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RDR-102

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

Term-End Examination

Dec., 2021

RDR-102 : ADVANCES IN DAIRY MICROBIOLOGY

Time : 3 Hours

Maximum Marks : 100

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

1. Classify cheese starters and give their functions. Describe the commercial production of starter cultures and their applications. 8+12
2. List the strategies for genetic improvement of lactic acid bacteria and explain any *four* types of genetic improvement to enhance the technological and functional attributes of lactic acid bacteria. 4+16

3. Describe the process of recombinant protein production. What is the procedure for GM Food approval in India ? 15+5
4. List the probiotic organisms and explain their mechanism of action. Give the characteristics of effective probiotics. Write about the stability of probiotic organism during storage and passage to GI tract. 10+5+5
5. Write a short note on functional foods. Give the types of bacteriocins and their applications in food biopreservation. 5+15
6. List the emerging dairy food pathogens. Describe the HACCP principles and its implementation in dairy industry. 4+16
7. Describe the elements, working principles and basic characteristics of biosensors. 20

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8. Write short notes on any *four* of the following :

5 each

- (i) Prebiotics
- (ii) Accelerated cheese ripening
- (iii) Recombinant DNA technology
- (iv) GMO
- (v) Cloning and expression vector
- (vi) PCR technique