



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTIONAL BASED PROGRAMME (IBP) – DECEMBER SESSION

EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN
BIOTECHNOLOGY

SBC 536: FOOD BIOTECHNOLOGY

DATE: Friday, 4th May, 2012

TIME: 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS:

Answer **ALL** questions in Section A and any **THREE** questions in Section B.

Section A: (40 marks) (Each question is 5 marks)

1. Describe the steps involved in the assembly of a heterologous expression system
(5 marks)
2. State five merits that makes trypanosomatid Protozoa an excellent expression system of heterologous enzymes
(5 marks)
3. Many strains of bacteria are known to cause diseases in the human body. You are appointed as the health officer in your county where there is a food industry that enriches their food products using probiotic bacteria. Having been trained in food biotechnology, explain some key health benefits that would allow you to change the perception of your county citizens towards the industrial food products.
(5 marks)
4. The East African Breweries has recruited new staff in the fermentation section where they will be using traditional brewers' yeast. You are invited to make a

- brief speech on beer quality improvement using this yeast. State five main points that you would include in your speech. (5 marks)
5. Filamentous fungi are known to have ability to express native enzymes. You are provided with a strain of filamentous fungi for cultivation for this purpose but you have limited funds. Explain the method of cultivation you would choose and justify your choice. (5 marks)
6. a) State two uses of gluconic acid in food industry. (3 marks)
b) State two merits that has made malic acid a preferred alternative acidulant in foods and drinks (2 marks)
7. Write short notes on production of riboflavin by microorganisms (5 marks)
8. Contamination of food supply results in foodborne illness. The illnesses do not affect all individuals who consumes the food. State the risk factors that determine the outcome of the contamination (5 marks)

Section B: Answer any THREE questions. Each question is 20 marks.

1. Discuss generation of flavour compounds from filamentous fungi.
2. a) Define the term biotechnology (2 marks)
b) Using specific examples, discuss the application of biotechnology in beer and wine industries. (18 marks)
3. a) Discuss the main categories of food borne organisms. (12 marks)
b) Drying is the preferred method for preserving grains. Justify. (8 marks)
4. Microorganisms play a major role in food preservation. Justify this statement.