



2ND SEM. 2012/13

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FSNT 406 (M)**

**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

**PROGRAM : BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION AND TECHNOLOGY
YEAR IV**

COURSE CODE : FSNT 406

TITLE OF PAPER : FERMENTATION TECHNOLOGY

TIME ALLOWED : TWO (2) HOURS

**INSTRUCTIONS : ANSWER QUESTION ONE (1) AND ANY
OTHER TWO (2) QUESTIONS. ILLUSTRATE
YOUR ANSWERS WITH DIAGRAMS
WHERE NEEDED**

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

QUESTION 1 (COMPULSORY)

- (a) Describe **five (5)** characteristics brought about by fermenting food. (10 Marks)
- (b) Explain **three (3)** ways to induce or initiate food fermentation. (12 Marks)
- (c) With the help of process flow chart, outline the production of different types of industrial starter cultures. (10 Marks)
- (d) With the help of sketch, explain growth-associated and non growth-associated fermentation products. (8 Marks)

[TOTAL MARKS = 40]

QUESTION 2

- (a) Explain the following: (4×4 = 16 Marks)
 - i. Malolactic fermentation
 - ii. Maceration
 - iii. Wine aging
 - iv. Wine blending
- (b) Discuss the general steps for the manufacture of cheese. (14 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- (a) With the help of flow sheet, describe the processing of malt whiskey. (10 Marks)
- (b) Explain fermentation succession phenomena in sauerkraut processing. (10 Marks)
- (c) Describe the steps in yoghurt processing (use flowcharts). (10 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) With the help of sketch, describe the processing of sauerkraut. **(10 Marks)**
- (b) Define butter milk and outline the steps for cultured butter milk manufacture. **(8 Marks)**
- (c) Outline the factors that influence the maturing and the rate of the maturation in whiskey processing. **(12 Marks)**

[TOTAL MARKS = 30]