



# TECHNICAL UNIVERSITY OF MOMBASA

---

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**BSC (FOOD TECHNOLOGY AND QUALITY ASSURANCE)**

**AFS 4406 : FOOD BIOTECHNOLOGY**

**SPECIAL/ SUPPLIMENTARY EXAMINATIONS**

**SERIES: SEPTEMBER 2018**

**TIME: 2 HOURS**

**DATE:** Pick Date Sep 2018

## 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 three possible ways in which genetically modified crops could impact food security [3 marks]
- b) State why African agriculture is vulnerable to climate change [4 marks]
- c) State the meaning of the following terms [4 marks]
- i) Codon
  - ii) Gene
- d) Explain the theory behind genetic development of pest resistant crops [3 marks]
- e) State important properties of acetic acid bacteria strains used in production of vinegar [4 marks]
- f) State FOUR advantages of submerged fermentation over surface fermentation [4 marks]
- g) Explain the metabolic engineering approaches used to produce
- i) Riboflavin [4 marks]
  - ii) Folate [4 marks]

## **Question TWO**

Discuss the flow of genetic information in living organisms

[20 marks]

## **Question THREE**

Discuss the feasibility of transgenic fish technology

[20 marks]

## **Question FOUR**

Discuss the following methods for increasing yields in enzyme production

a) Strain selection

[4 marks]

b) Environmental factors

[8 marks]

c) Genetic manipulation

[8 marks]

## **Question FIVE**

a) State THREE advantages of single cell protein over conventional sources of protein

[3 marks]

b) Explain any FIVE reasons that make ethanol a suitable substrate for single cell protein production

[8 marks]

c) Discuss FOUR methods for removal of nucleic acids from single cell protein

[9 marks]