

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

Semester	: II (New syllabus)	Academic Year	: 2018-2019
Course No.	: DC-203	Course Title	: Chemistry of milk
Credits	: 2+1 = 3	Total Marks	: 50
Day & Date	: Thursday, 20.06.2019	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 labelled diagram wherever necessary.

**SECTION – 'A'**

- Q. 1 A) Define the following. (05)
- i) Whey protein
  - ii) Unsaponifiable matter
  - iii) Lipids
  - iv) Salt balance
  - v) Peptide bond
- B) Give two examples of the following. (05)
- i) Vitamin deficiency disease
  - ii) Heat stable proteins
  - iii) Phospholipids
  - iv) Essential fatty acids
  - v) Trace elements
- Q. 2. A) Do as directed. (05)
- i) Name the vitamin required for proper absorption of calcium.
  - ii) What is the average percentage of lactose in cow milk?
  - iii) State the disease caused due to deficiency of lactase in human.
  - iv) What is the density of milk fat?
  - v) What is the full form of HMF?
- B) Answer the following in one word/line. (05)
- i) State the causes of goaty flavour in milk.
  - ii) State the pH of normal milk.
  - iii) The colour of cow milk is yellow. Why?
  - iv) Name the methods used for determination of lactose in milk.
  - v) Name the fraction of casein which is insensitive to calcium.

**SECTION – 'B'**

- Q. 3 Define milk. Discuss the factors affecting composition of milk. (06)
- Q. 4 Discuss the physico-chemical properties of casein and whey proteins. (06)
- Q. 5 Classify milk salts. Discuss the significance of milk salts in processing of milk. (06)

- Q. 6 (a) Draw the structure of  $\alpha$  and  $\beta$  forms of lactose. (02)  
 (b) Write a short note on anti-microbial agents in milk. (02)  
 (c) What do you mean by protein denaturation? (02)
- Q. 7 (a) Discuss in brief the methods for fractionation of milk proteins. (03)  
 (b) Describe the significance of presence of xanthine oxidase, alkaline phosphatase and catalase in milk. (03)
- Q. 8 Write short notes on the following.  
 (a) Lactose caramelization (02)  
 (b) Genetic polymorphism (02)  
 (c) Structure of lecithin and cephalin (02)
- Q. 9 (a) Discuss in brief physical properties of lactose. (02)  
 (b) Discuss the factors affecting fatty acid composition of milk lipid. (04)

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