



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – APRIL 2017

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

Date: 28-04-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part A

Answer all the questions.

10 x 2 = 20 marks

1. Define water binding potential.
2. What is meant by dipole-induced dipole interaction? Give an example.
3. Mention any four factors affecting the mineral composition of food.
4. What is meant by bioavailability of nutrient in food?
5. Relative vapour pressure approach and molecular mobility approach to food stability are complimentary in nature. Justify.
6. Write the principle of complexometric titration with an example.
7. Mention any two advantages of State diagram over phase diagram in food analysis.
8. Define interfacial tension.
9. How does chemical equilibrium changes depending on temperature?
10. Write a note on Kirchhoff's equation.

Part B

Answer any eight questions.

8 x 5 = 40 marks

11. i) List out any differences between ionic and covalent compounds.
ii) Mention the various factors affecting the formation of ionic bond.
12. Describe the crystalline structure of associated water molecules.
13. Discuss Lowry-Bronsted and Lewis theories of acids and bases with examples.
14. Explain the bio functional properties of phosphate and nickel in food.
15. Describe any five factors affecting the stability of food.
16. How will you estimate the amount of dietary fibre in food using Englyst-Cumming method?
17. Describe the principle and procedure of wet ashing method in the ash analysis of food.
18. Write a note on vacuum oven drying method in moisture analysis.
19. Explain any three key concepts of molecular mobility approach to determine food stability.
20. Discuss the significance of the enthalpy of chemical reaction in food.
21. Describe the following colloidal interactions of van der Waals and electrostatic interactions.
22. Write a note on following a) particle aggregation b) sedimentation

Part C

Answer any four questions.

4 x 10 = 40 marks

23.i) Describe the interaction of water with ions and ionic solutes.

ii) Why does the dielectric constant and viscosity of water are abnormally high compared to other molecules with similar molecular weights? **(6+4)**

24. Define water activity. Write the importance of moisture-sorption isotherm in the determination of water activity.

25.i) Describe the bio functional properties of iron and copper in food.

ii) Mention any four factors affecting the absorption of iron by biological system. **(6+4)**

26.i) How will you estimate the amount of calcium present in food using gravimetric analysis?

ii) Differentiate between post precipitation and co precipitation. **(6+4)**

27.i) Explain the significance of coupled reaction in biological system.

ii) Discuss the DLVO theory. **(5 + 5)**

28. Write a note on following gels:

i) food gels

ii) poly saccharides gels

iii) globular proteins

iv) mixed gels v) plastic fats
