



UNIVERSITY OF ESWATINI
Faculty of Health Sciences
Department of Environmental Health Science

DEGREE IN ENVIRONMENTAL HEALTH AND FOOD
SCIENCE

FINAL EXAMINATION PAPER 2019

TITLE OF PAPER : FERMENTED FOODS
COURSE CODE : EHS 423/EHM 424
DURATION : 2 HOURS
MARKS : 100

INSTRUCTIONS : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
: ANSWER **ANY FOUR** 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 ONE

- (a) Define fermentation. [1 Mark]
(b) Briefly discuss main important phyla of bacteria used in the manufacture of fermented foods [9 Marks]
(c) Briefly discuss the main benefit of food fermentation with reference to any five (5) food raw materials. [15 Marks]
Total [25 Marks]

QUESTION TWO

- (a) What is the principle behind the effectiveness of any chemical preservatives? [5 Marks]
(b) Given that the pK value of acetic acid is 4.75, propionic acid is 4.9 and sorbic acid is 4.8 respectively, briefly comment which of these preservatives will be most effective at pH 4.7 [8 Marks]
(c) What is the general representative microflora of vegetables before start of fermentation? [12 Marks]
Total [25 Marks]

QUESTION THREE

- (a) Outline the main properties of any five (5) bacteria used in meat starter cultures. [15 Marks]
(b) With aid of flow diagram briefly outline the stages involved in fermented sausage. [10 marks]
Total [25 Marks]

QUESTION FOUR

- (a) Write short accounts of any five (5) listed ingredients/components in bread making,
(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) How would you differentiate hanging fermentation from sluggish fermentation? [10 Marks]
Total [25 marks]

QUESTION FIVE

- (a) Discuss the primary phase in beer fermentation and how it impacts on quality of beer. **20 Marks]**
- (b) What are the roles of organic acids in wine fermentation? **[5 Marks]**
- Total [25 Marks]**