

**Ph.D in Dairy Science and Technology**

**Term-End Examination**

**December, 2014**

**RDR-001 : Advances in Lipid Technology**

*Time : 3 hours*

*Maximum Marks : 100*

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

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1. (a) Describe the production and consumption pattern of edible oils and fats from the major sources in the World. Analyse the status of oil and fat industry in India. 10
- (b) What are the major classes of lipids in milk ? Describe the fatty acid profile of milk lipids. 10
2. (a) What is the nutritional importance of lipids ? Explain the dietary significance of  $\omega - 3$  and  $\omega - 6$  fatty acids. 10
- (b) Describe important physico-chemical properties of milk fat and their significance in its characterization. 10
3. (a) What are the basic steps in oil processing ? Explain the process and factors affecting the alkali refining process of oils. 10
- (b) Enumerate functional properties of milk fat which are dependent on crystal network. Explain crystallization kinetics of milk fat. 10

4. (a) Give the techniques used in fat fractionation. Describe the important applications of milk fat fractions in food industry. **10**
- (b) What are the advantages and disadvantages of hydrogenation of oil ? Explain the principle and factors affecting hydrogenation of oil. **10**
5. (a) Define low fat table spread. Describe the essential ingredients and methods of manufacture of various types of fat spreads. **10**
- (b) Elaborate the process of deep fat frying and explain the various changes that occurs in fats and oils during frying process. **10**
6. (a) Explain the principle and factors affecting bleaching process of vegetable oils. **10**
- (b) What are plasticizers ? Describe the advances in production of plasticizers. **10**
7. (a) Classify Lipids and also indicate their impact on quality of resultant products and nutritional importance. **10**
- (b) Explain the principle and potential of enzymatic modification of oils and fats. **10**
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