2ND SEM. 2016/2017

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

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

COURSE CODE: ASD 202

TITLE OF PAPER: FOOD AND DAIRY MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY 4 QUESTIONS.

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QUESTION 1

Describe and illustrate the growth phases of lactic acid bacteria during milk fermentation. (25 Marks)

QUESTION 2

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 3

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 4

The following colony counts were obtained from spread plates from the indicated dilutions of raw milk of three dairy farms:

Test	Luyengo	Malkerns	Motshane
Total Mesophilic counts	150 from 10^{-3} dilution	95 from 10^{-6} dilution	42 from 10^{-7} dilution
Total Mckonkey plate counts	40 from 10^{-1} dilution	36 from 10^{-2} dilution	27 from 10^{-3} dilution
Total Psychrophilic counts	56 from 10^{-4} dilution	40 from 10^{-4} dilution	95 from 10^{-5} dilution
Total Thermoduric counts	20 from 10^{0} dilution	33 from 10^{-1} dilution	46 from 10^{-2} dilution

a) Calculate the different bacterial counts (cfu/mL) of the raw milk from the three farms (12 Marks)

b) Which farm produces milk under better hygienic conditions and why (7 Marks)

c) Comment on the significance of the psychrophilic and thermoduric counts of the milks (6 Marks)

QUESTION 5

Describe the following food microorganisms and briefly state their significance in dairy science:

a) *Streptococcus thermophilus* (8 Marks)

b) *Listeria monocytogenes* (7 Marks)

c) *Saccharomyces cerevicae* (5 Marks)

d) *Escherichia coli* (5 Marks)