



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI - 600 034

DEGREE EXAMINATION - FOOD CHEMISTRY AND FOOD PROCESSING

THIRD SEMESTER - APRIL 2014

3808 - INORGANIC, PHYSICAL & CHEM. COMPONENTS OF FOOD

Date : 03/04/2014

Dept. No.

Max. : 100 Marks

Time : 01:00-04:00

Part A

Answer ALL THE questions.

10x2=20 marks

1. What is meant by Recommended Dietary Allowance?
2. Give the mineral composition of whole milk.
3. What is the role of potassium ion in the body?
4. Write the equation for calculating water activity.
5. What are dietary fibres?
6. What is the relationship between interfacial tension and adsorption?
7. What is the role of Arrhenius equation in shelf life study?
8. What is the relationship between relative vapour pressure and food stability?
9. Give examples for dipole-dipole and dipole-induced dipole interactions.
10. Define order of a reaction.

Part B

Answer ANY EIGHT questions.

8x5=40 marks

11. Explain the mechanism of freeze drying technology. Relate its approach to food stability.
12. Explain the Lowry-Bronsted theory of acids and bases.
13. State Kirchoff's equation and explain its application.
14. Explain the factors which affect the shelf life of a food.
15. How can the ash content in a food is estimated?
16. How can calcium be estimated by the complexometric method?
17. What is the relationship between ΔH , ΔS and ΔG ? Explain how this relationship is applied in understanding the feasibility of a chemical reaction.
18. Explain Karl -Fischer titration and its uses.
19. Explain the relevance of glass transition in food stability.
20. What are the natural sources of calcium and phosphorous? Discuss the importance of calcium and phosphorous in the human body.
21. Distinguish between hydrophilic and hydrophobic interactions with examples.
22. What are endergonic and exergonic reactions? Explain how an endergonic reaction is made to occur spontaneously in a biological process.

Part C

Answer ANY FOUR questions.

4x10=40 marks

23. i) Explain surfactants with examples and give their importance in food chemistry. (5)
ii) What is the theory of electric double layer and its relevance to understanding sedimentary aggregation and liquid dispersions? (5)
24. i) Discuss van der Waals forces with examples. (5)
ii) What is the relationship between water activity and food stability? (5)
25. Explain the different types of gels and their applications in food preparation.
26. Distinguish ionic and covalent compounds in terms of the nature of the interaction and physical properties. Give suitable examples for each.
27. Explain why food materials should be dried for preserving. Explain the different methods of drying food
28. i) What are the chemical and functional properties of nickel and copper in food? (5)
ii) What are the consequences and benefits of vacuum freezing with reference to the stability of food? (5)
