

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2016/2017**

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF FOOD SCIENCE AND TECHNOLOGY, BACHELOR OF FOOD SCIENCE AND NUTRITION.

**AFT 3305: FUNDAMENTALS OF DAIRY SCIENCE**

**DATE: DECEMBER, 2016 TIME: 2 HOURS**

**INSTRUCTIONS: -** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Explain how the following factors influence milk composition
2. Breed (3 marks)
3. Number and stage of lactation (2 marks)
4. Season/nutrition (3 marks)
5. Method of milking (3 marks)
6. Explain the difference between homofermentative and heterofermentative lactic acid bateris (LAB) (2 marks)
7. Give the chemical structure of:
8. Galactoce (3 marks)
9. Lactose (2 marks)
10. Explain lactose intolerance (5 marks)
11. Explain the following physicochemical properties of milk
12. Mutarutation (2 marks)
13. Solubility (2 marks)
14. Crystal formation (2 marks)
15. Illustrate the lactic acid fermentation formula (2 marks)

**QUESTION TWO (20 MARKS)**

1. List five aromatic compounds produced by homo-fermentative fermentation of milk. (15 marks)
2. Discuss fat globule distribution in milk. (5 marks)

**QUESTION THREE (20 MARKS)**

1. Discuss milk adulteration and various detection methods. (10 marks)
2. Discuss the physical properties of milk. (10 marks)

**QUESTION FOUR (20 MARKS)**

1. List the challenges affecting the dairy sector in Kenya. (5 marks)
2. Discus mastitis (5 marks)
3. Discuss the role that Kenya contributes to the global dairy sector (5 marks)
4. Discuss fermentation of pentoses (5 marks)