

**Ph.D. IN DAIRY SCIENCE AND TECHNOLOGY  
(PHDDR)**

**Term-End Examination**

**December, 2015**

**RDR-007 : ADVANCES IN CHEMISTRY OF MILK  
PROCESSING**

*Time : 3 hours*

*Maximum Marks : 100*

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- Note :** (i) Attempt *any five* questions.  
(ii) All the questions carry *equal* marks.
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1. Explain the Salt Balance Theory of Sommer and Hart and why this theory is no longer valid ? 20
  
2. (a) Discuss the effect of heat on the changes in milk proteins and protein - protein interaction in milk. 10  
(b) How homogenisation of whole milk destabilize its concentrated products but has no appreciable effect on concentrated skim milk ? 10
  
3. (a) Why browning in evaporated milk is enhanced with the addition of disodium phosphate but decreased with the addition of monosodium phosphate ? 10  
(b) Why high heat powder is less prone to auto oxidation of its milk fat ? 10

4. (a) Why the use of commercial emulsifiers in ice-cream lead to destabilization (Churning) of milk instead of its stabilization ? 10
- (b) Explain the mechanism of dry texture of ice-cream with the use of commercial emulsifiers. 10
5. (a) Which are the ingredients used in the manufacture of Fat replacers ? 10
- (b) Describe the method for the production of Fat replacers. 10
6. (a) Discuss the effect of type of milk (Cow or buffalo) on the quality of cheddar cheese. 10
- (b) Explain the chemistry involved in high pressure processing of milk. 10
7. Write short notes on **any four** of the following :
- (a) Antibiotic residues in milk 4x5=20
- (b) Bioactive peptides in milk
- (c) GM Food
- (d) Radionuclides in milk
- (e) Organic Food
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