LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2019**

PFP 1501 – FOOD CHEMISTRY - I

Date: 30-10-2019 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

Part A

Answer all the questions. **10 x 3 =30 marks**

1. What is meant by lyophilisation? Mention any four of its applications in food industries.
2. What are enantiomers and diastereomers? Give an example for each.
3. Write two basic methods used to obtain sorption isotherm of food samples.
4. Define water activity.
5. What are gels? How are they formed in poly saccharides?
6. Give equation for the formation of dipeptide from amino acids. Mention any three important physical characteristics of peptides.
7. Why do cis fatty acids have lower melting point than trans fatty acids?
8. Define saponification value and polanski value of fatty acids.
9. What is meant by allosteric enzyme inhibition reaction?
10. Define cofactors. Mention the role of Iron-Sulfur clusters as cofactor.

Part B

Answer all questions. **5x 8= 40 marks**

11. What are digestible and non-digestible polysaccharides? Describe the application of any two non-digestible polysaccharides in food.

(OR)

Explain in detail Maillard reaction in carbohydrates with its advantages and dis advantages.

12. Write the principle, procedure, and application of iodine value determination in food.

(OR)

What are anti-oxidants? Describe any three important characteristics and mechanism of antioxidant reactivity in fatty acids.

13. Describe the role of endogenous enzymes in modifying the important characteristics of food with examples.

(OR)

State rate law and derive an expression to determine the rate of enzyme catalyzed reaction.

14. Discuss in detail the primary, secondary and tertiary structural analysis of protein molecules.

(OR)

Illustrate any four chemical modification reactions of protein molecule.

15. Define gelatinization. Mention the various stages of gelatinization and its applications in food.

(OR)

Describe any two methods used to determine water activity in food.

Part C

Answer any two questions. **2 x 15 = 30 marks**

16. a. What are carbohydrates? Explain its types with examples. **(4)**

b. Describe the oxidation and reduction reaction of monosaccharides with examples. **(7)**

c. Mention any four important applications of carboxymethyl cellulose in food industries. **(4)**

17. a. Describe the importance of molecular mobility approach in determining the storage stability of different foods. **(7)**

b. Explain the role of any four forces involved in determining the stability of protein molecules. **(8)**

18. a. Tabulate the differences between order and molecularity of a reaction. **(3)**

b. Write a note on reversible and irreversible enzyme catalyzed reaction. **(6)**

c. Discuss the role of enzymes as processing aids in baking and brewing industries. **(6)**

19. a. Discuss in detail thermally oxidisable and non-oxidisable reactions of saturated fatty acids. **(8)**

b. What are metallo enzymes? Describe its importance. **(7)**

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