**53 (FPT 401) FPTC-I**

**2015**

# FOOD PRODUCT TECHNOLOGY–I

Paper : FPT 401

***(Fruits and Vegetables)***

*Full Marks : 100*

Time : Three hours

***The figures in the margin indicate full marks for the questions.***

*Answer **any five** questions.*

1. *(a)* Answer the following : 4×1=4

*(i)* Which is a climacteric fruit ?

*(a)* Grapes

*(b)* Mango

*(c)* Orange

*(d)* Pomegranate

(ii) Which is a non-climacteric fruit?

(a) Kiwi

(b) Mango

(c) Lemon

(d) Banana

(iii) Which is a maturity index?

(a) Color

(b) Shape

(c) juice content

(d) all

(iv) Type of package used in the transportation fruits and vegetables.

(a) Tetra packs

(b) Glass containers

(c) Wooden boxes

(d) Aluminium cans

(b) Match the following : 4×1=4

| | Perishability | Shelf life |
|---|---|---|
| (i) | Highly perishable | 1-2 months |
| (ii) | Perishable | 2-3 weeks |
| (iii) | Moderately perishable | 1 week |
| (iv) | Less perishable | 1-2 days |

(c) (i) Differentiate climacteric and non-climacteric fruits. 4

(ii) What are all the different stages in the maturity of fruits ? 3

(ii) Write about the biochemical reactions happen during maturation. 5

2. (a) Define Maturity Index. Write in detail about the types of maturity indexes used during the harvesting of fruits and vegetables. 2+12

(b) Explain the various cooling methods used for the shelf life extension of fruits and vegetables. 6

3. (a) Explain the following :

(i) Water activity concept with the graph 5+2

(ii) ERH 3

(iii) IMF Foods 6

(b) Match the following : 4×1=4

| | Reaction | Water activity |
|---|---|---|
| (i) | Bacteria | 0·75-0·85 |
| (ii) | Yeast | 0·80-0·99 |
| (iii) | Mold | 0·30-0·70 |
| (iv) | Enzyme | 0·70-0·80 |

4. (a) Give *two* examples for each of the additives or chemicals used in fruits, based on their mode of action 5×2=10

(i) pH reduction

(ii) Water activity reduction

(iii) Browning

(iv) Reducing microbial activity

(v) Natural preservatives.

(b) What do you mean by CAP ? Write down the factors to be considered during the storage of fruits and vegetables in CAP. Explain about the design consideration for the CAP facility. 2+2+6

5. (a) Explain about the quality checks performed during the reception of fruits and vegetables in the industries. 7

(b) Explain about the pretreatment steps in the processing of fruits. 7

(c) Draw the flow chart showing the various stages in the processing of juices. 6

6. (a) Explain the process of making Jam, Jellies and Marmalades with suitable flow chart. 8

(b) List out the common faults during the process of Jam making along with the preventive measures to avoid those faults. 5

(c) Give short notes on the processing of pickles with suitable flow chart. 7

7. (a) Draw the flow chart showing the various steps in the processing of cashew nuts. 10

(b) Explain the various stages in the processing of coffee beans. 10