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53 (FPT 401) FPTC I

2014

FOOD PRODUCT TECHNOLOGY-I

(Fruits & Vegetables)

Paper : FPT 401

Full Marks : 100

Time : Three hours

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

Answer any five questions.

1. (a) Write a short note on Indian Scenario of fruits and vegetables processing in India. 5
- (b) Define nutrients. How nutrients can be classified ? Discuss *any four* energy producing nutrients. 1+1+8
- (c) (i) Define post-harvest loss of fruits and vegetables.

Contd.

- (ii) What are the different types of gases used in MAP ?
- (iii) Name *two* food poisoning bacteria.
- (iv) What is the range of *pH* of apple ?
- (v) What is the recommended dietary intake allowance for proteins ? 1×5
2. (a) Define fruits. Explain the structure and classification of fruits with examples. 1+3+6
- (b) What are the primary causes for post-harvest losses of fruits and vegetables ? 6
- (c) How low temperature storage can control post-harvest losses ? 4
3. (a) What are the different intrinsic factors affecting the microbial growth in a contaminated food ? Explain. 10
- (b) What is food preservation ? What are the different principles of food preservation of processed foods ? 1+4

- (c) What is the difference between pasteurization and sterilization ? What are the different methods of pasteurization ? 2+3
4. (a) (i) What is the strength of TSS in final food preserve ? 1
- (ii) What is the final concentration of sugar in food preserve in rapid process ? 1
- (iii) Why quick cooling of product necessary in vacuum process ? 1
- (iv) Give example of *two* pectin rich fruits. 1
- (v) In which part of plant, pectin is present ? 1
- (b) Discuss the different modes of fruit spoilage and factors responsible for spoilage. 8
- (c) Explain *any two* conventional techniques for determination of microbial load in fruits and vegetables. 6
- (d) The rate of precipitation of pectin depends on _____ of mixture. 1

5. (a) Explain the typical freezing curves of foods at different rates and also discuss the ice-crystal formation in plant tissue. 10

(b) Mention the blanching parameters for the following vegetables. 5

(i) Peas

(ii) Green beans

(iii) Cauliflower

(iv) Carrot

(v) Peppers.

(c) (i) Name any preservatives used in food preserve. 1

(ii) What is the blanching temperature of carrots ? 1

(iii) What is KMS ? 1

(iv) Name any heat resistant enzyme present in food. 1

(v) What is the pectin level that is used as additives. 1

6. (a) Define CAP and MAP. Discuss about the different gases used for MAP with its individual role in MAP. 2+8

(b) What is the role of ionization radiation and waxing in controlling post-harvest loss.

2×5

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7. (a) How a fermented product can be processed? Explain. Name some products and explain with a specific product formulation. 8

GY-I

(b) What are the role of blanching and storage in fresh vegetables processing? 4

(c) What are the differences between jam and jelly? How presence of pectin can be determined? What are the different problems in jam making. 8

marks