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Question Paper Code: UA103

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Professional Elective

Agricultural Engineering

21AGV103 – PROCESS ENGINEERING OF FRUITS AND VEGETABLES

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which gas is commonly used in controlled atmosphere storage of fruits and vegetables CO1-U
(a) Hydrogen (b) Carbon dioxide (c) Nitrogen (d) Oxygen
2. Which state is the largest producer of fruits in India CO1-U
(a) Maharashtra (b) Madhya Pradesh (c) Andhra Pradesh (d) Tamil Nadu
3. What is the purpose of blanching in fruit and vegetable processing CO1-U
(a) Enhance flavor (b) Inactivate enzymes
(c) Increase vitamin content (d) Improve texture
4. What is the most significant effect of chilling CO1-U
(a) Solidification of fats (b) Solidification of proteins
(c) Denaturation of proteins (d) Denaturation of fats
5. Which of the following is not the chilling injury symptom CO1-U
(a) Skin pitting (b) Water-soaking (c) De-greening (d) Cuts
6. Which fruit undergoes the chilling injury CO1-U
(a) Apple (b) Orange (c) Banana (d) Custard apple
7. How many days can food be stored in cold storage CO1-U
(a) 1 day (b) Up to 15 days (c) Up to 30 days (d) Up to 365 days

8. Which one of the following is the oldest method of storing fruits? CO1-U
 (a) Drying (b) Canning (c) CAS (d) Irradiation
9. Which one is the correct range of moisture levels in the Intermediate Moisture Foods CO1-U
 (a) 10-15% (b) 60-70% (c) 20-50% (d) 70-75%
10. Which of the following fruit that cannot be dehydrated CO1-U
 (a) Banana (b) Avocados (c) Cherries (d) Berries

PART – B (5 x 2= 10 Marks)

11. Suggest any four preservation method for tomato products. CO1-U
12. Difference between cleaning and grading. CO1-U
13. Give shorts notes on trimming and peeling CO1-U
14. Explain about Interpret abrasive peeling. CO1-U
15. Write shorts notes about blanching CO1-U

PART – C (5 x 16= 80 Marks)

16. (a) Explain about preparation of frozen fruits and vegetable and also give proper processing flow chart. CO1-U (16)
 Or
 (b) Explain about the pesticide application techniques of fruit and vegetable crops. CO1-U (16)
17. (a) Illustrate the design and preparation of canning process flow chart for fruit and vegetables. CO3-App (16)
 Or
 (b) Given the rise in demand for organic produce, how could hermetic storage technology be used to preserve the quality and safety of organic fruits and vegetables during long-term storage? CO3-App (16)
18. (a) How would you design an eco-friendly packaging solution for a new line of organic snacks, considering both sustainability and preservation requirements? CO4-App (16)
 Or
 (b) How would you adjust the drying process for different types of fruits, such as apples and grapes, to achieve optimal texture and flavor preservation? CO4-App (16)

19. (a) Describe the complete method for commercial manufacture of strawberry jam, how much fruit, sugar and additives required making one ton of jam CO2-App (16)

Or

- (b) If you were tasked with designing a new filling liquor for a canned vegetable product, how would you determine the appropriate concentration of sugar and other ingredients to achieve both flavor balance and preservation? CO2-App (16)

20. (a) How would you design a production line for making fermented fruit juice and beverages, ensuring both quality and food safety standards are met? CO3-App (16)

Or

- (b) How would you design a production line for making pickles, ensuring both quality and food safety standards are met? CO3-App (16)

