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# CS/B.Tech-FT(NEW)/SEM-6/FT-601/2013 2013 FOOD PROCESS TECHNOLOGY - III ( MILK & MILK PRODUCT )

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 :

 $10 \times 1 = 10$ 

- i) The origin of Chhana podo-a famous sweet meat, is
  - a) Orissa
  - b) Tamil Nadu
  - c) Rajasthan
  - d) West Bengal.
- ii) Phenyl alanine is a precursor of
  - a) Glycine
  - b) Tryptophan
  - c) Arginine
  - d) Tyrosine.

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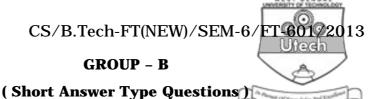
- iii) The presence of buffalo milk in cow milk is tested by an immunological assay method known as
  - a) Hansa Test
  - b) Hotis Test
  - c) Baudouin Test
  - d) Turbidity Test.
- iv) Example of semi-essential amino acid is
  - a) proline
  - b) histidine
  - c) arginine
  - d) leucine.
- v) Tyrosine is the precursor of
  - a) skin pigment
  - b) hair pigment
  - c) all of these
  - d) none of these.
- vi) The average freezing point depression of Indian cow milk is
  - a) 0.547°C
  - b) 0.492°C
  - c) 0.572°C
  - d) None of these.



- vii) The pH range of buffalo milk is
  - a) 6.7 6.8
  - b) 6.2 6.4
  - c) 6.0 6.2
  - d) 7.2 7.4.
- viii) Titratable acidity of milk is expressed in terms of
  - a) citric acid
  - b) acetic acid
  - c) lactic acid
  - d) none of these.
- ix) Specific gravity of milk can be measured by using
  - a) pycnometer
  - b) lactometer
  - c) both (a) and (b)
  - d) none of these.
- x) Fat is present in milk in the form of
  - a) suspension
  - b) solution
  - c) emulsion
  - d) none of these.



- xi) QAC is used in dairy industry as
  - a) surface active agent
  - b) sequestering agent
  - c) sanitizing agent
  - d) none of these.
- xii) As per PFA minimum fat % in ice-cream is
  - a) 30
  - b) 25
  - c) 35
  - d) 10.
- xiii) Adulteration of water in milk can be determined by
  - a) Lactometer
  - b) Kjeldhal Method
  - c) Centrifugal separation
  - d) MBRT test.
- xiv) Low fat content than the specified level in milk can indicate the addition of
  - a) Water
  - b) Skim milk
  - c) Both (a) & (b)
  - d) Removal of cream from milk.
- xv) The yellowish colour of butter is due to
  - a) carotene
  - b) riboflavin
  - c) xanthophyll
  - d) none of these.



(Shore impired Type Questions)

Answer any *three* of the following.

- $3 \times 5 = 15$
- 2. Differentiate between khoa and chhana. Give at least two examples of sweet meat prepared from each of them. 3 + 2
- 3. Discuss about the nutritive value of whey. Mention the benefits of consumption of whey on human health. 2 + 3
- Briefly explain the milk clotting mechanism by reunet action during cheese processing.
- 5. What is Phosphatase test? Explain the principle involved in this test. How is this test performed? 1 + 2 + 2
- 6. Differentiate between the following :  $2 \times 2 \frac{1}{2} = 5$ 
  - a) WPC (Whey Protein Concentrate ) and WPI (Whey Protein Isolate )
  - b) Micro-filtration and Ultra-filtration technique.
- 7. Discuss the terms 'probiotics' and prebiotics'. Briefly describe the therapeutic values of fermented milk. 2 + 3



## (Long Answer Type Questions)

Answer any three of the following.



8. With a schematic diagram describe the HTST pasteurization system of milk. What is CIP? What is milk stone and how can it be effectively removed from dairy equipment?

8 + 2 + 5

- 9. With example classify cheese on the basis of moisture content. What is the difference between 'green cheese' and 'ripened cheese'? Write about the changes taking place during curing of cheese. Write the purpose of cheddaring and cooking of cheese curd. What is the difference between soft cheese and paneer? 3 + 2 + 5 + 3 + 2
- 10. What do you mean by the term 'Platform test'? Discuss briefly about various platform tests done on the reception dock of a dairy plant. How are total solid and solid not fat content of milk calculated from lactometer reading? Briefly discuss butter churning process. 2+5+2+6
- 11. Classify whey proteins. How proteins can be recovered from whey ? How do you prepare yogurt in cups ? What is 'syneresis' ? 2 + 5 + 6 + 2

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- 12. Discuss about different atomization processes of spray drying system. What do you mean by the term 'instantization' of milk powder? What is 'Pilot Sterilization Test' and how is it performed? What is the difference between 'weaning food' and 'infant food'? Give a comparison between roller dried powder and spray dried powder. 3 + 2 + 5 + 2 + 3
- 13. a) What do you mean by 'overrun' of ice cream and how is it calculated? Write the difference between freezing and hardening process of ice cream. Discuss about textural defects of ice cream.
  - b) Prepare 150 kg ice cream mix as per ISI specification using whole milk ( 3% fat & 8% SNF ), cream ( 32% fat & 6% SNF ), skim milk powder ( 0.5% fat & 95% SNF ), sugar and carrageenan. 3+2+5+5

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