



2<sup>ND</sup> SEM. 2019/20

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**UNIVERSITY OF ESWATINI  
FINAL EXAMINATION PAPER**

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

**COURSE CODE : FNS404/FSNT406**

**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**

**QUESTION 1 (COMPULSORY)**

- a) A food processor wants to engage in fermented food business. You are consulted to give advice in possible ways of bringing up fermentation. Describe the possible ways including the merits and/or demerits of each way. **(21 Marks)**
- b) A food processor is engaged in fermented products business using a batch mode of fermentation. Advise him:
1. on the ways of running (operating) the fermentation process to get maximum product yield and **(10 Marks)**
  2. on the consequences if the process is not run properly **(9 Marks)**

**[TOTAL MARKS = 40]****QUESTION 2**

- (a) Explain the following: **(4x5 = 20 Marks)**
- i. Defined culture
  - ii. Maceration
  - iii. Bacteriophages
  - iv. Bubble Column Reactor
- (b) Describe sausage fermentation (show flow sheet). **(10 Marks)**

**[TOTAL MARKS = 30]****QUESTION 3**

- (a) Discuss the manufacturing of sparkling wine. **(12 Marks)**
- (b) Explain the importance of salt in cabbage fermentation. **(10 Marks)**
- (c) Outline **four (4)** characteristics of Gouda-type cheese. **(8 Marks)**

**TOTAL MARKS = 30]**

**QUESTION 4**

- (a) Describe **two (2)** modes/ways of use of culture. **(12 Marks)**
- (b) Describe the trickling generator process in vinegar fermentation. **(10 Marks)**
- (c) Give two examples under the RIPP (removal of insolubles, isolation of the product, purification, and polishing) scheme of down stream processes. **(8 Marks)**

**[TOTAL MARKS = 30]**