

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY**

DATM 456: DAIRY TECHNOLOGY

STREAMS: BSc (FOST) Y4 S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 31/3/2021

11.30 AM – 1.30 PM

INSTRUCTIONS:

- The paper contains sections A and B
- Answer all questions in section A and any TWO from section B
- Marks for each question are indicated in parenthesis ()
- Total marks =70

SECTION A: [30 MARKS] – ANSWER ALL QUESTIONS

Give short answers (3 marks each)

1. The volume of ice-cream mix is 40 litres and the overrun is 90%. Calculate the volume of ice-cream.
2. Give the reasons for the difference in the storage temperature of mala and yoghurt.
3. Give two milk reception platform tests normally carried out on milk.
4. What is the function of the flow diversion valve in a plate pasteurizer?
5. Give two reason why milk is evaporated at reduced pressur during the manufacture of condensed milk.
6. What is seeding as it applies to sweetened condensed milk.
7. If you are given 70kg fresh milk to concentrate and the concentration factor is 2.6, what is the

- mass of the final product to the nearest kg?
8. The fat content of butter is 80%. Calculate the overrun.
 9. Explain the difference in packing requirements for whole milk powder and skim milk powder.
 10. What is the likely effect of overheating milk meant for cheese making ?

SECTION B: [40 MARKS] – ANSWER ANY TWO QUESTIONS

11. a) The acronym ‘ TACT WINS’ can be used to describe the factors affecting the efficiency of a cleaning operation. Give the meaning of each term. [16 Marks]
b) Give the cleaner circulation sequence in a CIP system. [4 Marks]

 12. a) Give three ways that can be used to save energy in an evaporating system.[9 Marks]
b) Explain the difference between the principles of preservation in sweetened condensed milk and evaporated milk. [6 Marks]
c) Describe the importance of the quality of raw milk for evaporated milk manufacture. [5 Marks]

 13. a) Explain the importance of milk heat treatment during the manufacture of yoghurt. [6 Marks]
b) On the same axes (x and y), draw three well labeled graphs showing acidity of milk against fermentation time for: (a) Normal, (b) Antibiotic contaminated, and (c) Phage contaminated milks. [9 Marks]
c) Explain the shape of each of the graphs in ii above. [5 Marks]
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