53 (FPT 302) PFPR

2019

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Paper : FPT 302

Full Marks : 100

Time : Three hours

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

Answer ***any five*** *questions out of* ***six.***

1. *(a)* Explain the principles of food preservation by inhibition, inactivation and prevention of recontamination. Use *two* examples for each of the three types of principles. 6

   (b) Explain what is "hurdle technology"? Discuss the hurdles applied to preserve the foods like —

   (i) Meat sausage

   (ii) Yoghurt

   (iii) Canned Vegetables. 8

Contd.

(c) Define "pasteurization" and give a common example of food pasteurization. 2

(d) Discuss *four* major sanitization treatments for freshly harvested fruits and vegetables. 4

2. Write short notes on ***any four*** of the following non-thermal food preservation technologies — Use Schematic diagrams to improve your answers. 4×5

(i) High pressure processing

(ii) Ultrasonication

(iii) Pulsed Electric field

(iv) Ultrafiltration

(v) Application of magnetic field.

3. (a) Elaborate on effects of High Pressure Processing (HPP) on food quality. 10

(b) Define Water activity. How water activity is controlled in the following food products to achieve their preservation? 10

(i) Milk powder

(ii) Jam

(iii) Ice cream

(iv) Sweetened condensed milk.

4. (a) How does irradiation work effectively in preserving food? Define *three* different levels of dosages applied in food preservation and give examples of what kind of preservation is achieved by each of these different dosages. 3+7

(b) Define D-value. Derive the mathematical formula for D-value. 2+6

(c) Explain the purpose of exhausting in canning of food. 2

5. (a) Briefly describe a continuous hydrostatic retort with an appropriate schematic diagram. 10

Contd.

(b) Explain how solar tent dryer improves drying rate compared to traditional solar/sun drying. 4

(c) Drying food leads to what kind of changes in proteins, lipids and structure of food? 6

6. (a) What are the different ways by which osmotic dehydration of food is done? Use appropriate examples. What are the factors affecting osmotic dehydration of food? 6+6

(b) What is Cryogenic freezing? Explain why it is advantageous compared to traditional food freezing technologies. 4

(c) Write short notes on ***any two*** of the following deteriorations that occur in food during food freezing : 4

(i) Freezer Burn

(ii) Protein Denaturation

(iii) Reduction in water holding capacity.