

**POST GRADUATE DIPLOMA IN FOOD
SCIENCE AND TECHNOLOGY (PGDFT)**

Term-End Examination

December, 2016

MFT-007 : DAIRY TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

Note : (i) Attempt any five questions.

(ii) All the questions carry equal marks.

1. Match the statements (treatments) given under **Column B** with the product given under **Column A**. **14x1=14**

	Column A		Column B
(a)	Cheddar cheese	(i)	Ageing
(b)	Shrikhand	(ii)	Homogenization
(c)	Butter	(iii)	Seeding with lactose
(d)	Condensed milk	(iv)	Sterilization
(e)	Whey powder	(v)	Washing
(f)	Ghee	(vi)	Grain Formation
(g)	Sodium caseinate	(vii)	Stretching
(h)	Processed cheese	(viii)	Treating with NaOH
(i)	Cream	(ix)	Tripping and grading
(j)	Evaporated milk	(x)	Cool-ageing
(k)	Whole milk powder	(xi)	Formation of chakka
(l)	Kulfi	(xii)	Waxing
(m)	Mozzarella cheese	(xiii)	Addition of citric acid
(n)	Danedar	(xiv)	Crystalization of lactose

2. Choose the most appropriate answer from the options given in the bracket for the following : $14 \times 1 = 14$
- (a) Which of the products are graded under Agmark (Khoa and chhana) butter and Ghee, Paneer and cream ?
 - (b) Minimum fat content in the medium fat cream shall be (40%, 60%, 30%).
 - (c) The yield of paneer from buffalo milk is in the range of (12-15%, 15-20%, 20-25%).
 - (d) compared to cow and buffalo milk, human milk is rich in (fat, protein, lactose).
 - (e) The process of reduction in the size of the fat globules in milk is known as (Pasteurization, Sterilization, Homogenization).
 - (f) Product in which milk fat is replaced with vegetable fat is known as (toned milk, standardized milk, field milk).
 - (g) Cool-ageing of the ice-cream mix is done (before pasteurization, between pasteurization and homogenization, after homogenization).
 - (h) Colour and flavour are added in ice-cream (before pasteurization, between pasteurization and homogenization, before freezing).
 - (i) Sucrose in sweetened condensed milk shall not be less than (40%, 35%, 60%).
 - (j) Which antioxidant is permitted in ghee (BHA, BHT, none) ?
 - (k) Insolubility index of spray dried milk powder shall not be more than (0.5, 1.0, 1.5).

- (l) Ghee residue is rich source of (Fat and Protein, lactose and minerals, antioxidants and flavour compounds).
- (m) Whey powder is more nutritious than casein or sodium caseinate due to (high content of essential amino acids, higher nitrogen, high fat content).
- (n) Compared to acid casein, rennet casein contains more (lactose, proteins, minerals).
3. (a) Describe CIP process practised in dairy plant. 5
- (b) Describe the functions of a district co-operative milk producers union in 3 tier structure of Anand Pattern of Co-operatives. 4
- (c) Discuss platform tests used in Milk Industry. 5
4. (a) Explain the dairy waste disposal system in a Modern Dairy Plant. 5
- (b) Give the principle of cream separation by centrifugal separator. Which factors influence the creaming efficiency of milk ? 2+3=5
- (c) Differentiate between direct and indirect heating during UHT Processing with merits and demerits of each. 4
5. (a) Differentiate between Dahi and Yoghurt. Explain the defects occurring in Dahi and Yoghurt during storage. 2+3=5
- (b) Give the composition of human milk. Briefly describe method of casein manufacturing. 2+3=5
- (c) Explain the procedure for the Agmark grading of ghee and give the colour for the label for special and general grade ghee. 3+1=4

6. (a) Give the PFA or FSSAI standard for paneer. Why buffalo milk is preferred for paneer making ? 2+3=5
- (b) What is the principle of making condensed and evaporated milk ? Give the Fat and SNF specification for Full cream condensed and evaporated milk. 2½+2½=5
- (c) Describe the heat classification of milk powder. Why low heat powder has better solubility ? 2+2=4
7. (a) Give the procedure for the preparation of mozzarella cheese. 5
- (b) Explain the role of the following in the quality of ice-cream : 2x1½=3
- (i) Pasteurization
- (ii) Cool-ageing
- (c) Describe the entrepreneurial skills required to start a dairy plant. 6
-