	Utech
Name :	A
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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_{ij}
 - 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.

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- 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 O₂
- 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.

 $3 \times 5 = 15$

- 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)

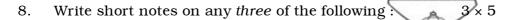
Answer any *three* of the following. $3 \times 15 = 45$

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

Temperature ($^{\circ}$ 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

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- 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