



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (INDUSTRIAL/ANALYTICAL)

SCH 423: FOOD CHEMISTRY

DATE: Tuesday 27th March 2012

TIME: 8.00a.m -10.00a.m

INSTRUCTIONS

- 1) ANSWER ALL QUESTIONS
- 2) The marks associated with each question are indicated in the margin.
- 3) Use diagrams and chemical equations wherever possible.

1. a) How would you achieve immobilization in enzymes by:
 - i) Cross-linking [2marks]
 - ii) Co-polymerisation [2½ Marks]
- b) State briefly how enzymes are used in
 - i) Cheese production [2marks]
 - ii) Syrups and Sugar-production. [2marks]
- c) Explain, briefly how the following environmental factors affect the micro-organisms.
 - i) Water [2½ Marks]
 - ii) Acidity OR Alkalinity (pH) [2½ Marks]
- d) Explain the differences between the following as used in food chemistry:
 - i) Food additives and Preservatives [3marks]
 - ii) Psychrophilic bacteria and Mesophilic bacteria. [3marks]
 - iii) Cold smoking and Hot smoking. [3marks]

2. a) Spray drying is one method employed in food preservation. Explain what is involved in this method of preservation and give its applications.
[2½ + 1 + 2½ = 6 Marks]
- b) Explain how benzoic acid and its salts works as food preservatives and give at least TWO examples of each specific classes where they are used.
[2 + 2½ + ½ = 5 Marks]
- c) What are vitamins? Give in brief, the occurrence, structure and deficiencies of vitamins A and B₂ in human beings.
[1 + 3 + 3 = 7 Marks]
- d) Water is used in many food processing operations. Outline its role in Beer production.
[3marks]
- e) Give principal classes of packaging materials used for foods. [2½ Marks]
3. a) State the role of Iron and Zinc in human body and the effects of its deficiencies.
[3½ + 2½ = 6 Marks]
- b) Write a brief note on Food colouring agents [4marks]
- c) Define food texture and give the most important factors considered when determining the texture of plant material such as a Grape. [3marks]
- d) Explain in detail, the Canning line for vegetables. [4 + 2 = 6 marks]
- e) State how effector analysis is used to get concentrations of preservatives used and give TWO specific examples where this method is used. [4marks]
- f) Give at least TWO main reasons; for a diet to be of complete nutritional value.
[1mark]