



# NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

BACHELOR OF SCIENCE HONOURS DEGREE

## **THEORY: FOOD TECHNOLOGY II SBB 4207**

AUGUST 2009

3 HOURS (100 MARKS)

### **INSTRUCTIONS**

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labeled diagrams

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1. (a) Discuss the classification of alcoholic beverages mentioning the major subdivisions within the various major classes. (15 marks)  
(b) Explain why water quality is important in the production of alcoholic beverages. (10 marks)
2. (a) Describe the kilning process during the production of Scotch Malt Whisky and explain how this process contributes to the final quality of the whisky, also explain why lower kilning temperatures are generally preferred by distillers. (13 marks)  
(b) Describe the enzymatic reactions occurring during mashing and explain why distillers prefer lower mashing temperatures to those preferred by brewers. (12 marks)
3. (a) List and discuss the most important constituents of grapes to the wine maker. (10 marks)  
(b) Describe how aging may contribute to clarification of wine and development of flavor. (4 marks)  
(c) Explain the differences between cask and bottle aging, and how these relate to the quality of different wines. (6 marks)  
(d) Explain how wines that have not clarified naturally are processed before bottling. (5 marks)
4. (a) Describe the main constituents of hops and discuss their importance in brewing. (10 marks)  
(b) Describe the treatment of wort by brewers and distillers, and explain the significance of the differences. (10 marks)  
(c) Discuss the major differences between lagers and ales. (5 marks)

5. Discuss the major similarities and differences in the production and quality of traditional sorghum beer and clear barley beer.
6. (a) Compare and contrast the distillation process in the production of brandy and whisky with that used in the production of gin and vodka. (15 marks)
- (b) Discuss the health risk that may be associated with the consumption of spirits produced by amateur distillers. (5 marks)
- (c) Explain why yeasts are preferred to other microorganisms in most alcoholic fermentations. (5 marks)

**END OF EXAMINATION**



