



ANNA UNIVERSITY (AUTONOMOUS), CHENNAI - 600 094
DEGREE EXAMINATION - FOOD CHEMISTRY & FOOD PROCESSING
FIRST SEMESTER - NOVEMBER 2013
FP 1806 - ORGANIC CHEMISTRY OF FOOD - I

Date : 05/11/2013
Time : 1:00 - 4:00

Dept. No.

Max. : 100 Marks

Part-A

Answer all the questions. Each question carries two marks.

1. Distinguish between asymmetric and dissymmetric molecules with examples.
2. Explain the structural features of glucose which make it soluble in water.
3. What are the structural features of carrageenan?
4. Why are dietary fibers necessary in food? Mention any two natural sources rich in dietary fibers.
5. Explain the chemical reaction involved in the hydrogenation of fat with an example.
6. Explain why unsaturated fats are more favourable for consumption than saturated fats.
7. Define isoelectric point.
8. What is the biological function of enzymes?
9. Explain the chemical reaction responsible for the swelling of starch.
10. Mention any two naturally occurring sources of ascorbic acid.

Part-B

Answer eight questions. Each question carries five marks.

11. Explain the chemical reaction involved in the hydrolysis of a polysaccharide with a suitable example.
12. What are the products resulting from the chemical oxidation and chemical reduction of a monosaccharide? Give suitable examples.
13. Explain the Somoyogi-Nelson method for estimation of total reducing sugars.
14. How can the total starch content in pectins be estimated?
15. Discuss any one chemical method for the evaluation of protein content in food.
16. Explain the chemical reaction of amino acids with ninhydrin.
17. Write the structural formulae of glycylalanine and alanyl glycine.
18. Discuss the determination of vitamin A using the HPLC method.
19. What are the structural features that cause hydrophobic interactions in proteins?
20. Explain the HPLC method of determining vitamin E.
21. Describe how disulphide bonds are formed in amino acids with an example.
22. Discuss the oxidation reactions of L-ascorbic acid with reference to the effect of pH on the same.

Part-C

Answer four questions. Each question carries ten marks.

23. Discuss the factors affecting the reactions of enzymes.
- 24a. Write the structure of pantothenic acid, mention its sources and explain its biological role.
 - b. What are emulsions? Describe a method of emulsification. (5+5)
25. Discuss the forces involved in the stability of the structure of a protein.
26. What is the mechanism of catalysis by enzymes and derive the equation for the same?
27. Explain the significance of the chemical reactions in proteins with respect to food processing. What are the changes in the physical properties as a consequence of such reactions?
- 28a. Explain the factors influencing the consistency of commercial fats.
 - b. Explain the use of enzymes in improving nutritional quality in food with suitable examples. (5+5)
