

Term End Examination-2014
Ph.D. in Dairy Science and Technology
RDR-011: Dairy & Food Engineering-I

Time: Three Hours

MM: 100

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

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| 1 (a) | Derive the rheological equations for the Maxwell model with graphical representation. | 14 |
| 1 (b) | Explain the salient features of Kelvin model. | 6 |
| 2 (a) | Describe Capillary Viscometer with a neat sketch. | 12 |
| 2(b) | Explain mechanics of flow in a capillary viscometer. | 8 |
| 3. | Explain the design consideration and steps in designing of plate heat exchanger. | 20 |
| 4. | Explain falling film evaporator with steps for calculations of velocity and film thickness in the evaporator. | 20 |
| 5 (a) | Explain the physical characteristics of food materials with respect to shape & size. | 10 |
| 5 (b) | Describe the importance of creep in visco-elastic characterization of food material. | 10 |
| 6. | What is texture analysis and why is it important in food processing? Explain the basic features of a food texture analysis and applications for dairy products. | 20 |
| 7 | Write short notes on any FOUR of the following: | 5x4 |
| (a) | Rheomat for determination of viscosity | |
| (b) | Rheology in chart form | |
| (c) | Corrosion in dairy industry | |
| (d) | Computer Software(s) for operation and maintenance of dairy equipment. | |
| (e) | Factors affecting the mixing and maintenance of consistency of a food emulsion. | |