Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech (FT-OLD)/SEM-4/FT-402/2013

2013

PRINCIPLES OF FOOD PRESERVATION

Time Allotted : 3 Hours *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   i) Canning preserves the food by
      a) reducing the a_w
      b) use of preservatives
      c) thermal destruction of micro-organisms
      d) storage at low temperature.

   ii) Rate of dehydration increases by
      a) increasing the surface area
      b) reducing the RH of the heating medium
      c) increased air flow
      d) all of these.

   iii) Food held under refrigeration
      a) cannot spoil
      b) can spoil due to growth of micro-organisms
      c) can spoil due to oxidative changes
      d) can spoil by enzymes.

iv) In freezing, the water content of the food material
   a) decreases
   b) increases
   c) remains constant
   d) increases in the first phase then decreases.

v) The curing of meat is done for
   a) improvement of colour
   b) preservation
   c) both (a) & (b)
   d) none of these.

vi) Cold sterilization is done by
   a) removal of heat
   b) fermentation
   c) freezing
   d) irradiation.

vii) The controlling factor for fermentative preservation is
   a) level of acid b) temperature
   c) level of O_2 d) all of these.

viii) Irradiation of food is done by
   a) *X*-rays b) Gamma rays
   c) UV rays d) All of these.

ix) O_2 is used for
   a) controlling growth of micro-organisms
   b) preventing browning
   c) preventing oxidation
   d) all of these.

x) In case of flat souring of a canned food
   a) bulging occurs at one end
   b) corrosion can occur
   c) bulging occurs at both ends
   d) no visible sign of spoilage occurs.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What kind of changes occur during freezing of fish ?
3. What type of changes that occur during dehydration of fruits ?
4. During irradiation of vegetables, what kind of changes occur which affect preservation ?
5. Write notes on changes that occur during fermentation.
6. What are the considerations for thermal inactivation ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. The temperature and time of holding in the slowest heating region of a canned food during retorting were as follows :

Temperature (° C)	**Time (min.)**
80	11
90	8
95	6
100	10
105	12
108	6
109	8
110	17
107	2
100	2
90	2
80	8
70	6

Is the retorting adequate ? If not, what has to be done ? If adequate, what time will be required if the slowest heating point reaches 115°C and held for 15 minutes ? 12 + 3

8. Write short notes on any *three* of the following : 3 × 5

   a) Liquid nitrogen in transit refrigeration

   b) Freeze drying

   c) Blanching

   d) Maillard reaction

   e) Sauerkraut

   f) Sausage.

9. What are the advantages of drying of foods ? Explain the constant and falling rate period during drying of foods. 5 + 10

10. What is case hardening ? Discuss the effect of drying on the nutritive value of food. 5 + 10

11. What are food additivies ? What is the importance of using chemical additives in food ? Discuss about various functional chemical additives used in food. 3 + 4 + 8