



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FOURTH SEMESTER – APRIL 2017

## FP 4806- CHEMISTRY OF FOOD ADDITIVES

Date: 20-04-2017  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

### PART A

Answer **ALL** the questions.

10 x 2 = 20 marks

1. What are glazing agents and gelling agents? Give an example for each type.
2. Mention any four factors favourable for the formation of met- myoglobin.
3. Draw the structure of noot katone and  $\beta$  – sinesal.
4. List out any three differences between dyes and lakes as colorants in food.
5. Write any four important principles of food preservation.
6. What are Scoville heat units?
7. Define artificial sweeteners.
8. List any four functions of flour improvers.
9. Classify leavening agents with suitable examples.
10. What is E numbering of food additives?

### Part B

Answer **ANY EIGHT** questions.

8 x 5 = 40 marks

11. Write a note on cis-trans isomerisation and anti-oxidative activity of carotenoids.
12. What are anti-oxidants? Give the mechanism for the interaction of anti-oxidants in lipid oxidation.
13. Explain in detail the role of sorbic acid and citric acid as a food preservative.
14. Write a note on metallo complex formation of chlorophyll.
15. Give an equation for the formation of alkyl pyrazine. Write the importance of alkyl pyrazine as a flavour producer.
16. Describe the role of volatile terpenoids as a flavoring agent.
17. Explain the Shallenberger and Acree AH/B theory for the saporous unit common to all compounds that cause a sweet sensation.
18. i.) Write the reaction involved in the development of lachrymatory effect and cooked flavor in onions. (3 marks)  
ii.) Give the structure and significance of quinine chloride in bitter taste modality. (2 marks)

19. Represent the following

- i) Reduction of glucose to sorbitol.(2 marks)
- ii) Chlorination of sucrose to sucralose (2 marks)
- iii) Structure of saccharin (1 mark)

20. Discuss the adverse effects of Aspartame in food processing.

21. i.) Differentiate between baking powder and baking soda.

ii.) For a fruit muffin application that uses baking soda at 2.5 percent of flour weight, calculate the amount of SAPP (neutralization value of 50) that needs to be added to provide leavening balance.

22. Describe the role of buffer and pH control agents in food.

### Part C

Answer ANY **FOUR** questions.

4 x 10 = 40 marks

23. a) Draw and explain the application of any four compounds that exhibit caramel-like aromas.

b) Describe the action of heat on chlorophyll colorant. (5 marks)

24. a) How do sulphites and hydrogen peroxide function as preservatives.

b) Write a note on natural preservatives. (5marks)

25. What are homo fermentative and hetero fermentative processes? Describe in detail their importance in the production of flavors.

26. a) Write a note on biosynthesis of fish food flavor.

b) Explain the causes for the discoloration of meat.

27. Explain i) Metabolism and health benefits of sugar alcohols.

(5 marks )

ii) Functions of any five sugar alcohols in the food industry.

(5 marks)

28. Discuss i) Anticaking agents as food additives.

(8 marks )

ii) FSSAI regulations on use of anticaking agents in foods.

(2 marks)

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