



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCE

## UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN FOOD TECHNOLOGY AND QUALITY ASSURANCE

AFS 4310: Edible Fats and oils technology.

## END OF SEMESTER EXAMINATION

**SERIES:** APRIL/2016

**TIME:** 2 HOURS

**DATE:** MAY/2016

### 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 and any other TWO

**Do not write on the question paper.**

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### Question ONE

- a) Giving two examples in each case, differentiate between saturated and unsaturated fatty acids. (4mks)
- b) Explain how the length of a carbon chain affects the physical characteristics fats and oils. (4mks)
- c) Explain polymorphisms and how it influences the quality a given fat. (6mks)
- d) Differentiate between prepress solvent extraction and direct solvent extraction. (2mks)
- e) State four advantages of enzymatic degumming. (4mks)
- f) Describe autoxidation reaction of fats and oils. (8mks)
- g) State the two main reasons for oil hydrogenation. (2mks)

### Question TWO

Discuss how the following factors influence plasticity and consistency of a plastic shortening;

- a) Product composition (5mks)
- b) Crystal size (5mks)
- c) Super cooling (5mks)
- d) Mechanical working (5mks)

**Question THREE**

- a) Describe solvent winterization process of seed oils. (10mks)
- b) Describe with the aid of a process flow diagram, dead-end batch hydrogenation process. (10mks)

**Question FOUR**

Describe the following chemical interesterification of oil of oil;

- a) Random batch chemical interesterification(10mks)
- b) Directed continuous chemical interesterification (10mks)

**Question FIVE**

- a) State three conditions essential for plasticity of edible fats and oils. (3mks)
- b) Describe detergent fractionation as carried out in oil industry. (7mks)
- c) Explain five factors that affect the physical characteristics of fats and oils. (10mks)