CHUKA **UNIVERSITY**

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATION

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

DATM 456: DAIRY TECHNOLOGY

STREAMS: BSC FOST Y4S1 **TIME: 2 HOURS**

DAY/DATE: THURSDAY 12/08/2021 **11.30 A.M – 1.30 P.M.**

INSTRUCTIONS:

- The paper contains sections A and B
- Answer all questions in section A and any THREE from section B
- Marks for each question are indicated in parenthesis ( )
- Total marks = 100

SECTION A: [40 MARKS] – ANSWER ALL QUESTIONS.

1. Explain the difference and relationship between sanitizing and cleaning. (4 marks)

2. Sweetened condensed milk can have a long shelf-life without sterilizing while condensed milk needs to be sterilized to increase its shelf-life. Discuss. (5 marks)

3. During HTST pasteurization of milk, the minimum temperature was set at 72 ^{o}C but the actual temperature achieved was 71 ^{o}C. if the pasteurization system was working properly, what is the likely to happen? (5 marks)

4. What is the function of air in ice-cream? (4 marks)

5. Butter has an overrun of 25%. If the mass of butterfat is 60 kg, calculate the mass of butter. (6 marks)

6. What is the importance of starter culture in cheese making? (6 marks)

7. Give the mean percentage composition of the major constituents of bovine milk. (10 marks)

SECTION B: [60 MARKS] – ANSWER ANY THREE QUESTIONS

8.

a) Calculate the amount of cream, containing 40% fat and skim milk, containing 0.5% fat that you need to mix to give 100 kg of 3.2 % fat milk. (10 marks)

b) Give the importance of any four milk reception platform tests. (10 marks)

9.

a) Give the procedures and steps during manufacture of salted butter from pasteurized cream. (12 *marks*)

b) Discuss the causes and prevention of any two defects in butter. (8 marks)

10.

Give the effects of bacteriophage attack in the manufacture of fermented milk and ways a processor can use to minimize chances of the attack. (20 marks)

11.

a) Discuss the importance of raw milk quality in the manufacture of milk powder. (10 marks)

b) Discuss ways of minimizing oxidation of milk fat during storage of whole milk powder. (10 marks)
