

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID SEMESTER EXAMINATION-2015

B.Tech VIII Semester

COURSE CODE: 11BIWBT834

MAX. TIME: 2 Hours

COURSE NAME: Fermented Food Product Technology

MAX. MARKS: 30

COURSE CREDITS: 3

Note: All questions are compulsory.

Section A

(Marks: 6)

Q1. Answer the following in brief:

- i. What is the key enzyme which makes people lactose intolerant? How you would overcome this situation using food fermentation?
- ii. In Indian cheese industry what types of starters are used? What are the benefits of traditional method of starter preparation over modern method
- iii. What is the role of NICE system in lactic acid bacteria? Do all LAB possess NICE system
- iv. Pyruvate can result in multiple fermentation end products? How?
- v. Permeases play a key role in production of flavors from citrate. How?
- vi. Name the different isomers of lactic acid produced via homolactic and heterolactic fermentation? Which isomer is desired in food fermentation and why?

Section B

(Marks: 9)

- Q2. You are given with rice flour and asked to add functionality to this raw ingredient using yeast as a starter. What kind of fermentation you would prefer to use for the fermentation? Explain the biochemical pathway involved in the fermentation?
- Q3. Smoking and fermentation are both traditional methods of food processing which one is more beneficial and why? Justify your answer by suitable food material processed by smoking as well as fermentation
- Q4. A soymilk based company is looking for fermented product using freeze dried concentrated multiple strain starter composed of different strains of *Leuconostocs*. Comment on the following by taking an example of fermented soy milk product:
- a) What kind of LA fermentation pathway you are expecting in the above product and what will be the end products?
 - b) Name different species (at least 2) of *Leuconostoc* with their specific role in food fermentation other than LA production

- c) What other kind of additional advantages you may get by using *Lecunostoc* as starters over lactobacilli?

Section C

(Marks: 15)

- Q5. Bacteriophage resistance in dairy starters is a significant area of metabolic engineering n LAB. Comment on the statement by describing the molecular strategies used to develop phage resistance systems
- Q6. Give a description of classification methods of starter cultures. Differentiate between the categories based on the temperature by taking an example of fermented milk based products
- Q7. Describe the pathways of LAB when these are subjected to glucose, lactose and galactose as carbon source
- Q8. What are the characteristics of LAB that make it a suitable candidate for metabolic engineering? Describe some strategies used to develop low calorie sweeteners from LAB
- Q9. Can fermented milk products be considered as healing foods? Comment and justify by taking suitable example