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.**

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QUESTION 1 (COMPULSORY)

(a) A processor realized that the different quality attributes of his fermented product like colour, aroma and texture could be attained if only he could change the fermentation time-temperature schedule in the course of the fermentation process.

i. As a professional, advise the processor with explanation, on the mode of fermentation he has to employ. **(10 Marks)**

ii. Explain why other modes of fermentation which you would not recommend are not appropriate.

(10 Marks)

(b) A processor engaged in fermented foods business has recognized that there is a huge market for his product. However, he is not skilled enough to make a decision to use either natural fermentation or starter cultures. With proper explanation for both options, advise the processor for best results. **(20 Marks)**

[TOTAL MARKS = 40]

QUESTION 2

(a) Explain the following:

i. Down stream processes (give two examples)
ii. Non-growth associated products
iii. Grain whisky
iv. Keeving **(4×5 = 20 Marks)**

(b) Name **four (4)** bioreactors for solid state fermentation and describe any **one (1)** further. **(10 Marks)**

[TOTAL MARKS = 30]

QUESTION 3

(a) Identify **five (5)** factors that must be considered in developing a medium for large-scale fermentation and briefly explain any **two (2).** **(12 Marks)**

(b) Explain the succession phenomena in sauerkraut processing. **(8 Marks)**

(c) Describe the steps in cider processing using a flowchart. **(10 Marks)**

[TOTAL MARKS = 30]

QUESTION 4

(a) Explain the similarities and differences between pickles and sauerkraut fermentation. **(15 Marks)**

(b) Discuss the different types of mashing processes. **(15 Marks)**

[TOTAL MARKS = 30]