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RDR-007

Ph.D. IN DAIRY SCIENCE AND TECHNOLOGY

00470

Term-End Examination

December, 2014

RDR-007 : ADVANCES IN CHEMISTRY OF MILK PROCESSING

Time : 3 hours *Maximum Marks : **100***

Note : *(i) Attempt **any five** questions.*

*(ii) **All** questions carry **equal** marks.*

1. (a) Describe in brief the physical changes in fat globules of homogenized milk. **10**

   (b) List the various factors that affect the result of homogenization. **10**

2. (a) Describe the various reaction steps involved in Amadori rearrangement and brown pigment formation. **10**

   (b) Enumerate the factor which affect Maillard browning in milk products and how it can be prevented ? **10**

3. (a) Explain the heat stability/pH curves (HCT/pH curve) of milk and concentrated milk and their applications. **10**

   (b) Explain the effect of pre-heating in enhancing the stability of evaporated milk. **10**

4. (a) Describe the methods involved in the immobilization of proteases. **10**

   (b) Enlist the applications of immobilized enzymes in Dairy Industry. **10**

5. Explain in brief : 5x4=20

(a) Thermal inactivation of enzymes

(b) Factors affecting the action of chymosin on K-casein

(c) Action of acid proteinases on casein other than K-casein

(d) The coagulation of renneted casein miscelles

6. Explain the following : 10

(a) Polychlorinated biphenyls (PCB) contamination in milk and milk products.

(b) Antibiotic residues in milk, sources of contamination and their implications. 10

7. Write short notes on **any four** of the following : 5x4=20

(a) Pesticides, Pesticide residues, MRL, ADI, Accumulation factor, Carry over rate as applied to pesticide residues.

(b) Mode of action and toxicological behaviour of organophosphate pesticides.

(c) Heavy Metal Contaminants in dairy products.

(d) Heat induced changes in casein.

(e) Heat induced changes in milk salts.