



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
School of Natural Sciences (SONAS), Department of Pure and Applied Chemistry

UNIVERSITY MAIN EXAMINATIONS

2021/2022 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF INDUSTRIAL CHEMISTRY

COURSE CODE: SCI 466

COURSE TITLE: AGRO-BASED AND FOOD - BASED INDUSTRIES

DATE: TUESDAY, 26TH APRIL 2022 **TIME: 3.00PM - 5.00PM**

INSTRUCTIONS:

Read, understand and answer ALL questions as required.

The use of correctly cited relevant examples and/or illustrations earns marks.

MMUST observes ZERO tolerance to examination cheating

This paper consists of 3 printed pages. Please turn over ►

Question 1**[17 marks]**

- (a) Explain what is meant by the term 'Agro Processing' and its significance to Kenya's economy. (3 marks)
- (b)
- (i) Using local examples, outline the methods of agro-processing. (2 marks)
 - (ii) Explain what you understand by the term 'Agro-allied products'. (2 marks)
 - (iii) What is the key difference between agro-based and mineral-based industries? (2 marks)
 - (iv) Why are agro- and food-based industries important for underdeveloped or developing countries? (2 marks)
 - (v) What is the difference between agriculture and industry? (2 marks)
 - (vi) What are the challenges in agro-based industries in Kenya? (1½ marks)
 - (vii) List any Five (5) largest categories of industries in the world? (2½ marks)

Question 2**[18 marks]**

- (a) Why is pest monitoring so important in pest management? (2 marks)
- (b) (i) What is the importance of Integrated Pest Management (IPM). (2 marks)
- (ii) List four (4) possible control tactics that may be used in an IPM strategy. (2 marks)
 - (iii) A pesticide was applied, but it did not control the pest. Discuss any five (5) reasons why this pesticide application might have failed to control the pest. (5 marks)
 - (iv) What can you do to keep the pests you are trying to control from becoming resistant to the pesticides you use? (2 marks)
 - (v) State any five major applications of phosphates citing one (1) relevant local example for each case (5 marks)

Question 3

[18 marks]

- (a) What is organic manure (OM) and how is it produced? (1 marks)
- (b) Organic manures can present a considerable environmental risk if not handled carefully. Explain. (9 marks)
- (c) Give typical of agro food and agro non- food processing activities in Kenya that depict the difference between the two types of enterprises. (3 marks)
- (d) What are some of the acute and chronic effects of prolonged exposure to pesticides including herbicides to humans particularly? (3 marks)

Question 4

[17 marks]

- (a) Explain how fertilizers are made? (4 marks)
- (b) Give three (3) examples of each of the following types of fertilizers.
- (i) Typical common fertilizers (1½ marks)
 - (ii) Natural organic fertilizers. (1½ marks)
 - (iii) Manufactured organic fertilizers (1½ marks)
- (c) What are hydroponics? (3 marks)
- (d) Characteristically, manure has an odour. Why? (3 marks)
- (e) Plants yellow out if they do not have enough nutrients. Explain? (2½ marks)