



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – FOOD CHEMISTRY AND FOOD PROCESSING

THIRD SEMESTER – NOVEMBER 2016

FP 3809 - CHEMISTRY OF DAIRY PRODUCTS

Date: 05-11-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART - A

Answer ALL the questions

(10X2=20) marks

1. Define mutarotation of lactose.
2. List the factors affecting lactose solubility
3. Mention the role of water in contributing to stickiness and caking of milk powders.
4. What is rennet coagulation?
5. Highlight the correlation between sodium and potassium ions in milk.
6. Mention the role of vitamins in milk and milk products.
7. How would you analyse butter through modified Kohman test.
8. Give a schematic representation of the gross composition of milk.
9. Write the formula and value for refractive index of milk.
10. Why is acidification of milk a key factor in manufacture of all cheese varieties?

PART - B

Answer ANY EIGHT questions

(8X5=40)marks

11. i) Why are the physical properties of milk important in food processing?
ii) Elaborate on the taste, odour and color of milk.
12. Write short notes on the following properties of milk:
a. Electrical conductivity b. Viscosity c. Thermal properties.
13. Describe fatty acid profile of milk lipids.
14. Write a note on structural hierarchy of milk proteins
15. Enumerate the contribution of lactose in maintaining homogeneity of ice cream products.
16. Explain the following
 - i) Determination of lactose concentration using polarimeter.
 - ii) Lactose glass-effect in milk powder
17. Explain the physiochemical properties of milk proteins.
18. Enumerate the methods adopted to measure the extent of the presence of calcium and magnesium ions in milk.
19. Write a note on colloidal milk salts.
20. Explain the following
 - i) RoeseGlottlich fat analysis
 - ii) Phosphatase test
21. Describe the coagulation process involved in conversion of milk to cheese curd.
22. Briefly discuss
 - i. chemical changes that occur during fermentation of cultured buttermilk.
 - ii. benefits of consuming cultured milk.

PART – C

Answer ANY FOUR questions

(4 X 10=40) marks

23. Discuss the many components in milk that contribute to its acid base equilibria.
24. Elaborate on the redox properties of milk.
25. Discuss the different forms of lactose and enumerate its physical and chemical properties.
26. i) Explain the heterogeneity of milk proteins **(3 marks)**
ii) Discuss the preparation of casein and whey protein **(7 marks)**
27. Write a detailed note on salt composition of milk
28. Discuss the following
- i) Isoelectric precipitation **(5 marks)**
- ii) Ultrafiltration **(5 marks)**
