

**MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR**  
**SEMESTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2018-19**

Semester : VI (V Dean)

Academic Year : 2018-2019

Course No. : DE- 614

Course Title : Dairy Plant Design and Layout

Credits : 1+1=2

Total Marks : 50

Day & Date : Friday, 28.06.2019

Time : 11.00 to 13.00 Hrs.

- Note :**
- 1) All questions from **Section 'A'** are compulsory.
  - 2) Solve **Any Three** questions from **Section 'B'**.
  - 3) Draw neat and well labelled diagram wherever necessary.

**SECTION –‘A’**

Q. 1 A) Choose the most appropriate answer from the options given below. (05)

- i) Procurement of milk through cold chain reduces .....
  - a) Fat content
  - b) Contaminants
  - c) Bacterial population
  - d) Adulteration
- ii) Dairy plants are designed usually overcapacity than the average yearly because .....
  - a) Perishable nature
  - b) Essential commodity
  - c) Food item
  - d) Seasonal nature
- iii) For a 10,000 lph milk chiller, the milk pump of capacity 15,000 lph, greater problem will be, .....
  - a) Lower outlet temperature
  - b) Higher chilled water requirement
  - c) Lower Power Factor
  - d) Flow controller operation
- iv) Usually space is allotted for dairy plants in the industrial areas; however, the aspect to be taken care of is .....
  - a) Legal aspects
  - b) Environment aspects
  - c) Functional aspects
  - d) Capacity aspects
- v) The Product flow route should be as short as possible .....
  - a) Aspect of location selection
  - b) Aspect of site selection
  - c) Aspect of layout planning
  - d) Aspect of Process scheduling

B) Define the following (05)

- i) Process Scheduling
- ii) Dairy plant layout
- iii) Milk shed
- iv) SCADA control system
- v) Curing

Q. 2 A) Draw the convention symbol of the following. (05)

- i) Trolley
- ii) Milk Tank (Vertical)
- iii) Cream separator
- iv) Filter
- v) Dump Tank



B) State whether the following statement are True or False. If false, rewrite the statement after making necessary corrections. (05)

- i) The capacity of dump tank should at least be twice the weigh bowl capacity.
- ii) The product plant should be situated/located close to the area of consumption.
- iii) The electrical load for illumination others should not exceed 10% of the total Power consumption.
- iv) The recommended height of RMRD section is 2.5 meter.
- v) Chain conveyor is used in the reception section for milk cans.

### SECTION – 'B'

- Q. 3 A) Suggest a suitable location in your state for Milk power plant. Give reasons. (05)  
 B) Design an IBT to chill and pasteurize 30,000 lpd milk. (05)
- Q. 4 A) Discuss the unique features of milk which has direct bearing on layout and Design of Dairy plant. (05)  
 B) Design a chilling center to chill 10,000 lpd milk. (05)
- Q. 5 A) What are the important aspects to be observed in locating various sections in a dairy plant? (03)  
 B) What is an Air curtain and where is it located? (03)  
 C) Discuss various material handling equipments in different sections of a dairy plant. (04)
- Q. 6. A) What is the color code for different pipelines in a dairy plant. (03)  
 B) What are the important aspects of milk pipe layout? (03)  
 C) Discuss different dairy floors and their importance. (04)
- Q.7 Enlist the various essential equipments for processing of 100000 lpd milk plant and draw dairy plant layout with SMP and ghee as by-products. (10)

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