

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

**Term-End Examination**

**December, 2015**

**RDR-002 : ADVANCES IN PROTEIN  
TECHNOLOGY**

*Time : 3 hours*

*Maximum Marks : 100*

---

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

---

1.     Define extrusion cooking. Give principle involved in extrusion cooking. Discuss commercial applications of extrusion. **4+8+8=20**
  
2.     (a)    Define following terms related to proteins : **8**
  - (i)    Dissociation
  - (ii)   Solubilization
  - (iii)   Precipitation
  - (iv)   Association
  - (v)    Aggregation
  - (vi)   Flocculation
  - (vii)   Coagulation
  - (viii) Gelation

(b)    Discuss in brief the effect of heat on protein structure. **12**
  
3.     Discuss in brief factors affecting stability of casein micelle in milk. **20**

4. Discuss protein-carbohydrate interactions and its relevance to food quality. 20
5. What is the difference between protein supplementation and complementation ? Give examples of protein complementation. Discuss the importance of protein supplementation and complementation in relation to mass institutional feeding programmes. 4+4+12 =20
6. What are bioactive peptides ? Discuss methods of production of bioactive peptides. Give properties of various types of bioactive peptides. 4+8+8=20
7. Discuss animal proteins Vs. plant proteins. What are the benefits and drawbacks of animal and plant protein ? 8+12=20
-