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# 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:

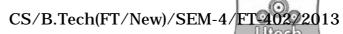
 $10 \times 1 = 10$ 

- 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.

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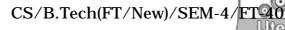
- iii) Minimisation of free radical formation, during irradiation, is achieved by
  - a) irradiating in the frozen state
  - b) irradiation under vacuum
  - c) use of ascorbic acid
  - d) all of these.
- iv) Drying is a process which involves
  - a) A mass transfer operation
  - b) A heat transfer operation
  - c) both mass and heat transfer operations
  - d) none of these.
- v) Co<sub>60</sub> 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.

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- 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
  - $I_2$
  - d) P.
- xv) The a<sub>w</sub> 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

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#### **GROUP - C**

#### (Long Answer Type Questions)

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

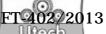
8. a) What are the necessary qualities of a compound to be a preservative? What are the functions of chemical preservatives? Classify the following according to their groups. Benzoates, Ascorbic acid, Lactic acid, Honey.

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?
- 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

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Briefly state different steps of canning. 11. a)

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

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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