



186

2nd SEM. 2016/17

PAGE 1 OF 2

**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

PROGRAMME : **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.**

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THE CHIEF INVIGILATOR**

187

QUESTION 1 (COMPULSORY)

- (a) A processor realized that the quality attributes of his fermented product like color, aroma, taste and texture could not be attained simultaneously in the course of the fermentation. Advise him on the mode of fermentation he should use. (13 Marks)
- (b) Discuss the ways to induce or initiate food fermentation. (15 Marks)
- (c) Describe **two (2)** systems of solid state fermentation based on the nature of solid phase used. (12 Marks)

[TOTAL MARKS = 40]

QUESTION 2

- (a) Explain the following: (20 Marks)
 - i. Defined culture
 - ii. Air lift fermenter (use sketch)
 - iii. Stepwise infusion
 - iv. Syneresis
- (b) Name bioreactors for liquid state fermentation and describe any **one (1)** further. (10 Marks)

[TOTAL MARKS = 30]

QUESTION 3

- (a) Describe the trickling generator process and outline its merit over the open vat process. (10 Marks)
- (b) Identify and describe the upstream and downstream processes in the manufacturing of cider. (10 Marks)
- (c) Discuss the importance of salt in sauerkraut fermentation paying attention on the purpose of salt and the effect of high and low salt concentration. (10 Marks)

[TOTAL MARKS = 30]

QUESTION 4

- (a) Describe production of industrial starter cultures using a flow chart. (15 Marks)
- (b) Discuss the essential process steps in cheese making. (15 Marks)

[TOTAL MARKS = 30]