Ph.D in DAIRY SCIENCE AND TECHNOLOGY

Term-End Examination

December, 2014

RDR-008 : ADVANCES IN ANALYTICAL TECHNIQUES IN DAIRY CHEMISTRY

Time : 3 hours   *Maximum Marks : 100*

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

(ii)   *All questions carry **equal** marks.*

1.   (a)   Explain clearly near, mid and far regions of   **10**
              IR Spectroscopy.

   (b)   Describe the principle, instrumentation and   **10**
              applications of IR Spectroscopy.

2.   What is iso-electric focusing ?   Discuss the   **20**
        separation of proteins using this technique.

3.   (a)   Is 'ELISA' a heterogenous assay ? Illustrate   **10**
              different formats of 'ELISA'.

   (b)   Differentiate between :   **10**
              (i)   RIA and ELISA
              (ii)   Western blotting and Southern
                      blotting

4.   Discuss the principle, instrumental set up and   **20**
        factors influencing electrophoretic mobility in
        capillary zone electrophoresis.

5. (a) Describe the principle and methodology of   **10**
        Mass Spectroscopy.

    (b) Write the principle and methodology of CD   **10**
        and differentiate it from ORD alongwith
        cotton effect.

6. Bring out clearly the difference between :

    (a) DTA and DSC   **7**

    (b) Atomic absorption and atomic emission   **7**

    (c) Fluorescence and phosphorescence   **6**

7. Describe briefly HPLC with special reference to   **20**
    the following :

    (a) Principle

    (b) Instrumentation

    (c) Applications in the area of Dairy Chemistry