

2021

EMERGING FOOD PROCESSING TECHNOLOGIES-I; BEVERAGES AND DAIRY

Full Marks: 60

Time: Two hours

The figures in the margin indicate full marks for the questions.

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| A. Multiple Choice Questions | 1 x 20=20 |
| 1. Which one of the following non-thermal processing technologies uses electromagnetic wave? | 1 |
| a. Surface sanitization of fruits | |
| b. Irradiation | |
| c. Smoking | |
| d. Filtration | |
| 2. Most fruit juices has an organic acid content of about – | 1 |
| a. 3.5 to 4%. | |
| b. 4 to 4.5%. | |
| c. 4.5 to 5%. | |
| d. 5 to 5.5%. | |
| 3. Pectinization is not necessary in – | 1 |
| a. Apple juice. | |
| b. Coconut juice. | |
| c. Grape juice. | |
| d. Lichi juice | |
| 4. Initiated chemical vapor deposition (iCVD) technology is used in – | 1 |
| a. evaporation of fruit juice. | |
| b. clarification of fruit juice. | |
| c. deposition of nutrients in fruit juice. | |
| d. membrane processing of fruit juice. | |
| 5. Which one of the following has the highest caffeine content? | 1 |
| a. Tea | |
| b. Instant tea | |
| c. Coffee | |
| d. Instant coffee | |
| 6. Fruit juice pasteurization is done at – | 1 |
| a. 70° – 75°C for 20 sec. | |
| b. 75° – 80°C for 15 sec. | |
| c. 80° – 85°C for 10 sec. | |
| d. 85° – 90°C for 5 sec. | |
| 7. Both squash and cordial must contain at least – | 1 |
| a. 25% fruit juice. | |
| b. 20% fruit juice. | |

- c. 30% fruit juice.
d. 35% fruit juice.
8. Which one of the following membrane processing principles is **not** driven by pressure? 1
- Pervaporation
 - Osmotic distillation
 - Membrane distillation
 - All of these
9. Which one of the following enzyme is used for apple juice clarification 1
- Peroxidase
 - Amylase
 - Catalase
 - Phosphatase
10. Which one of the following is **not** achieved by ultrasonication of fruit juice? 1
- Better nutritional quality
 - Better appearance
 - Better protection against microbial spoilage
 - Reduced sedimentation in fruit juice
11. Type of fatty acid that present in higher quantities in bovine milk.
- Oleic acid
 - Palmitic acid
 - Myristic acid
 - Capric acid
12. The speed of cream separation can be decreased by
- Increase in diameter of the particle
 - Increase in velocity of the particle
 - Increase in the density between the liquid and particle phases
 - Increase in the viscosity of the liquid phase
13. The size of fat globules before homogenization-
- > 3 μm
 - < 3 μm
 - < 0.3 μm
 - < 0.03 μm
14. Which type of milk produces coagulation during the Alcohol/Alizarin Test?
- Normal milk
 - Alkaline milk
 - Acidic milk
 - None of the above
15. Which type of milk powder has been constituted with higher quantity of sugar?
- Whole milk powder
 - Skim milk powder
 - Whey powder
 - None of the above
16. Which of the following statement is not correct regarding the coagulation of casein in cheese production?
- Coagulation may be achieved by Limited proteolysis
 - Coagulation may be achieved by acidification to pH 4.6
 - Coagulation may be achieved by Acidification to pH 5.2

- d. Coagulation may be achieved by acidification to pH 5.2 and heating to 90°C
17. Minimum SNF level of any yogurt-
 - a. 7.75%
 - b. 8.0%
 - c. 8.25%
 - d. 8.5%
 18. According to BIS standards, maximum permitted level of coliforms (CFU/g)
 - a. 10
 - b. 100
 - c. 1000
 - d. 0
 19. Which of the following disinfectant agent is used in the cleaning process of dairy equipments?
 - a. Boiling water
 - b. Steam
 - c. H₂O₂
 - d. All of the above
 20. Amount of casein present in cow milk (in g/100g of milk)-
 - a. 1.46
 - b. 2.46
 - c. 3.46
 - d. 4.46
- B. Very Short Question 2*6=12
1. What is functionality of a beverage? Explain with an example. 2
 2. List an advantage and a disadvantage of dense phase carbon dioxide (DPCD) treatment of fruit juice. 2
 3. What are the reaction compounds responsible for darkening of color of fermented tea leaves? Explain with examples. 2
 4. How adulteration of milk with starch can be detected?
 5. What is major objective of milk pasteurization.
 6. Write the importance of homogenization in ice cream manufacturing process.
- C Short Question 4*7=28
1. List four major advantages of membrane processing of fruit juice compared to conventional processing technologies. 4
 2. What are the major deteriorations in fruit juice that may occur due to irradiation processing? 4
 3. What is withering of tea leaves? What is its importance in tea processing? 2 + 2
 4. What is membrane fouling? How does it pose challenges to membrane processing of beverages? 2 + 2
 5. Write short notes on lactoperoxidase system for milk preservation. 4
 6. Which is the most essential step in the cheese manufacturing? Write short notes on the same. 1+3
 7. Write the steps involved in a CIP program for circuit with pipes, tanks and other cold components. 4