

**MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR**  
**SEMESTER END THEORY EXAMINATION, B.Tech. (DT)**

Semester	: II (V Dean)	Academic Year	: 2023-2024
Course No.	: DC-203	Course Title	: Chemistry of Milk
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Tuesday; 06/08/2024	Time	: 2.00 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) Define the following. (05)
- Lactose glass
  - Caramelization
  - Milk plasma
  - Koestler number
  - Non protein nitrogen (NPN)
- B) Give one word for the following (05)
- Milk protein that coagulates at the pH of 4.6.
  - Enzyme used to indicate efficiency of pasteurization.
  - Form of lactose that crystallizes above 93.5 °C.
  - The protective layer on the fat globule.
  - Milk salt responsible for Utretch phenomenon.
- Q. 2 A) State whether True or False. If false, rewrite the statement after making necessary corrections in the underlined word/s. (05)
- Milk is deficient in iron.
  - Casein is in the form of emulsion.
  - Colostrum is rich in lactose.
  - β-casein stabilizes protein in milk.
  - Lactulose is found in raw milk.
- B) Choose the most appropriate answer from the options given below. (05)
- The electrical conductivity of milk is largely determined by .....
    - Lactose
    - Casein micelles
    - Chloride
    - Whey proteins
  - Deficiency of vitamin A leads to .....
    - Scurvy
    - Night blindness
    - Kwarshiokar
    - Blood clotting
  - The constituents which determines the stability of proteins in milk is .....
    - Lactose
    - Fat
    - Salts
    - Vitamins

**(P.T.O.)**

- iv) Somatic cell count is high in .....
- a) Normal milk
  - b) Late lactation milk
  - c) Colostrum milk
  - d) Mastitis milk
- v) Enzyme which decomposes  $H_2O_2$  is .....
- a) Catalase
  - b) Proteinase
  - c) Lipase
  - d) Alkaline phosphatase

**SECTION -'B'**

- Q. 3 A) Explain the factors affecting milk composition. (05)  
B) Classify milk lipids and discuss their importance in milk processing. (05)
- Q. 4 A) Discuss the Rowland scheme of protein classification. (05)  
B) Give a brief outline on isolation of caseins. (05)
- Q. 5 A) Enumerate indigenous enzymes in milk. Write the significance of lipase in dairy industry. (03)  
B) Classify vitamins. Explain the importance of vitamin A. (03)  
C) Write a note on Maillard browning in milk. (04)
- Q. 6 A) Discuss the significance of milk salts in processing of milk. (03)  
B) Discuss the fatty acid composition of milk fat. (03)  
C) Write in detail about physical properties of lactose. (04)
- Q. 7 Discuss in brief about various whey proteins in milk and describe their significance. (10)

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