

**MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR**  
**SEMESTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2019-20**

Semester	: VII (New Syllabus)	Academic Year	: 2019-2020
Course No.	: DE- 713	Course Title	: Dairy plant design and layout
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Saturday, 11.01.2020	Time	: 11.00 to 13.00 Hrs.

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

**SECTION –‘A’**

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

- i) Medium sized dairy plant capacity ranges from .....
  - a) 5,000 to 20,000 litre/day
  - b) 10,000 to 40,000 litre/day
  - c) 15,000 to 60,000 litre/day
  - d) 20,000 to 80,000 litre/day
- ii) Multilevel design is adopted when .....
  - a) Ample space available
  - b) Small product capacity
  - c) Both of a) and b)
  - d) None of these
- iii) Light diffusing glass must be used in .....
  - a) Cabins
  - b) Laboratories
  - c) Processing rooms
  - d) All of these
- iv) Milk product factories should be located nearer to the .....
  - a) Outskirt of the cities
  - b) Center of the cities
  - c) Rural areas
  - d) Milk shed areas
- v) Process scheduling helps in deciding the time for .....
  - a) Milk procurement
  - b) Liquid milk processing
  - c) Hourly peak handling for the equipment
  - d) Milk storage period

B) Define the following. (05)

- i) R. C. C.
- ii) Laitance
- iii) Operation Layout
- iv) Mortar
- v) Gravel

Q. 2 A) Do as Directed. (05)

- i) Elaborate ASME
- ii) What is the thumb rule for determination of area of processing room?
- iii) Which is the most preferred site/layout for construction of dairy plant?
- iv) State the average dead space kept between two equipments in dairy plant?
- v) What should be the size of drainage line used for carrying milk waste, if accessible for cleaning?

B) Match the following.

(05)

**Column 'A'****Column 'B'**

- i) Safe products
- ii) Dangerous materials
- iii) Protective materials
- iv) Fire control equipment
- v) Chilled water

- a) Red colour
- b) Green colour
- c) Yellow colour
- d) Blue colour
- e) Light blue colour

**SECTION - 'B'**

- Q. 3 Write down the general principle of dairy plant design and layout. (06)
- Q. 4 Discuss the construction material for different types of foundation, floor, doors and windows. (06)
- Q. 5 Discuss various aspects regarding services / utility design for a dairy plant. (06)
- Q. 6 A) Define process schedule. (02)  
 B) Use of planning table for dairy plant layout is essential. Write suitably in support of this statement. (02)  
 C) Draw the diagram only for a layout of interconnecting milk piping. (02)
- Q. 7. A) Discuss general requirement of dairy floor finishes. (03)  
 B) Draw the diagram only for drain layout of a small dairy plant. (03)
- Q. 8 A) Prepare a check list for dairy plant location. (02)  
 B) Discuss perishable nature of milk. (02)  
 C) What do you mean by reception flexibility? (02)
- Q.9 A) Why cleaning and sterilization is indispensable in a dairy plant? (02)  
 B) What are the advantages and disadvantages of milk processing plant located close to a city? (04)

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