No. of Printed Pages : 2

**RDR-007**

00129

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

## Term-End Examination

## December, 2016

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

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

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

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

1. Discuss the heat induced changes in milk with special reference to protein-carbohydrates interactions. **20**

2. (a) How Polyphenyls get their entry into milk ? Describe their adverse effects on human health. **10**

   (b) Describe the chemistry of high pressure processing of milk and what bottlenecks are there in making it popular ? **10**

3. Describe the specific and non-specific coagulation of milk. In modern cheese making why milk is pasteurized before its coagulation with rennet ? **20**

4. Write short notes on **any four** of the following : 4x5=20

(a) Artificial sweeteners

(b) Fortification of milk

(c) Inactivation of enzymes in milk

(d) GM and Organic Foods

(e) Radionuclides in milk

5. (a) Define heat induced changes in milk salts. On what basis the stabilizers are selected for concentrated milk ? 10

(b) What are different ingredients for formulation of fat replacers ? Why fat replacers have not become popular in the country ? 10

6. (a) How physical changes in fat globules of milk due to homogenization are desirable in the manufacturing of ice-cream ? 10

(b) How changes in fat globules due to homogenization influence the heat stability of concentrated milk ? 10

7. (a) Describe heat induced changes in milk proteins and their influence on the storage stability of concentrated milk. 10

(b) Describe the mechanism and role of cold agglutination in milk. 10