# Technical University of Mombasa

**Faculty of Applied and Health Sciences**

### DEPARTMENT OF PURE AND APPLIED SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD TECHNOLOGY & QUALITY ASSURANCE TECHNOLOGY

## BSFQ 12S

## AFS 4308 : SUGAR & CONFECTIONARY TECHNOLOGY

### SEMESTER EXAMINATION

DECEMBER 2013 SERIES                                                2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions
Answer question **ONE** (compulsory) and any other **TWO** questions

**QUESTION ONE**

a) Define the following terms:

   (i)     Imbibition                                                           **(2marks)**
   (ii)   ISSCT                                                            **(2marks)**
   (iii)  Absolute juice                                            **(2marks)**
   (iv)  Purity                                                     **(2marks)**
   (v)   Magma                                                    **(2marks)**

b) Give the equation used for mathematical consideration of imbibition and define the terms.    **(5marks)**

c) Use a diagram to illustrate the steps of cane sugar processing upto point of sale.

    **(5marks)**

d) Describe affination step in sugar refining.    **(5marks)**

e) Compare sugar beet with sugar cane    **(5marks)**

**QUESTION TWO**

The quality of standing sugarcane tends to improve with age, reach a maximum, and then decline. Describe the different types of deteriorations.

(i)    Before harvest                                                        **(7marks)**
(ii)   During harvesting                                                  **(5marks)**
(iii)  After harvesting before processing                      **(8marks)**


**QUESTION THREE**

During sugar cane processing explain the following stages:

(a) Extraction of juice                                               **(6marks)**
(b) Juice clarification                                               **(8marks)**
(c) Crystallization                                                   **(6marks)**


**QUESTION FOUR**

a)  Use a flow chart to show a 3 stage sugar boiling scheme.          **(12marks)**
b)  15000 tons of cane sugar with 16% fibre content was delivered for milling in Ramisi sugar factory. Calculate the imbibitions water used and state any assumptions made.
                                                                              **(5marks)**
c)  List examples of adsorbents used during decolorization step of sugar refining **(3marks)**


**QUESTION FIVE**

a)  As a food technologist working in a sugar factory discuss different application on how you can optimize the By-products                        **(12marks)**
b)  Discuss any pollution which is associated with sugar milling factories.     **(8marks)**