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53 (FPT 502) FPTC-III

2015

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) What is milk ? Write the general aspects of milk processing. What changes occur during storage of milk ? Explain.

1+5+4

(b) 1×5

(i) What is the range of the iodine value for butter of optimum consistency ?

(ii) Name the acids present largely in milk fats.

Contd.

- (iii) What are the constituents of casein miscells ?
- (iv) What is the freezing point of cow's milk ?
- (v) Why the milk heated at 75°C for 20-60 seconds will start to smell and taste "cooked" ?
- (c) Explain the structure of milk with diagram. 5
2. (a) Why clarification of milk is done ? How it is different from centrifugation. 1+1+8
- (b) Explain the working principle of pasteurization. How many types of pasteurization methods are there ? Explain *any one*. 10
3. (a) Explain *any three* properties of milk. 4
- (b) When oxidation of milk fat takes place what happens during the oxidation process ? 6
- (c) Explain the effect of heat in the constituents of milk. 10

4. (a) 1×5
- (i) What is thermolization?
 - (ii) Name any heat resistant psychrotrophs.
 - (iii) Define eutectic point.
 - (iv) What is overrun?
 - (v) Which compound is responsible for sunlight flavour?
- (b) What is platform test? What are the names of the tests? Explain any two. 1+1+3
- (c) What is standardization of milk? How many kg of each of 28% cream and 3% milk will be required to make 500kg of a mixture testing 4% fat? 1+4
- (d) What are the objectives of heat treatment? 5
5. (a) Explain the mechanism of Plate and frame design with a schematic diagram. 5
- (b) Show the flow diagram for processes occurring at a typical milk plant. 5
- (c) Explain the processing of ice cream. 10

6. (a) Explain in details the processing of butter. Why the role of churning process in better processing? 8+4

(b) Explain the effect of heat in protein. 3

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

(d) What happen if milk is exposed to light? 1

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

7. (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 working of homonizer. 3+7

(c) What is the range of UHT treatment? Which types of microbes are treated with UHT treatment? 2