



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

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

**THIRD SEMESTER – NOVEMBER 2017**

**FP 3808 - INORGANIC, PHYSICAL & CHEM. COMPONENTS OF FOOD**

Date: 04-11-2017  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**Part A**

**Answer ALL the questions.**

(10 x 2 =20) marks

1. Define DLVO( Derjaguin, Landau, Vervey and Overbeek) theory.
2. What are surfactants? Mention its role in interfacial tension.
3. Define contact angle.
4. What is critical micelle concentration?
5. Mention the types of dispersed systems with its applications and existence in food.\
6. Express the temperature dependence of equilibrium constant.
7. Differentiate hydrophobic and hydrophilic substances.
8. Define fugacity. Relate the terms temperature and relative vapor pressure.
9. Mention the importance of moisture assay and moisture analysis.
10. What are plastic fats?

**Part B**

**Answer ANY EIGHT questions.**

(8 x 5= 40) marks

11. Discuss surface phenomenon on the following headings.
  - i) Adsorption
  - ii) Interfacial tension
12. Write a note on Electric double layer.
13. Explain the possible ways in which food molecules acts as a dispersed medium.
14. Explain the concept of relative vapor pressure with respect to Equilibrium relative humidity.
15. Write a note on glass transition temperature (T<sub>g</sub>) with a state diagram.
16. Free volume mechanistically influences molecular mobility and food stability. Justify the statement.
17. Explain the surface phenomenon- interfacial tension on liquid foods.
18. Discuss the tetrahedral arrangement of ice structure.
19. Explain the relationship of T<sub>g</sub> ( glass transition temperature) and M<sub>m</sub>( Molecular mobility) in lowering relative vapor pressure.
20. Write a note on karl Fischer titrations.
21. How will you relate relative vapor pressure and food stability?
22. Explain the Arrhenius approach on shelf life modeling of foods.

**Part C**

**Answer ANY FOUR questions.**

(4X10=40) marks)

23. Explain moisture sorption isotherms (MSI).
24. Explain the graphical representation of William Lander Ferry (WLF) kinetics and its influence on food stability.
25. Explain the factors affecting mineral composition of foods.
26. Explain the various types of food gels with an example.
27. Write a detailed note on various methods adopted for analyzing dietary fibre.
28. Explain the procedure involved in determining the levels of Calcium in foods by gravimetric and complexometric method.

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