

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

Term-End Examination

June, 2015

00309

**RDR-003 : PRODUCT MONITORING AND
PROCESS CONTROL**

Time : 3 hours

Maximum Marks : 100

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

1. Discuss the features and functions of e-nose and e-tongue with their applications in dairy and food industry. 20
2. As determined by X-ray crystallography, describe the changes in crystal structure of milk fat affected by cooling procedure and interesterification. 20
3. Describe the importance of colour measurement of foods. Briefly explain the various colour measurement techniques with their principles. 20

4. What is mass spectroscopy ? How can it be used in flavour analysis ? Explain Charm analysis. 20
5. How does the supercritical fluid (SCF) extraction method work ? What are the advantages of the technique ? Briefly describe its application for extraction of desirable and undesirable volatile components from food products. 20
6. What is the principle of Texture Profile Analysis ? What are the merits and demerits of instrumental measurements of sensory attributes of foods ? Write the working principle of HPLC. 20
7. Write short notes on any **four** of the following : 4×5=20
- (a) AAS
 - (b) Biosensors
 - (c) Index of Quality
 - (d) Raman Spectroscopy
 - (e) Differential Scanning Calorimetry
 - (f) Dynamic Light Scattering
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