

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2024

Subject Code:3155103

Date:28-11-2024

Subject Name:Fruits and Vegetables Process Engineering

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) What are the advantages of minimal processing of fruits and vegetables?	03
	(b) What are the major steps involved in commercial canning	04
	(c) What is the composition of fruits and vegetables? Why are fruits and vegetables considered nutritionally important	07
Q.2	(a) Describe the structure of a fruit	03
	(b) How does cold storage help in extending the shelf life of perishable fruits and vegetables?	04
	(c) What is pre-cooling, and why is it essential in post-harvest technology? What are the common methods of pre-cooling?	07
OR		
	(c) What are the advantages and disadvantages of steam and water blanching? Also write the difference between them.	07
Q.3	(a) Explain the gas composition typically used in controlled atmosphere packaging for fruits	03
	(b) What is post-harvest technology and why is it important for fruits and vegetables	04
	(c) What is the best time for harvesting fruits and vegetables to maintain their quality? What are some traditional methods of preserving fruits and vegetables?	07
OR		
Q.3	(a) What are the safety concerns associated with using irradiation for food preservation?	03
	(b) Explain blanching and its purpose in fruit and vegetable processing.	04
	(c) What is the difference between modified atmosphere packaging (MAP) and controlled atmosphere packaging (CAP)?	07
Q.4	(a) How can osmotic dehydration improve the sensory qualities of dried fruits?	03
	(b) What are the major causes of post-harvest losses in fruits and vegetables?	04

- (c) What are intermediate moisture foods (IMF), and how do they differ from fully dehydrated or high-moisture foods? **07**
- OR**
- Q.4** (a) How do FPO standards help consumers in making informed choices about fruit and vegetable products **03**
- (b) Discuss the advantages of microwave heating over conventional heating in food processing. **04**
- (c) What is high-pressure processing (HPP)? Explain the key advantages of HPP over traditional thermal processing techniques **07**
- Q.5** (a) Discuss the limitations of radiation preservation of fruits and vegetables. **03**
- (b) Explain the role of a sensory panel in the evaluation of food products. **04**
- (c) Define ohmic heating. What are the advantages of using ohmic heating compared to conventional heating methods in food processing? **07**
- OR**
- Q.5** (a) What are the benefits of using controlled atmosphere storage over conventional cold storage? **03**
- (b) What are the different methods of dehydration used in preserving fruits and vegetables? **04**
- (c) Explain the principle of freeze drying? How does freeze drying differ from conventional drying methods? **07**
