

23/4/19

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B.E. / B.Tech. (Full Time) END SEMESTER EXAMINATIONS, Apr / May 2019
Common to BIO-MEDICAL ENGINEERING, CIVIL ENGINEERING, GEO-INFORMATICS,
INFORMATION TECHNOLOGY

Sixth Semester / Eighth Semester

AI 7692 Dairy Engineering

(Regulation 2015)

Answer ALL Questions

Max Marks: 100

Time: 3 hrs

Part – A (10 x 2 = 20 Marks)

- 1) Why does milk overflow when boiled?
- 2) How will you find the total solids present in milk?
- 3) List the factors affecting sterilization of milk.
- 4) Fat globules of diameter 0.05mm in milk have to be separated through centrifugal separation process and it moves with a terminal velocity of 10cm/s. Calculate the density of the fat globules given that the viscosity of milk is 0.03 poise.
- 5) Match the following dairy products against their type.
 - Mozarella - Ice cream
 - Cappucino - Milk powder
 - NAN Pro - Cheese
 - Haagen Dazs - Coffee
- 6) Differentiate *ordinary curd* and *probiotic curd*.
- 7) What do you understand by *droplet trajectory* in milk drying process?
- 8) Write a note on *hysteresis* in milk powder.
- 9) What are *biofilms*?
- 10) Expand – PP, HACCP, MMPO, FFS

Part – B (5 x 13 = 65 Marks)

- 11) a) i) Compare buffalo milk and goat milk with cow milk. (10)
ii) If a dairy has 150 kg of 42% cream and wishes to standardize it to 30% cream, how much skim milk must be added? (3)

(OR)

- b) i) Discuss the success of AMUL through SWOT analysis.



- 12) a) i) Calculate the quantity of buffalo milk and skim milk to be added to give 3000 kg of toned milk. The fat content of skim milk is 0.5% and that of buffalo milk is 6.5%. Both skim milk and buffalo milk have 8.5% SNF. (3)
- ii) Discuss the milk filtration process and the methods in detail. (10)

(OR)

- b) i) Explain the centrifugal separation in milk with neat sketch.

- 13) a) i) Explain the process of making flavoured milk on a commercial scale in a dairy industry.

(OR)

- b) i) Explain the process of manufacturing ice cream and frozen dessert.

- 14) a) i) Discuss the manufacture of milk powder through nano spray dryer with a neat sketch.

(OR)

- b) i) Explain the process of manufacturing skim milk powder and its uses.

- 15) a) i) List the characteristics and classification of packaging machinery.

(OR)

- b) i) Explain the cleaning and sanitizing process in a dairy plant.

Part – C (1 x 15 = 15 marks)

- 16) i) A city having a population of 50 lakhs needs milk and all other dairy products. The source of milk is from surrounding villages located 50-100 km apart and the processing units are located in the outskirts of the city. A part of the dairy products manufactured is also exported. Assume relevant data for the supply and demand and export. What are the various engineering interventions in the entire process and elaborate the application of your branch of study. Also discuss the International Standards required for export process.

