



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE
SBT 415: FERMENTATION

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DATE: Monday 5th December 2011

TIME: 8.00 a.m – 10.00 a.m

INSTRUCTIONS

Answer ALL questions in Section A and any ONE in Section B. Answers to Section A should be concise and written in the spaces provided on the question paper.

SECTION A: Short answer questions(5 marks each)

1. Briefly discuss the application of acid-tolerant bacteria in industry.

2. What are yeasts? Briefly discuss their participation in the fermentation process.

3. Briefly discuss the use of the fermentation process in the production of antibiotics and gasohol.

4. Distinguish between the following terms:
- a) Obligate aerobes and Facultative aerobes

 - b) Alcohol fermentation and Acid fermentation

 - c) Head to head fermentation and Head to tail fermentation

 - d) Homofermentative microorganisms and Heterofermentative microorganisms.

 - e) Brewer's and Baker's yeast

5. Complete the table below, on fermented foods found around the world.

Species of microorganism	Product(s)
<i>Propionibacterium shermanii</i>	Bulgarian buttermilk, yogurt, kefir, koumiss, Swiss, Emmental and Italian cheeses
<i>Lactobacillus acidophilus</i>	
	Emmental, cheddar, Italian cheese, Yogurt
<i>Streptococcus diacetylactis</i>	
	Cultured buttermilk, sour cream, Cottage cheese, all types of cheeses and starter cultures
<i>Streptococcus durans</i> , <i>Streptococcus faecalis</i>	

6. Briefly discuss the role of enzymes in fermentation.

8. Compare and contrast the reaction sequences of the alcohol and lactic acid fermentation.

SECTION B: Essays (30 marks each)

1. Discuss the conditions required for bacterial fermentations.
2. Write an essay on the fermentation products of fruits and vegetables
3. Write an essay on the discovery and history of the fermentation process.