



TECHNICAL UNIVERSITY OF MOMBASA

School of Applied and Health Sciences
DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF FOOD TECHNOLOGY AND QUALITY ASSURANCE

AFS 4306: ALCOHOLIC BEVERAGE TECHNOLOGY

ORDINARY END SEMESTER EXAMINATION

SERIES: DECEMBER 2024 SERIES

TIME: 2 HOURS

DATE: DEEMBER 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of five questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a. State any two roles of each of the following in fermented foods and alcoholic beverages ;
 - i. Yeast (2 Marks).
 - ii. Fungi (2 Marks).
- b. State any four important properties for the material used for the construction of a bioreactor (2 marks)
- c. Explain how the following factors affect alcoholic fermentation

- i. Oxygen availability (2 Marks)
- ii. Microbial strain (2 Marks)
- d. Explain malolactic fermentation that occur during wine making (5 Marks)
- e. State four reasons for boiling of wort in beer production (4 Marks)
- f. Differentiate between top and bottom fermentation methods of producing beer (6 Marks)
- g. Still is the distilling equipment at the heart of the liquor-making process, describe the operation of the following;
 - i. Pot still (2 Marks)
 - ii. Column still (3 Marks)

Question TWO

- a. Discuss any five factors affecting alcoholic fermentation (10 Marks)
- b. Describe the following types of fermenter (bioreactor) types, stating the advantages of each.
 - i. Continuous stirred tank fermenter (5 Marks)
 - ii. Airlift fermenter (5 Marks)

Question THREE

- a. Differentiate between the following types of wines
 - i. Sparkling or still wines (4 Marks)
 - ii. Red or white wines (4 Marks)
- b. Describe the processing steps of producing red and white wine using a flow diagram, (12 Marks)

Question FOUR

Discuss the following alcoholic spirits under; material distilled from, flavour profile, ageing and styles.

- i. Whiskey (5 Marks)
- ii. Rum (5 Marks)
- iii. Vodka (5 Marks)

iv. Brandy (5 Marks)

Question FIVE

- a. Discuss the following fermentation process;
 - i. Solid State fermentation (4 Marks)
 - ii. Submerged fermentation (4 Marks)
- b. Discuss the steps involved in beer production (12 Marks)