Term End Examination-2014
Ph.D. in Dairy Science and Technology
RDR-003: Product Monitoring and Process Control

Time: Three Hours **MM: 100**

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

1.	Explain the concept and importance of Product-Process Monitoring in dairy and food industries. Describe principle of simulation model for product monitoring with an example. Give its benefits and limitations.	20
2.	Give the principle of IR spectroscopy. Describe the working principle, construction, operational details, benefits and limitation of I.R. milk analyzer.	20
3.	What are bio-sensors? Give the principles of different types of bio-sensors and their applications in dairy industry.	20
4.	What is Chromatography? Explain the working principles of different chromatography techniques. Give the principal components and applications of HPLC.	20
5.	What do you understand by flavour bioassay? Explain the techniques used for isolation, separation and detection/identification of flavour compounds.	20
6 (a)	Define "Quality" in food. Which different senses are involved in perception of food Quality by human beings? What are the merits and demerits of instrumental measurements of sensory attributes of foods?	10
6 (b)	What is Colour Solid? Describe the major systems for colour measurement of foods.	10
7 (a)	What are different flavour compounds formed during heat processing of milk including UHT processing. Explain the mechanism of formation of various compounds also.	10
7 (b)	Describe factors affecting flavour losses during spray drying (in relation to cheese)?	10