

B. Tech Odd Semester Examination, February, 2023

Agricultural Engineering

(5th Semester)

Course No.: AE-B04

(Diary Food Technology)

Full Marks: 50

Pass Marks: 25

Time: 2 hours

- Note:**
1. Attempt any five questions.
 2. Begin each answer in a new page.
 3. Answer parts of a question at a place.
 4. Assume reasonable data wherever required.
 5. The figures in the right margin indicate full marks for the question.
 6. All the mathematical symbols and abbreviations have their usual meanings.

- (b) Milk is received 10000 kg of 7% milk fat, 40 % cream is separated from 10000 kg of milk. Skim milk tests 0.1 % and buttermilk test 0.5 % were found in the whole milk. Miscellaneous fat losses are 0.5 % of total fat received in whole milk. The butter containing 80.5 % fat is the given milk. The weight allowance is 10 g for 1 kg pack of the butter. Determine how much butter is packed for sale? And what is the percentage of overrun? 6
4. (a) What is the object in churning? What is the effect of temperature on the churnability of cream? 2+3
- (b) What are the causes of difficult churning? 5
5. (a) What is meant by cream ripening? What is the purpose of salting in butter manufacturing process? 1+4
- (b) What are the advantages and disadvantages of pasteurization in butter making process? 5
6. (a) Write the physico-chemical properties of cream and explain with their factors affecting. 5
- (b) What are the advantages of centrifugal separation over gravity separation of cream? 5
7. (a) Define: (i) Standardization of cream (ii) Cooling and Ageing of cream (iii) Churning of cream 5
- (b) What are the different methods of cream separation? Explain any one with their advantages and limitations. 5
8. (a) What is the role of constituents in Ice-cream? Draw a flow diagram of method of manufacturing, handling, packaging and storage of ice-cream. 5
- (b) Define Ghee. What are the methods we followed for Ghee production? Explain anyone with the flow diagram of ghee production. 5

1. (a) What are the sources of bacteria/contamination of milk, cream, and butter? 2
- (b) Define Neutralization of cream. Write the objectives of Neutralization of cream. 1+2
- (c) Differentiate Pasteurization and Sterilization process with their objectives. 5
2. (a) Draw a flow diagram of cream preparation for butter manufacturing. Explain each process of butter manufacturing with their factor affecting 2+6
- (b) How many kg each of 28% cream and 3 % milk will be required to make 500 kg of mixture testing 4% fat? 2
3. (a) What is meant by “overrun” in buttermaking? How is the percentage overrun determined? What are the factor affecting of amount of overrun depend? 1+1+2

Turn Over