

**Course name: Postharvest Management and Value Addition of Fruits and Vegetables**

**Course code: [ASHO3205] (1+1+0)**

### **Question Bank**

Short answer questions

1. What do you mean by IMF. Write brief notes on IMF with an example.
2. Write short notes on shade drying
3. Describe in short tunnel drier.
4. Define harvest and physiological maturity.
5. Write short notes on curing of bulbs and root vegetables.
6. What is the difference between sorting and grading in postharvest handling?
7. Write the importance of postharvest handling of horticultural produce briefly.
8. Briefly explain climacteric and non-climacteric fruits. Give two examples.
9. What is pulsing and how it differs from vase solution. What are the biocides used in vase solution.
10. Write the maturity indices for tomato.
11. What is physiological maturity and horticultural maturity?
12. Describe in short pre-packaging.
13. Define harvest. What may be the possible advantage of hand harvesting over mechanical harvesting?
14. Write prerequisites for Nectar.
15. Brief notes on deaeration.
16. Main difference between clarification and filtration.
17. Brief notes on juice extraction.
18. Buckling
19. Preservation by acids
20. Preservation by drying
21. Write brief notes on Hot pack or Hot fill.
22. Give the flow chart for preparation of canning process.
23. Vanaja, while chit chatting with her friends packed prepared marmalade in tin containers instead of glass bottles. What may be the possible problem that she will encounter during storage. Suggest remedies to overcome the odds.

24. Sreenija, was writing record while preparing jelly and forgot to switch off the stove. After twenty minutes, Sailaja came from meeting and ended the jelly preparation. Is the finished product will be of high quality? If not, write the setbacks.
25. Bheemesh, Prashanth and Charan were preparing jelly. They got disturbed, while watching outside from the kitchen grill. Bheemesh used immature fruits instead of firm ripe fruits. Prashanth forgot removal of scum. Charan poured jelly faultily. Name the problems for each mistakes they did by giving remedies.

#### Long answer questions

1. Explain in detail ethylene biosynthesis with the help of neat sketch. How artificial ripening helps marketability of mature harvested fruits?
2. Explain in detail computational methods for judging maturity indices by giving suitable examples?
3. Describe any five physico-chemical changes that occur during ripening and senescence of horticultural produce.
4. Describe any two computational methods and any three chemical methods employed to judge different fruits and vegetables.
5. Write in detail any five pre-harvest factors that influence postharvest quality of horticultural produce.
6. Pramod wants to establish a canning industry. What are the important considerations do you suggest him for setting up of fruit or vegetable cannery?
7. Describe different types of swells in detail.
8. Write in detail about wine preparation with the help of flow diagram.
9. Describe jelly preparation with the help of flow chart.
10. Describe different methods of peeling by giving an example.

#### Objective questions

1. Exposure of potatoes to \_\_\_\_\_ results in greening of the tubers [     ]
  - a) Ethylene
  - b) Temperature
  - c) Light
  - d) Carbon dioxide
2. The rate of deterioration of horticultural produce is very high if [     ]
  - a) Low temp& high RH
  - b) Low temp& low RH
  - c) High temp& high RH
  - d) High temp& low RH

3. The volatile compounds produced during ripening of fruits imparts [    ]  
a) Flavour b) Colour  
c) Texture d) Taste
4. The instrument used to measure harvest maturity in peas is [    ]  
a) Penetrometer b) Hygrometer  
c) Refractometer d) Tenderometer
5. Which of the following has high ascorbic acid content [    ]  
a) Grapes b) Strawberry  
c) Papaya d) Citrus
6. For every 10<sup>0</sup>C rise in temperature the rate of respiration [    ]  
a) Halves b) Doubles  
c) becomes 10 folds d) Remains same
7. Most efficient method of cooling used for almost all fruits and vegetables [    ]  
a) Hydro cooling b) Vacuum cooling  
c) Forced air cooling d) Evaporative cooling
8. Mechanical harvesting is best suitable for [    ]  
a) Okra b) Brinjal  
c) Potato d) Tomato
9. The fruit that is rich in pectin and acid is [    ]  
a. Grape fruit b. Pineapple c. Strawberry d. Jamun
10. The preservative used for coloured fruit juices is [    ]  
a. KMS b. Sodium benzoate c. Citric acid d. all
11. Maximum amount of sulphur dioxide allowed in fruit juices is [    ]  
a. 100 ppm b. 350 ppm c. 700 ppm d. 900 ppm
13. The time of exhausting varies from [    ]  
a. 1-5 min b. 6-10 min c. 1-5 sec d. 6-10 sec.
14. \_\_\_\_\_ concentration of salt is sufficient to preserve processed products. [    ]  
a. 2 % b. 5% c. 10 % d. 17%
15. Which of the following is primary preservative [    ]  
a. Salt b. KMS c. Sodium benzoate d. all the above
16. Toughening effect on peas and beans is due to salts of [    ]  
a. sodium b. selenium c. calcium b. copper
17. Which of the following is not fit for consumption (reference to canned product) [    ]  
a. Hydrogen swell b. Flipper c. Flat Sour d. All the above
18. Stack burning can be prevented by [    ]

- a. Over filling      b. Excess exhausting      c. Heating      d. Cooling

19. Which of the following is climacteric fruit
- a) Grape
  - b) Sweet orange
  - c) Pineapple
  - d) Banana
20. The volatile compounds produced during ripening of fruits imparts
- a) Flavour
  - b) Colour
  - c) Texture
  - d) Taste
21. The physical damage of produce due to dropping or hitting is
- a) Compression
  - b) Impact
  - c) Cut
  - d) Vibration
22. Osmotic dehydration of fruits is done in
- a) Sugar solution
  - b) KMS solution
  - c) Caustic soda solution
  - d) Hydrated lime
23. Which of the following is fermented fruit beverage
- a) Crush
  - b) Squash
  - c) RTS
  - d) Cider
24. Hypobaric storage is known as
- a) Low humidity storage
  - b) Low light intensity storage

- c) High temperature storage  
d) Low pressure storage
25. Waxing reduces
- a) Shinning of fruit  
b) Moisture loss from fruit  
c) Shelf life of fruit  
d) Microbial load
26. Jelly contains \_\_\_\_\_% of sugar
- a) 33  
b) 10  
c) 65  
d) 78
27. A fruit impregnated with cane sugar and glucose, and subsequently drained and dried, is called a \_\_\_\_\_
- a) Artificial fruit  
b) Fruit syrup  
c) Damaged fruit  
d) Candied fruit
28. The preservative used for coloured fruit juices is
- a) Sodium benzoate  
b) Streptomycin  
c) Potassium metabisulphite  
d) Sodium hypochlorite
29. An example for intermediate moisture food is
- a) Wine  
b) Raisin  
c) Marmalade  
d) Juice
30. Blanching is also known as
- a) Parboiling  
b) Scalding  
c) Precooking

31. d) All the above  
Stack burning can be prevented by
- a) Over filling  
b) Excess exhausting  
c) Cooling  
d) Heating
32. Ethylene absorbent is
- a) Iron oxide  
b) Calcium Hydroxide  
c)  $\text{KMnO}_4$   
d) Silica gel
33. Chemical used in lye peeling
- a) Sodium hypochlorite  
b) Sodium hydroxide  
c) Sodium chloride  
d) Potassium chloride
34. HTST is a ..... method
- a) Storage  
b) Packaging  
c) Sterilization  
d) Pasteurization
35. .... is a class 1 preservative.
- a) Ascorbic acid  
b) Salts of sulphuric acid  
c) Benzoic acid  
d) Lactic acid
36. Blanching is done to .....
- a) Prevent the self decomposition  
b) Prevent the microbial decomposition  
c) Prevent damage by insects or animals  
d) Prevent damage by storage pest
37. Brown rot is caused by the fungus.....
- a) *Monilinia fructicola*  
b) *Colletotrichum lagenarium*  
c) *Sclerotinia trifoliorum*  
d) *Botrytis cinerea*
38. Chilling injury is more common in fruits which are of

- ..... in origin
- a) Only Tropical
  - b) Only Temperate
  - c) Only Sub-tropical
  - d) Both Tropical and sub-tropical
39. Refrigeration storage temperature is.....
- a) about 15<sup>o</sup>C
  - b) 0<sup>o</sup> C to 5<sup>o</sup>C
  - c) Below 0<sup>o</sup>C
  - d) 18<sup>o</sup>C to 25<sup>o</sup>C
40. The goal of the canning process is to .....
- a) Prevent pest
  - b) Ensure fermentation
  - c) Prevent recontamination
  - d) Prevent moisture loss
41. The concentration of ..... salt is used for the preparation of pickles
- a) 10-15%
  - b) 15-20%
  - c) 5-10%
  - d) 25-35-%
42. Modified atmosphere storage is done by maintaining the concentration of ..... at the desired level
- a) CO<sub>2</sub> only
  - b) C<sub>2</sub>H<sub>4</sub> only
  - c) O<sub>2</sub> only
  - d) Both CO<sub>2</sub> and O<sub>2</sub>
43. Sprouting of potato and onion can be checked by .....
- a) Precooling
  - b) Use of food additive
  - c) Irradiation
  - d) Canning
44. Fruits and vegetables are classified to climacteric and non climacteric based on .....
- a) CO<sub>2</sub>
  - b) Both CO<sub>2</sub> and O<sub>2</sub>
  - c) O<sub>2</sub>
  - d) C<sub>2</sub>H<sub>4</sub>
45. .... is used for the formation of curd from milk.
- a) Acetic acid
  - b) Citric acid

- c) Lactic acid
  - d) Ascorbic acid
46. Canning provides maximum shelf life typically ranging from .....
- a) 6-8 months
  - b) 8-12 months
  - c) 1-2 years
  - d) 1-5 years
47. In acid foods that are canned, pH ranges from .....
- a) 5.0-6.8
  - b) 3.7-4.5
  - c) 2.3-3.7
  - d) 2.0-2.3
48. Wine is a .....
- a) Distilled beverage
  - b) Compound beverage
  - c) Fermented beverage
  - d) Refreshing beverage