



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2023 Admission
II Semester Final Examination – July 2024

Pafe.1204

Food Chemistry of Macronutrients (2+1)

Marks: 50
Time: 2 hours

I Answer the following **(10x1=10)**

1. Besides moisture content, Name a critical factor for the shelf life of a food item. Define it.
2. Define rancidity.
3. Define Peroxide value of an oil or fat.

Fill in the blanks

4. Water can absorb a lot of heat before it begins to get hot due to its high
5. Phosphatidylinositol, phosphatidylglycerol and phosphatidylserine are easily separated by..... (Name a technique)

State True or false

6. An oil that is repeatedly heated to high temperatures or used for frying will have a lower smoke point than it did when new and unused.
7. A larger saponification value indicates that the fat contains short chained or low molecular weight fatty acids.

Match the following

8. Fermentation of sugars	(i) Antioxidant
9. Food presentation by retarding catalytic oxidation	(ii) Caramelization
10. Formation of crust in bread	(iii) Zymase enzymes

II Write short notes on ANY FIVE of the following **(5x2=10)**

1. Differentiate between imbibed water and adsorbed water.
2. What is lecithin? How is lecithin useful in foods?
3. Define and distinguish simple, conjugated and derived proteins.
4. What is the correlation between moisture content and storage shelf-life of food?
5. What are emulsions? Give example of a naturally occurring emulsion.
6. Define immobilized enzymes and give an example of its application in food industry.
7. Which are the major antioxidants commercially used in foods, fats and oils?

III Answer ANY FIVE of the following **(5x4=20)**

1. What is invert sugar? Explain the process of sugar inversion.
2. List the unusual properties of water.
3. What do you understand by the functionality of food proteins? How are these depicted in the foods?
4. What are dietary fiber structurally? How are these nutritionally important?
5. Write about the different forms of Starches produced by chemical modification?
6. How is the glassy state a shelf-stable way to store a food?
7. Write about the food applications of protein concentrates.

IV **Write an essay on ANY ONE of the following**

(1x10=10)

1. Explain the difference between Non-oxidative browning reactions - Caramelization & Maillard browning and Enzymatic browning i.e. oxidation of phenolic compounds found in plant tissues. How are these phenolic compounds the subject of considerable interest due to their possible health benefits?
2. Describe the role of lipids in foods and nutrition.
