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53 (FPT 502) FPTC-III

2017

**FOOD PRODUCT TECHNOLOGY-III**

Paper : FPT 502

**(Milk & Milk Products)**

Full Marks : 100

Time : Three hours

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

***Answer any five questions.***

1. (a) Mention the minor and major constituents of milk. 4
- (b) State the factors affecting the composition of milk. 6
- (c) Write about the physico-chemical properties of minor milk constituents. 10

Contd.

2. (a) Mention the PFA standards (MF% & SNF%) for standardized, recombined, toned and double toned milk. 4
- (b) Write about the following milk quality control tests : 4×4=16
- (i) COB test
  - (ii) Resazurin test
  - (iii) The alcohol test
  - (iv) The Lactometer test.
3. (a) Explain the process of UHT sterilization. 6
- (b) Write the definition of following terms used in the cleaning of milk equipment : 2+2=4
- (i) CIP
  - (ii) Sanitization / Sterilization.
- (c) Write down the general procedure for the cleaning of dairy equipment. 6
- (d) Give the flow chart for the manufacturing of reconstituted milk. 4

4. (a) Explain the working principle of centrifugal milk separator with neat diagram. 8
- (b) Define pasteurization and explain the HTST process for pasteurizing milk with proper flow diagram.  $2+10=12$
5. (a) Write the characteristics of centrifugal and gravitational milk separators. 6
- (b) Write about the factors influencing the fat percentage in milk cream. 10
- (c) Given 1000kg of cream testing 75% fat. How much skim milk testing 0.3% fat must be added to obtain 50% fat in the standardized cream? Use Pearson's Square method for the calculation. 4
6. (a) Explain the manufacturing process of butter with proper flow chart. 10
- (b) Tabulate the microbial defects in the production of condensed milk. 6
- (c) Give the flow diagram for the production of SMP by drum process. 4

7. (a) Write about the following properties of ice cream mix. 5+5=10

(i) Acidity and pH

(ii) Whipping Rate

(b) Write about different kinds of vanilla flavor used in the production of ice cream.

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