B. Tech.
(SEM. VI) EXAMINATION. 2006-07
POST HARVEST ENGINEERING OF
HORTICULTURAL CROPS

Time : 3 Hours] [Total Marks : 100

Notes : (1) Attempt all questions.
(2) All questions carry equal marks.
(3) In case of numerical problems assume data wherever not provided.
(4) Be precise in your answer.

1. Attempt any two parts of the following : 10×2=20

(a) Describe harvest maturity process of maturation and compare maturity vs. quality in fruits.

(b) Define shelf life of fruits and discuss post harvest practices to increase shelf life of fruits.

(c) Write factors, which predominantly affect the post harvest physiology of fruits in orchards during harvesting packaging, storage and transit.
2. Attempt any **two** parts of the following: \[10 \times 2 = 20\]
   (a) Describe methods of grading and advantages of grading in fruits and vegetables.
   (b) Sketch a layout plan of packaging line equipments for export of mango or oranges. Relate unit operations such as washing, shorting, grading, waxing, dehydration and packaging etc. with quality aspect of fruits.
   (c) Discuss the function and utility of peeler, slicer and cube cutter in pickle industry.

3. Attempt any **four** parts of the following: \[5 \times 4 = 20\]
   (a) Discuss modified atmosphere (MA) and controlled atmosphere (CA) storage and its usefulness in storage of fruits.
   (b) Discuss utility of pre-cooling and refrigerated storage in tropical and subtropical fruits.
   (c) Define bruising and enlist the suitability and hazards to the following modes of transport of fruits and vegetables.
       - Road       - Trucks
       - Rail       - Goods train
       - Sea        - Ship
       - Air        - Cargo
       - Refrigerated van
   (d) What are the advantages of freeze drying over thermal drying?
   (e) Explain the principles of microwave drying.
   (f) Discuss the functioning of solar cabinet driers and merit over open yard sun drying.
4. Attempt any four parts of the following: \[5 \times 4 = 20\]
   
   (a) Give flow chart of canning of pineapple slices.
   
   (b) With the help of flow chart, show manufacture of raw mango powder.
   
   (c) Through flow chart, show process of apple preserve.
   
   (d) With the help of flow chart, show processing of four fold orange concentrates.
   
   (e) Give flow chart for manufacturing of Guava Jelly.
   
   (f) Give flow chart for processing of Donla candy.

5. Attempt any four parts of the following: \[5 \times 4 = 20\]
   
   (a) State the specifications of FPO for preparation of tomato ketchup.
   
   (b) What are FPO requirements for installation of a small scale food processing industry?
   
   (c) Discuss hedonic scale method of sensory evaluation of products.
   
   (d) Write WTO agreement and discuss HACCP steps for quality control of mango beverages.
   
   (e) Discuss the methods to determine vitamin C (ascorbic acid) in guava juice.
   
   (f) Discuss aseptic packaging process for packaging of RTS.