

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

Term-End Examination

December, 2015

RDR-001 : ADVANCES IN LIPID TECHNOLOGY

Time : 3 hours

Maximum Marks : 100

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

(ii) *All questions carry equal marks.*

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1. (a) Give the production and consumption pattern of edible oils and fats from the major sources in the world. Describe the status of oils and fats industry in India. 10
(b) Write the systematic name and structure for C12 : 0; C14 : 0; C18 : 1 Δ 9; C20 : 4 and C18 : 2 ω 6 fatty acids. 10
 2. (a) What are lipids ? Describe the major and minor components of food lipids. 10
(b) Give the nutritional importance of lipids ? Explain the dietary significance of PUFA and CLA in human health. 10
 3. (a) Describe important physico - chemical properties of milk fat and their significance in its characterization. 10
(b) Describe the factors influencing stability of milk fat emulsion. Also explain the factors influencing rate of destabilization. 10

4. (a) Explain the process and factors affecting the alkali refining process of oils. 10
- (b) Describe the recent developments in degumming of vegetable oils. Write a note on winterization of oil. 10
5. (a) Describe the mechanism of formation and growth of fat crystals. 10
- (b) Describe important processing innovations in oils and fats sources for application and utilization in food products. 10
6. (a) Give examples of natural antioxidants. Explain mode of action and recent trends in use of natural antioxidants. 10
- (b) Define low fat table spread. Describe the essential ingredients and methods of manufacture of various types of fat spreads. 10
7. Write short notes. Attempt **any four** of the following : 5x4=20
- (a) Hydrogenation of oil
- (b) Salad Oils and Oil based dressings
- (c) Changes in fats and oils during frying
- (d) Plasticizers
- (e) Microbial lipids
- (f) Processing and refining of animal fat
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