



2ND SEMESTER 2018/2019

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: B. Sc. ANIMAL SCIENCE DAIRY OPTION YEAR II

COURSE CODE: ASD202

TITLE OF PAPER: FOOD AND DAIRY MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY 4 QUESTIONS.

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

QUESTION 1

The results of bacterial colony spread plate counts from milk of four different farms are presented below:

Farm	Colonies from Y Milk Agar from different dilutions	Colonies from McKonkey Agar from different dilutions
Nsenga	10^{-2} dilution = 245 colonies	10^0 dilution = 102 colonies
Vika	10^{-4} dilution = 72 colonies	10^{-2} dilution = 100 colonies
River Sand	10^{-6} dilution = 31 colonies	10^{-4} dilution = 28 colonies
Malutha	10^{-3} dilution = 183 colonies	10^{-1} dilution = 72 colonies
Bucopho	10^{-5} dilution = 100 colonies	10^{-3} dilution = 140 colonies

- Calculate the total bacterial counts of the milk from the different farms (10 Marks)
- Calculate the total coliform counts of the milk from the different farms (10 Marks)
- Which farm produces milk under better hygienic conditions and why do you say so (2.5 Marks)
- Which farm produces milk under the poorest hygienic conditions and why do you say so (2.5 Marks)

QUESTION 2

Describe and illustrate the growth phases of bacteria under optimum conditions for growth.

(25 Marks)**QUESTION 3**

Discuss the gram staining of bacteria under the following topics: procedure followed; the biochemical principle of the technique; stains used and their role;

(25 Marks)

QUESTION 4

Explain the major differences between the following:

- a) Spread plate and pour plate enumeration techniques **(6 Marks)**
- b) Coliform bacteria and lactic acid bacteria **(6 Marks)**
- c) Yeast and bacteria **(8 Marks)**
- d) Sterilisation and Pasteurisation **(5 Marks)**

QUESTION 5

Write short notes about the following tests:

- a) Negative staining **(5 Marks)**
- b) Basal and overlay method **(8 Marks)**
- c) Facultative anaerobes **(6 Marks)**
- d) Streak plates **(6 Marks)**