



(The University of choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

**YEAR FOUR SECOND SEMESTER EXAMINATIONS
(Main examination)**

BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY

COURSE CODE: AFT 409

COURSE TITLE: Alcoholic Beverage Technology

DATE: 25TH April 2024

TIME: 11:30-2:30 PM

Instructions:

- This paper consists of **6** questions
- Section **A is compulsory**, Answer any **3 questions** from **Section B**
- Observe the regulations governing clarity in answering questions

SECTION A (25 marks)

1. (a) State and briefly describe the different methods of kilning
(6 marks)

(b) Briefly explain the importance of adjuncts in beer brewing, hence give examples of any two adjuncts
(5 marks)

(c) Differentiate between the following types of alcoholic beverages
 - i. Spirit and wine
 - ii. Vodka and beer**(4 marks)**

2. (a) Differentiate between
 - i. ale and lager fermentation
 - ii. wort separation and wort boiling
 - iii. infusion and decoction mashing**(6 marks)**

(b) Explain the importance of the malting process during beer production
(4 marks)

SECTION B (45 marks)

3. (a) Discuss the features of a 5 column still for neutral spirits distillation
(5 marks)

(b) Explain the importance of the following indices of malting quality
 - i. Kolbach index
 - ii. Diastatic power
 - iii. Hot water extract
 - iv. Malt friability
 - v. Malt homogeneity**(5 marks)**

- (c) Outline the desirable features of the following raw materials used in beer production
(5 marks)
 - i. Malt

- ii. Adjuncts
- iii. Hops
- iv. Yeast
- v. Water

4. (a) Briefly describe the characteristics of the different types of whisky
(5 marks)

(b) Differentiate between *Saccharomyces* fermentation and malolactic fermentation in wine making
(5 marks)

(c) Outline and briefly discuss the five parameters that are of importance during beer brewing quality control
(5 marks)

5. (a) Discuss the source and significance following beer quality indices

- i. Flavour
- ii. Aroma
- iii. Mouthfeel
- iv. Head

(8 marks)

(b) Describe the procedure of winemaking and hence outline the different classifications for the flavours of wine
(7 marks)

6. Describe comprehensively the procedure for the brewing of lager beer
(15 marks)

