

SUGGESTIVE QUESTION BANK

B. Voc. in Food Processing

Semester – III

FRUITS AND VEGETABLE PROCESSING TECHNOLOGY (BVFPS303T)

UNIT-I

Fruits and vegetables as living products: Current status of production and processing of fruits and vegetables, Composition and nutritive value of fruits and vegetables; spoilage of fruits and vegetables. Pre-packaging of fresh fruits and vegetables. Storage techniques for fresh fruits and vegetables. Primary processing: grading, sorting, cleaning, washing, peeling, slicing and blanching, Maturity standards for storage and desirable characteristics of fruits and vegetables for processing, Supply chain management of Fruits and vegetables. Pre-cooling, Concept of evaporating cooling, conditions for transportation and storage.

1. What is the current status of production and processing of fruits and vegetables as living products?(4)
2. What is the composition and nutritive value of different fruits and vegetables?(4)
3. How do fruits and vegetables spoil, and what factors contribute to their spoilage?(1+2)
4. What are the techniques used for pre-packaging fresh fruits and vegetables?(3)
5. What storage techniques are commonly used for preserving the freshness of fruits and vegetables?(3)
6. What are the primary processing steps involved in handling fruits and vegetables, such as grading, sorting, cleaning, washing, peeling, slicing, and blanching?(5)
7. What are the maturity standards for storage of fruits and vegetables, and what are the desirable characteristics of fruits and vegetables for processing?(5)
8. How is the supply chain management of fruits and vegetables organized, from production to consumption?(4)
9. What is pre-cooling, and how does it help in preserving the quality of fruits and vegetables?(5)
10. What is the concept of evaporative cooling, and how can it be applied to transportation and storage of fruits and vegetables?(4)
11. What are the optimal conditions required for transportation and storage of fruits and vegetables to maintain their quality?(2)
12. What are the best practices for handling and managing post-harvest losses in fruits and vegetables?(4)
13. How can the quality and shelf life of fruits and vegetables be extended through innovative packaging and storage techniques?(5)

14. Are there any emerging technologies or trends in the production, processing, or storage of fruits and vegetables that can enhance their quality and reduce waste?(5)
15. What are the safety considerations and regulations associated with the production and processing of fruits and vegetables?

UNIT-II

Introduction to dehydration techniques of Fruits and Vegetables: Tray drying, vacuum drying, foam mat drying, fluidized bed drying. Spray drying, freeze drying, microwave drying, heat pump drying, osmotic dehydration. Technology of dry nuts. Physical and chemical changes in food during drying and dehydration. Quality of dried products.

- 1 What are the different dehydration techniques used for fruits and vegetables, such as tray drying, vacuum drying, foam mat drying, fluidized bed drying, spray drying, freeze drying, microwave drying, heat pump drying, and osmotic dehydration?(10)
- 2 How does tray drying work, and what are its advantages and limitations in the dehydration of fruits and vegetables? (2)
- 3 What is vacuum drying, and how is it applied to remove moisture from fruits and vegetables? (2)
- 4 How does foam mat drying differ from other dehydration methods, and what are its benefits in preserving the quality of fruits and vegetables? (3)
- 5 What is fluidized bed drying, and how is it used for efficient dehydration of fruits and vegetables? (2)
- 6 How does spray drying work, and what are its applications and challenges in dehydrating fruits and vegetables? (3)
- 7 What is freeze drying, and how does it help in preserving the nutritional quality of fruits and vegetables during dehydration? (2)
- 8 What are the principles and techniques involved in microwave drying of fruits and vegetables? (3)
- 9 How is heat pump drying used for efficient dehydration of fruits and vegetables, and what are its advantages? (3)
- 10 What is osmotic dehydration, and how is it applied to remove moisture from fruits and vegetables while maintaining their structure and flavor? (3)
- 11 How is the technology of drying nuts different from drying fruits and vegetables, and what specific techniques are used? (3)
- 12 What physical and chemical changes occur in food during the drying and dehydration process? (2)
- 13 How do these changes in food affect the quality, nutritional value, and sensory attributes of dried fruits and vegetables? (3)
- 14 What are the key factors that influence the quality of dried products, such as moisture content, color, texture, and flavor? (3)

- 15 What are the best practices for ensuring the quality and safety of dried fruits and vegetables during processing and storage? (3)
- 16 What are the key quality parameters to consider when evaluating the quality of dehydrated fruits and vegetables?
- 17 How does tray drying compare to other dehydration methods in terms of product quality and energy efficiency?
- 18 What are the physical and chemical changes that occur in fruits and vegetables during the drying process, and how do these changes affect the final product's quality?
- 19 Can you explain the technology and equipment used for drying nuts, and how does it differ from drying fruits and vegetables?
- 20 How does osmotic dehydration contribute to the quality improvement of dehydrated products, and what are the factors that influence its effectiveness?
- 21 What role does water activity (A_w) play in determining the shelf life and quality of dried food products?
- 22 How does the choice of dehydration method impact the retention of nutrients in dehydrated fruits and vegetables?
- 23 What are some common challenges in maintaining the color, flavor, and texture of dried fruits and vegetables, and how can they be addressed?
- 24 Could you explain the differences in quality between spray drying and freeze drying methods for dehydrating food products?
- 25 How do different drying techniques affect the rehydration properties of dehydrated fruits and vegetables, and what implications does this have for their culinary use?

UNIT-III

Principles of Thermal processing- review. Process of blanching, Canning and bottling, Effect of canning and bottling on nutritive value, spoilage of canned foods, detection and control. UHT processing: Aseptic processing and packaging.

1. What are the principles underlying thermal processing in food preservation? (2)
2. What is the process of blanching, and how does it contribute to food preservation? (2+2)
3. What are the steps involved in canning and bottling as a thermal processing method for food preservation? (3)
4. How does the canning and bottling process impact the nutritive value of foods? (4)
5. What are the effects of canning and bottling on the nutritive value of foods? (4)
6. What are the common causes of spoilage in canned foods, and how can they be detected and controlled? (6)
7. How can spoilage in canned foods be detected and controlled? (5)
8. What are the methods used for detecting spoilage in canned foods? (5)
9. How can spoilage in canned foods be prevented or minimized? (5)
10. What is UHT (Ultra-High Temperature) processing, and how does it contribute to food preservation? (10)

11. What are the key factors to consider for successful implementation of UHT processing and aseptic packaging? (2)
12. What are the safety considerations and regulations associated with thermal processing methods, such as canning, bottling, UHT processing, and aseptic packaging?(5)
13. Are there any emerging technologies or advancements in thermal processing methods that enhance food preservation and quality?(5)
14. What are the best practices for ensuring the quality and shelf life of thermally processed foods?(5)
15. How can manufacturers optimize thermal processing techniques to minimize energy consumption and environmental impact?(5)

UNIT-IV

Juice extraction and clarification, preparation of syrups, and chemical preservation Products processing: squashes, cordials, nectars. Principle of jel formation - Jam, jelly, marmalade and defects in manufacturing, fortified fruit drinks, Candies; chutneys; fruit juice concentrates and powders; Tomato product: sauce and ketchup, Cut fruits and vegetable, fruit toffee,

1. What are the different methods used for juice extraction from fruits and vegetables, and how do they differ in terms of efficiency and quality of the juice?(5)
2. How is clarification of juice achieved, and what techniques are commonly used to remove impurities and improve the clarity of fruit and vegetable juices?(5)
3. What is the process involved in the preparation of syrups, and how are they used in the production of fruit-based beverages?(5)
4. How are squashes, cordials, and nectars produced, and what are the key differences between these fruit-based products?(6+4)
5. What are the principles behind the formation of jams, jellies, and marmalades, and what are some common defects encountered during their manufacturing process?(10)
6. What are fortified fruit drinks, and how are they formulated to enhance their nutritional value?(5)
7. What are the techniques used in the production of candies using fruits and vegetables, and how do these differ from traditional candy-making processes?(5)
8. How are chutneys prepared, and what are the key ingredients and flavor profiles associated with these condiments?(5)
9. What is the process involved in the production of fruit juice concentrates and powders, and how are they used in various food and beverage applications?(5)
10. How are tomato products like sauce and ketchup manufactured, and what are the key ingredients and processing steps involved?(10)
11. What are the challenges and considerations involved in processing cut fruits and vegetables to maintain their quality and shelf life?(5)

12. How are fruit toffees produced, and what are the key ingredients and methods used in their manufacturing process? (10)

UNIT-V

Preservation by fermentation- Definition, Advantages, disadvantages, Types of fermentation, equipments. Pickles making and Vinegar; Fruit wine. Irradiation applications for fruits and Vegetable. Minimally processed fruits and vegetables, Emerging technologies for fruits and vegetables processing technologies: Hurdle technology, Ozone application and ultrasound.

1. What is preservation by fermentation, and what are its advantages and disadvantages compared to other preservation methods?(5)
2. What are the different types of fermentation used in the preservation of fruits and vegetables, and how do they differ in terms of process and end products?(5+5)
3. What are the essential equipments used in fermentation processes for fruits and vegetables?(2)
4. How are pickles made through fermentation, and what are the key ingredients and steps involved in the pickling process?(10)
5. What is the role of vinegar in food preservation, and how is it produced from fruits or other fermentation sources?(5)
6. What is fruit wine, and how is it made through the fermentation of fruits? What are the key factors that influence the quality of fruit wine?(4)
7. How is irradiation used as a preservation method for fruits and vegetables, and what are the applications and benefits of this technology?(5)
8. What are minimally processed fruits and vegetables, and how are they processed and packaged to maintain their freshness and nutritional value?(2+3)
9. What are the emerging technologies used in the processing of fruits and vegetables, such as hurdle technology, ozone application, and ultrasound? How do these technologies enhance preservation and quality?(10)
10. How does hurdle technology work in preserving fruits and vegetables, and what are the key factors and techniques involved?(5)
11. What are the applications and benefits of ozone in fruits and vegetable processing, and how does it contribute to extended shelf life and safety?(5)
12. How is ultrasound used in the processing of fruits and vegetables, and what are the effects and advantages of ultrasound technology in food preservation?(4+4)