

PAPER 1



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of applied and Health Sciences
DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN FOOD TECHNOLOGY AND QUALITY ASSURANCE

YEAR 2 SEMESTER 1

AFS 2209: FERMENTATION AND BIOTECHNOLOGY

ORDINARY EXAM

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2024 SERIES

TIME: 2 HOURS

DATE: DECEMBER 2024

a) Briefly explain the following terms;

i. Fermentation (2 marks)

ii. Biotechnology (2 marks)

b) Distinguish between;

i. Primary metabolites (2 marks)

ii. Secondary metabolites (2 marks)

c) Outline **FIVE** factors affecting fermentation (5 marks)

d) List **THREE** types of fermented foods (3 marks)

e) Briefly explain the principle of fermented milk products (5 marks)

f) Explain how yeast achieves its function in bread fermentation (5 marks)

g) Outline **FOUR** areas of enzyme application in the food industry (4 marks)

Question TWO

c) Discuss the **FOUR** types of industrial fermentations (15 marks)

Question THREE

a) State **FIVE** characteristics of media used for large scale fermentation (5 marks)

b) Discuss the phases of bacterial growth (10 marks)

Question FOUR

Use a clearly labelled diagram to discuss the use of a fermenter (15 marks)

Question FIVE

a) Describe the process of preparation and media sterilization (9 marks)

b) Distinguish between upstream processing and downstream processing

i. Upstream Processing (3 marks)

ii. Downstream Processing (3 marks)