

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

**Term-End Examination**

**June, 2015**

00010

**RDR-001 : ADVANCES IN LIPID TECHNOLOGY**

*Time : 3 hours*

*Maximum Marks : 100*

---

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

---

1. (a) Give the compositional profile of five important edible oils. What is the status of edible oil industry in our country ? 10
- (b) Write the systematic name and structure for C10:0; C16:0; C18:1 $\Delta$ 9; C20:4; and C18:2  $\omega$ -6 fatty acids. 10
2. (a) Describe the nutritional importance and concerns of lipids in the diet. Explain the dietary significance of  $\omega$ -3 and  $\omega$ -6 fatty acids. 10
- (b) Give the fatty acid profile of milk lipids and its significance. 10
3. (a) Describe the principle and process of continuous alkali refining process. How does it differ from batch refining ? 10
- (b) Explain the potential and application of membrane processes in refining of vegetable oils. 10

4. (a) Explain how crystal network affects the sensory characteristics and functional properties of fat structured products. 10
- (b) Describe the techniques used in fat fractionation. Give the important applications of milk fat fractions in the food industry. 10
5. (a) Give the advantages and disadvantages of hydrogenation of oil. Explain the principle and factors affecting hydrogenation of oil. 10
- (b) Explain the principle and innovations for enzymatic modification of fats and oils with industrial potentials. 10
6. (a) What are antioxidants ? Explain the mode of action and recent trends in the use of natural antioxidants. 10
- (b) What is low fat table spread ? Give the essential ingredients and methods for the manufacturing of various types of fat spreads. 10
7. Write short notes on any *four* of the following :  $4 \times 5 = 20$
- (a) Plasticizers
- (b) Deep fat frying
- (c) Protective coatings
- (d) Bakery and confectionery fats
- (e) Phytosterol
- (f) Rice bran oil