



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech(FT/New)/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 any *ten* of the following :

10 × 1 = 10

- i) Freezing temperature for economic and environmental consideration should be kept during transport and storage
  - a) – 20°C
  - b) – 18°C
  - c) – 30°C
  - d) none of these.
- ii) The boiling point of liquid nitrogen is
  - a) – 79°C
  - b) – 196°C
  - c) – 18°C
  - d) – 28°C.



- iii) Minimisation of free radical formation, during irradiation, is achieved by
- a) irradiating in the frozen state
  - b) irradiation under vacuum
  - c) use of ascorbic acid
  - d) all of these.
- iv) Drying is a process which involves
- a) A mass transfer operation
  - b) A heat transfer operation
  - c) both mass and heat transfer operations
  - d) none of these.
- v)  $\text{Co}_{60}$  used for ionizing radiation is a source of
- a) alpha particle
  - b) gamma rays
  - c) x-rays
  - d) none of these.
- vi) Sweetened condensed milk is the example of
- a) dehydrated food
  - b) low moisture food
  - c) intermediate moisture food
  - d) none of these.



- vii) Citric acid is
- a) monobasic
  - b) dibasic
  - c) tribasic
  - d) none of these.
- viii) Lactic acid is
- a) amorphous solid
  - b) colorless liquid
  - c) crystalline solid
  - d) none of these.
- ix) Natural source of propionic acid is
- a) prunes
  - b) plums
  - c) both (a) and (b)
  - d) none of these.
- x) An example of anaerobic spore former is
- a) *E. coli*
  - b) *Bacillus*
  - c) *Clostridium*
  - d) none of these.
- xi) Nitrites when consumed, produce
- a) oxyhemoglobin
  - b) nitrosomyoglobin
  - c) both (a) and (b)
  - d) none of these.



- xii) In freezing
- a) growth of microorganisms are stopped
  - b) destruction of microorganisms take place
  - c) growth of microorganisms are stimulated
  - d) none of these.
- xiii) Anaerobic degradation of protein is called
- a) fermentation
  - b) putrefaction
  - c) lipolysis
  - d) both (b) & (c).
- xiv) During drying of vegetables the natural greenness of chlorophyll is converted to olive green pheophytin by losing
- a) Fe
  - b) Mg
  - c)  $I_2$
  - d) P.
- xv) The  $a_w$  of milk is
- a) 0.97
  - b) 0.69
  - c) 0.51
  - d) 0.80.



**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What is the purpose of food preservation ? What is self-stable food ? Write the name of four preservation methods where high temperature is not used.  $2 + 1 + 2$
3. What do you mean by minimal processing of foods ? Discuss about role of pulsed electric fields in food preservation.  $1 + 4$
4. Classify foods on the basis of pH.
5. Write the factors affecting the rate of freezing of food materials. Write the flow diagram for freezing of fruits.  $3 + 2$
6. What are the factors determining the dose of ionizing radiation ? How is microwave heating different from conventional heating ?  $2 + 3$
7. What are the benefits of fermentation as a preservation technique ? What is pickling ?  $4 + 1$



**GROUP - C**

**( Long Answer Type Questions )**

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

8. a) What are the necessary qualities of a compound to be a preservative ? What are the functions of chemical preservatives ? Classify the following according to their groups. Benzoates, Ascorbic acid, Lactic acid, Honey.  
 $4 + 2 + 2$
- b) What are parabens ? What are their advantages ? What is synergistic effect ?  
 $2 + 2 + 3$
9. a) What are LABs ? What are their physical and chemical characteristics ? Based on fermentation pattern, how are they grouped ?  
 $3 + 3 + 3$
- b) What are their beneficial effects on the human ?  $6$
10. a) What do you mean by smoking of food ? Briefly describe the process of smoking. Which types of foods are smoked ?  
 $2 + 4 + 1$
- b) Explain the chemistry of smoking. State the effect of smoking on food. Is it safe for human health ? What are the differences of smoking and curing ?  
 $3 + 3 + 2$



11. a) Briefly state different steps of canning. 8

b) What are the different types of food spoilage of canned food caused by thermophilic bacteria ? 7

12. What are the factors in control of drying of foods ? What are the types of driers used in various foods & food products ? Explain the effect of drying on microorganisms in food.

4 + 4 + 7

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