



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

**DEGREE IN ENVIRONMENTAL HEALTH WITH FOOD
SANITATION AND TECHNOLOGY**

MAIN EXAMINATION PAPER 2012

TITLE OF PAPER : FERMENTED FOODS

COURSE CODE : EHS 505

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS :

- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
- : ANSWER ANY FOUR (4) QUESTIONS
- : EACH QUESTION CARRIES 25 MARKS.
- : WRITE NEATLY & CLEARLY
- : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS
GRANTED BY THE INVIGILATOR.**

Question 1

Write short notes on any five (5) major ingredients that are used in manufacture of fermented sausages. [25 Marks]

Question 2

The use of starter cultures (concentrated microorganisms) ensures that products are manufactured on a timely and predictable schedule, with consistent & repeatable product qualities. Using a flow diagram describes the stages that are involved in the manufacture of starter cultures.

[25 Marks]

Question 3

(a) Briefly account for why *Enterococcus* sp are rarely used in fermented foods.

[5 Marks]

(b) Differentiate between catabolism and anabolism microbial metabolism.

[5 Marks]

(c) Enzymes play major roles in substrate metabolism. What are the major components of microbial enzymes?

[5 Marks]

(d) The manufacture of Sauerkraut involves stages like mixing, fermentation, end product, packaging and processing. Give a detailed description of the aspects involved during the stages of fermentation of sauerkraut.

[10 Marks]

Question 4

(a) Write short accounts of any five (5) listed ingredients/components in bread fermentation,

(i) Sugars [2 Marks]

(ii) Enzymes [2 Marks]

(iii) Fat [2 Marks]

(iv) Yeast nutrients [2 Marks]

(v) Vitamins [2 Marks]

(vi) Dough improvers [2 Marks]

(vii) Biological preservatives [2 Marks]

(viii) Emulsifiers [2 Marks]

(ix) Gluten [2 Marks]

(b) What are the factors that influence growth of *Sacharomyces cerevisiae* during fermentation of bread? [5 Marks]

(c) What are the major differences between Staling and Biological spoilage in bread? [10 Marks]

[10 Marks]

Questions 5

(a) The four distinct stages of manufacture of beer are Malting, Mashing, Fermentation and Post-Fermentation. Discuss the role of these stages with respect to their contribution to the quality of the end product (beer). [20 Marks]

(b) What are the main causes of beer defects. [5 Marks]

[5 Marks]