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53 (FPT 502) FPTC-III

2014

FOOD PRODUCT TECHNOLOGY-III

(Milk and Milk Products)

Paper : FPT 502

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1. (a) Why clarification of milk is done ? How it is different from centrifugation ? Explain the working procedure of clarifiers with a neat diagram. 1+1+8
- (b) Name the acids present largely in milk fats. 1
- (c) What is milk ? Write the general aspects of milk processing. 4
- (d) Explain the effects of pH on milk constituents. 5

Contd.

2. (a) Define transmembrane pressure. What is the significance of P_3 in the expression of TMP ? 2

(b) State the principle of membrane filtration. What is the driving force of filtration process ? 3+1

(c) Explain the mechanism of Plate and Frame design with a schematic diagram. 5

(d) Show the flow diagram for processes occurring at a typical milk plant. 5

(e) What are the environmental impacts associated with dairy industries ? 4

3. (a) Which compound is responsible for the change in flavour and color after heat treatment of milk ? 1

(b) Name two gram positive and gram negative bacteria occurring during storage of milk. 2

(c) What is the basic difference between conventional and membrane filtration ? 1

(d) What are the changes that occur in milk due to heat treatment ? 4

(e) Explain the working principle of pasteurization. How many types of pasteurization methods are there? Explain any one. 7+1+4

4. (a) Why pasteurization is done after reception of milk in a dairy processing? 1

(b) What is the self-life of pasteurised milk? How the shelf-life can be prolonged? 2

(c) What happens if milk is exposed to light? 1

(d) If milk is heated at a lower temperature than pasteurization then it's called _____ . 1

(e) What are the specific problems that arise during the transport of the milk? 3

(f) Explain in details the processing of butter. What is the role of churning process in butter processing? 8+4

5. (a) Explain the freezing of skim milk with a partial state diagram. 8

- (b) What are the roles of homogenisation in milk processing ? Explain the operation of homonizer. 3+7
- (c) Define eutectic point. 1
- (d) Define overrun. 1
6. (a) What is heat regeneration ? Explain. 4
- (b) What is platform test ? Explain *any two* types of platform test. 1+3
- (c) What is standardization ? Why is standardization required for milk ? 2
- (d) What are the objectives of processes for the manufacture for the development of milk products ? 4
- (e) Discuss *any two* preservation methods for the manufactured milk product. 6
7. (a) Discuss the role of the various components in ice cream processing. 3
- (b) What are the treatments done to the milk before cheese manufacturing ? 5

(c) What is the range of UHT treatment? What type of microbes can be treated by UHT treatment? 2

(d) How many kg of 40% cream fat must be mixed with 0.05% skim milk fat to make a mixture containing 3% fat to make 500kg? Calculate with Pearson's Square method. 6

(e) What is platform test? Explain any one type of platform tests. 1+3

The figures in the margin indicate full marks for the questions.

Answer any five questions.

(a) Why clarification of milk is done? How it is different from centrifugation? Explain the working procedure of clarifiers with a neat diagram. 1+1+8

(b) Name the vitamins present largely in milk fats.

(c) Write a note on the various aspects of milk preservation.

(d) Explain the effects of pH on milk.