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RDR-009

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

**Term-End Examination**

**June, 2015**

00059

**RDR-009 : APPLICATION OF BIOTECHNOLOGY IN  
DAIRY INDUSTRY**

*Time : 3 hours*

*Maximum Marks : 100*

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

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1. Reflect on important biotechnological interventions, with examples, which have made significant impact in the dairy industry. 20
  
2. Describe the important tools/methods used for genetic modification of lactic acid bacteria. Explain with examples the technological and functional attributes enhanced through genetic modification of lactic starter cultures. 20
  
3. What is metabolic engineering ? Describe the strategies for production of vitamins and other nutraceuticals by lactic acid bacteria. 20

4. Describe the important bioactive compounds with their functions in milk and milk products. Reflect on their potential also. 20
  5. Design a research framework for assessing the efficacy and safety of probiotics in milk and milk products taking into account the Food Safety and Standards Act, 2006 and the national and international guidelines issued on the subject. 20
  6. Describe the salient features, covering the principle and procedure in brief, of rapid detection tests based on molecular methods for food borne bacterial pathogens and spoilage organisms. 20
  7. What are bacteriocins ? Describe the structure and applications of different types of bacteriocins produced by lactic acid bacteria. 20
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