LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – APRIL 2017

FP 3809- CHEMISTRY OF DAIRY PRODUCTS

Date: 28-04-2017 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

Part A

Answer ALL the questions **(10X 2 =20) Marks**

1. What is the significance of oxidation reduction potential of milk?
2. Draw the buffering curve for milk when titrated from i) pH 6.6to pH 11.0 ii)back titrated from pH 11.0 to pH 3.0
3. Define Koestler number.
4. List the problems associated with lactose crystallization.
5. Mention the possible methods available for isolating milk fat globular membrane.
6. What is Laplace principle? Relate stoke's law and Laplace principle in determining creaming process of milk.
7. What are colloidal milk salts?
8. Define Marshal Rennet test.
9. Mention the concentration of lactose in dried milk products.
10. List the factors affecting the primary and secondary phase in rennet coagulation.

Part B

Answer ANY EIGHT questions **(8X5=40) Marks**

11. Write short notes on density and specific gravity as important physical properties of milk.
12. i.)Differentiate between natural and developed acidity of milk.
    ii) Give the significance of the following in the dairy industry:
    a.pH 6.5 to 6.7 b.pH above 7 c.pH less than 6.0
13. Discuss the rheological properties of milk.
14. i) Write a note on thermoplasticity of lactose.
    ii) Enumerate the factors affecting sticking temperature
15. Discuss the appearance of lactose in frozen dairy products
16. Write a note on
    i) Lactulose
    ii) Lactilol
17. Describe the heterogeneity of milk proteins.

18. Write a note on creaming process in milk.
19. Enumerate the factors affecting the fat content of milk.
20. Describe the factors influencing variation in salt concentration of milk.
21. Classify cheese and describe the biochemical changes in the ripening process.
22. Write a note on vitamins in milk products.

Part C

Answer ANY FOUR questions **(4 X 10=40) Marks**

23. i) Elaborate on the freezing point of milk.

ii) Assuming an average freezing point of -0.55^{0}C calculate the percentage of added water in thetest sample with the following data: CLR – 20,%, Fat 2.5 %,

T the observed freezing point depression of the test sample is -0.52^{0}C.

24. Discuss Maillard reaction and Amadori rearrangement of glysoylamine residues in milk.
25. Explain the following:
    i) Milk fat globular membrane **(5)**
    ii) Hydrolysis of primary caseins by plasmin. **(5)**
26. Explain the interrelationships between milk salts constituents.
27. Explain the chemistry involved in preparation of yoghurt in the dairy industry.
28. Discuss the following
    i) Sampling milk and milk products **(5)**
    ii) Methylene blue test **(5)**

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