrichous (2 Marks)
 - (iii) Streptobacillus (2 Marks)
 - (iv) Tetrad (2 Marks)
- b. What is the difference between base substitution and frameshift mutation? (6 Marks)
- c. Explain the importance of osmotic pressure in microbial growth and how it can be manipulated to control them. (8 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)
- e. Describe the mechanism of phagocytosis. (7 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)?