

Total number of printed pages = 3

19/2nd Sem /PFET 201



2022

**EMERGING FOOD PROCESSING
TECHNOLOGIES - I : BEVERAGES AND DAIRY**

Full Marks – 100

Time – Three hours

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

Answer any *five* questions. ◊

1. (a) Briefly elaborate on ozonation as a non-thermal fruit juice processing technique. Use a schematic diagram to describe the process. 8
- (b) What is the minimum fruit juice content in
 - (i) Unsweetened fruit juice, and in
 - (ii) Sweetened fruit juice ? 2
- (c) Explain the operational steps of a UV-light treatment line for fruit juice processing using an appropriately labelled schematic diagram. 8
- (d) What is cordial ? 2

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2. (a) Describe the processing of instant coffee using a process flow-diagram. 8
- (b) Draw a schematic diagram of a spray drying unit, and label it appropriately. 5
- (c) Briefly elaborate on the importance of pectinases and cellulases in enzymatic clarification of fruit juice. 7
3. (a) Elaborate on withering, maceration and fermentation of tea leaves. Explain significance of each of these three steps in processing of black tea. 12
- (b) Write short notes on : $2 \times 4 = 8$
- (i) Dense phase carbon-dioxide processing
- (ii) Cold plasma processing of fruit juice.
4. (a) What are the four different ways of membrane fouling ? 2
- (b) How do (i) modification in membrane processing conditions and (ii) modification in membrane surface help reduce membrane fouling ? 10
- (c) Why pressure is needed to carry out reverse osmosis ? It is a commonly used membrane processing to concentrate fruit juice. Explain. $1 + 4 = 5$

- (d) What is “premiumization” of a beverage?
What is “de-creaming” in instant tea processing? 3
5. (a) Write short notes on any three types of common milk varieties. 3×2=6
- (b) Briefly discuss about the cooling methods (any two) for the safe storage of fresh milk. 2×4=8
- (c) Explain about any two methods used for checking the quality of raw milk. 2×3=6
6. (a) Define the term – Homogenization. Give details about the homogenization process of milk. 2+8=10
- (b) Explain the production process of sweetened condensed milk with suitable flow chart. 10
7. (a) Give the production flow chart for any *one* of the following product : 6
- (i) Curd (ii) Cheese.
- (b) Mention the stages followed in the cleaning of a pasteurizer in a CIP programme. 6
- (c) Briefly discuss about the concept of Decentralised CIP systems used in the milk processing industries. 8

