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

Term-End Examination

December, 2014

RDR-011 : DAIRY AND FOOD ENGINEERING - I

Time : 3 hours *Maximum Marks : 100*

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

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

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1. (a) Derive the rheological equations for the   14
        basic Maxwell Model with graphical
        representation.

    (b) Describe the rheological behaviour of a food   6
        material.

2. Describe the engineering properties of dairy and   20
    food materials and their significance in equipment
    design.

3. What is the significance of terminal velocity ?   20
    Derive basic equations for terminal velocity for a
    sphere.

4. Explain steps for calculation of velocity and film   20
    thickness in a falling film evaporator.

5. Explain the design consideration and steps in   20
    designing of scraped surface heat exchanger.

6. Explain the steps in designing a spray dryer.   **20**

7. Write short notes on **any four** of the following :
   (a) Corrosion in Dairy Industry.   **5x4=20**
   (b) Rheomat for determination of viscosity.
   (c) Physical characteristic of food material with respect to size and shape.
   (d) Subjective evaluation for texture properties.
   (e) Drag co-efficient for food material.

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