



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
School of Natural Sciences (SONAS), Department of Pure and Applied Chemistry  
**UNIVERSITY SUPPLEMENTARY/SPECIAL 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: WEDNESDAY, 27<sup>TH</sup> JULY 2022**      **TIME: 11:00-1:00PM**

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**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 the economy. (3 marks)
- (b) Outline the methods of agro processing. (2 marks)
- (i) Explain what you understand by the term 'agro allied products'. (2 marks)
- (ii) What is the key difference between agro-based and mineral based industries? (2 marks)
- (iii) Why agro and food are based industries important for underdeveloped or developing countries? (2 marks)
- (iv) What is the difference between agriculture and industry? (2 marks)
- (v) What are the challenges in agro based industries in India? (1½ marks)
- (vi) 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 the 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 example for each case (5 marks)

**Question 3****[15 marks]**

- (a) What is organic manure (OM) and how is it produced? (2 marks)
- (b) Organic manures can present a considerable environmental risk if not handled carefully. Explain. (7 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**

**[15 marks]**

- (a) How are fertilizers 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? (2 marks)
- (d) Why does manure smell? (2 marks)
- (e) Why do plants yellow out if they do not have enough nutrients? (2½ marks)