

**Term End Examination – 2014**  
**Ph.D in Dairy Science and Technology**  
**RDR-002: Advances in Protein Technology**

**Time: Three Hours**

**MM: 100**

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

1. What is the importance of proteins in our diet? Classify different sources of plant proteins. Describe the characteristics of plant proteins under each category with examples. Explain how the nutritional quality of plant proteins can be improved? (4+8+8=20)
2. Describe the effect of thermal processing on structure and functional characteristics of proteins. (8+12=20)
3. Explain the factors affecting the stability of casein micelles in milk. How enzymatic cross-linking affects the structure, stability and functionality of milk proteins? (8+12=20)
- 4 (a) Describe the effect of processing treatments on nutritive value of proteins. 12
- 4 (b) Describe the strategies used to prevent Protein Deficiencies. 8
5. What is the importance of protein hydrolysates? Explain the production and uses of protein hydrolysate derived either from plant or animal sources. (6+14=20)
6. Describe the present status, scope and modalities for efficient production of microbial biomass protein with all technical details. (20)
- 7 (a) Explain the operation system of single screw extruder. 8
- 7 (b) Explain the various changes in food material during extrusion cooking. 12