



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

BACHELOR OF SCIENCE HONOURS DEGREE

FOOD TECHNOLOGY II SBB 4207

MAY 2011

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 labelled diagrams

1. (a) Explain the processes and conditions that result in endosperm modification during barley grain germination. (18 marks)
(b) Describe how the process of kilning contributes to the flavour and aroma of beer. (7 marks)
2. (a) Describe how the composition of the brewing liquor affects the quality of wort and the resultant beer. (15 marks)
(b) Describe a typical triple decoction mashing schedule and explain the importance of the temperature rests in the process. (10 marks)
3. Explain the processes and importance of the following in brewing:
(a) wort boiling and hop isomerisation; (10 marks)
(b) metabolism of wort nitrogen and fusel alcohols; and (10 marks)
(c) yeast flocculation. (5 marks)
4. Describe in detail, the industrial production of sorghum/maize/millet beer in Southern Africa.
5. (a) Describe and explain the key aspects of the malting, distillation and maturation processes in the production of malt whisky. (20 marks)
(b) Distinguish between distilled and compound gins. (5 marks)
6. (a) Identify and explain how the chemical constituents of grapes affect the fermentation and quality of red wines. (15 marks)
(b) Explain how the maturation process results in the stabilization of the colour of red wines. (10 marks)

END OF EXAMINATION