

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

Semester	: IV (V Dean)	Academic Year	: 2018-2019
Course No.	: DM-403	Course Title	: Starter Cultures and Fermented Milk Products
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Friday, 21.06.2019	Time	: 15.00 to 17.00 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) The association that exists among the cultures of yogurt .....
    - a) Synergism
    - b) Symbiosis
    - c) Antibiosis
    - d) Commensalism
  - ii) Flavour compound of Dahi is .....
    - a) Acetaldehyde
    - b) Diacetyl
    - c) Acetoin
    - d) Citrate
  - iii) Aroma producing starter cocci that requires combination of acid producer .....
    - a) *Lactococcus lactis ssp. Lactis*
    - b) *Leuconostoc mesenteroides ssp. Cremoris*
    - c) *Streptococcus thermophilus*
    - d) *Lactococcus lactis ssp. Diacetylactis*.
  - iv) The product prepared using Mare's milk is .....
    - a) Kefir
    - b) Kumiss
    - c) Villi
    - d) Yoghurt
  - v) The flavour compound of brick cheese is .....
    - a) Dimethyl sulphide
    - b) Acetoin
    - c) Acetyl methyl carbinol
    - d) Methyl butanol

- B) Define the following. (05)
- i) Kumis
  - ii) Proteolysis
  - iii) Bacteriocins
  - iv) Lewis fermenter system
  - v) Freeze drying

- Q. 2 A) Give scientific reasons for the following. (05)
- i) Lactic acid bacteria have complex proteolytic system.
  - ii) Calcium deficient medium helps to control bacteriophage.
  - iii) Consumption of fermented milk products improves lifespan of consumers.
  - iv) Lysogenic cycle of bacteriophage is considered as beneficial.
  - v) It is suggested to maintain yoghurt cultures separately for their better propagation.

(P.T.O.)



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

- i) Generally starter bacteria used in fermented milk products (FMP) preparation are Gram negative in nature.
- ii) Yeasts are the common contaminants in *dahi*.
- iii) Oxygen is responsible for eye formation in Swiss cheese.
- iv) The population in starter concentrates will be  $10^{11}$  to  $10^{13}$  cfu/ml.
- v) Camembert cheese is an example for internal mold ripened cheese.

### SECTION - 'B'

- Q. 3 a) Describe in detail methods of preservation of starter culture. (05)  
b) Explain the steps of Glycolysis. (05)
- Q. 4. a) Explain in detail lactose transportation in yoghurt culture. (05)  
b) Explain how antibiotic residues in milk affect the growth of starter culture. (05)
- Q. 5 a) Describe Leloir pathway of galactose utilization. (03)  
b) Explain about the possible microbial defects in *dahi*. (03)  
c) List the tests conducted to check activity of starter cultures and brief about any two them. (04)
- Q. 6 a) Give the classification of starter cultures. (03)  
b) Differentiate between Bulgarian milk and cultured butter milk (03)  
c) Write the flowchart for production of acidophilus milk and yakult. (04)
- Q. 7 Describe in detail the factor affecting propagation of starter culture. (10)

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