

**Term End Examination-2014**  
**Ph.D. in Dairy Science and Technology**  
**RDR-007: Advances in Chemistry of Milk Processing**

**Time: Three Hours**

**MM: 100**

**Note: Attempt any five questions. All questions carry equal marks**

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|-------|---|-----|
| 1.    | Describe the salient features of HCT-pH curves of milk and concentrated milk and factors affecting them.                                    | 20  |
| 2.    | Explain the characteristics, functional properties and application of artificial sweetners.   | 20  |
| 3 (a) | Describe the role of homogenization and pre-heating in the storage stability of concentrated milk.  | 10  |
| 3 (b) | Describe the role of genetic variants of milk proteins in its heat and storage stability.   | 10  |
| 4 (a) | Explain the interaction of casein with whey proteins during heating of milk.  | 10  |
| 4 (b) | Describe the heat induced changes in lactose.   | 10  |
| 5.    | Explain the Kinetics of the Clotting process of milk with acid Proteinases and describe the various factors affecting the rate of clotting. | 20  |
| 6 (a) | Give the Principle and Procedure of detection/estimation of antibiotic residues in milk.  | 10  |
| 6 (b) | Give the brief account of inactivation of lipases and proteinases during processing of milk.  | 5   |
| 6 (c) | Give details of bioactive proteins and peptide components available from milk.  | 5   |
| 7     | Write short notes on any four of the following:   | 5x4 |
| (a)   | Mineral protein interaction during heating  |     |
| (b)   | Effect of homogenization on the heat stability of milk  |     |
| (c)   | Creaming phenomenon in milk   |     |
| (d)   | Cold agglutination  |     |
| (e)   | Factors affecting maillard browning in milk   |     |