

Roll No

B.E./B.TECH (FULL TIME) END SEMESTER EXAMINATION – APR/MAY - 2014

ANNA UNIVERSITY:: CHENNAI – 600 025

B.E. Agricultural and Irrigation Engineering - SEMESTER – VIII

REGULATION - 2008

AI – 9032 Dairy Engineering

(Answer ALL the Questions 11<sup>th</sup> Question is Compulsory)

Date: 16.04.2014

Max.Marks: 100

**PART – A (10 x 2 = 20 Marks)**

1. What are toned and double toned milk?
2. Mention some of the important physical & chemical properties of milk and milk products.
3. What is meant by “Creaming” in processing of dairy milk?
4. How and why are dairy products fortified?
5. What is “designer milk”?
6. Which is the unique indigenous Indian dairy product? What are its uses?
7. Justify how condensed milk is a versatile dairy product.
8. What is agglomerated powder?
9. What is flavored milk? Mention the popular flavors available in market today.
10. What is meant by cleaning in place system for dairy equipments?

**PART – B(5 x 16 = 80 Marks)**

11. Discuss milk handling for the dairy industry under the following headings:
  - i) Transport from farm to dairy
  - ii) Can and bulk collection of milk.
  - iii) Mode of milk transportation in India
  - iv) Advantages of road and rail transport of milk
- 12.a)
  - i) Describe how classification of milk is done in the dairy industry.
  - ii) How is milk standardized? Explain the use of Pearson’s square technique to arrive at the standard milk.

(OR)

- 12.b)
  - i) Describe the process of classification and separation in processing of milk.
  - ii) What is homogenization and explain the process?
- 13.a)
  - i) List the basic steps in manufacturing of ice cream.
  - ii) Explain the process of Blending and pasteurization of ice cream mix in manufacturing of ice cream.

(OR)

- 13.b)
  - i) What are the additives in cheese manufacture and discuss their role?
  - ii) Describe the step by steps procedure in manufacturing of cheese.

14.a) Describe various methods of drying used in milk drying process. Explain spray drying process with a neat sketch.

**(OR)**

14.b) i) Write briefly about packing and marketing of milk powder.  
ii) How is milk powder stored?

15.a) i) Give the nutritional value and health benefits of yohurt.  
ii) Mention a few varieties of yohurt available from around the world.

**(OR)**

15.b) i) Mention cleaning steps for dairy processing units.  
ii) Describe various cleaning methods followed.  
iii) What are the types of detergents used?