MASTER OF TECHNOLOGY (F.T.B.E) EXAMINATION, 2017
(1st Year -2nd Semester)

Advanced Food Biotechnology

Time: 3 hrs. Full Marks : 100

Part – I (Answer any two questions of this part; 25x2 = 50)

1. (a) Find some enzyme applications (at least three instances) in brewing industry.
   (b) Write intrinsic traits (any three) along with their components which may be considered as the parameters towards improvement of quality of wine production
   (c) How can you make alcoholic drinks 'low calorie'?
   (d) What is the basic difference in the manufacturing process of white and red wine?
   (e) With the help of flow chart show the manufacturing steps of beer production.
   (f) Show with example how better quality strains may be developed employing biotechnology for application in breweries (4.5+4.5+3+3+6+4)

2. (a) Write the difference between acid curd and enzymatic curd
   (b) With the help of a flow chart show the steps Cheese production.
   (c) Name two enzymes, their sources and types of cheese in which they are used.
   (d) Name two organisms and their functions in cheese production.
   (e) What do you understand by 'rennet substitute'? (4+6+6+4+5)

3. (a) With the help of flow diagram show how can you produce bacteriocin .
   (b) Write the differences between bacteriocin and therapeutic antibiotic.
   (c) Compare two bacteriocins with reference to the following points:
   Producing organism, mode of action, stability and antimicrobial spectrum
   (d) Name two bio-preservatives other than bacteriocin and also mention their functions. (6+6+8+5)

4. (a) What are the beneficial effects claimed for prebiotics ?
   (b) Mention the characteristics of probiotics.
   (c) Write the basic principles to be followed during screening of probiotic organisms.
   (d) Give two examples of each of prebiotics and probiotic dairy product.
   (e) Dairy product seem to be desired probiotic delivery vehicle – explain. (5+5+6+4+5

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M.TECH. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING

FIRST YEAR SECOND SEMESTER - 2017

ADVANCED FOOD BIOTECHNOLOGY

Time: 3 hr **Full Marks: 100**

Part-II

Answer the question No. 1 and any two of the following

1. (a) Fermentation is a bio-preservation technique of food-explain the statement. What is the role of lactic acid bacteria in food fermentation? What is the function of bio-preservative? What do you mean by pre and probiotics? Briefly describe the purification process of intracellular enzyme. 3+5+3+4+5 = 20
2. (a) Define nutraceutical. What are the nutraceuticals present in plants? What are the functions of nutraceuticals?
   (b) Briefly describe the enzymatic production of polyphenols and alkaloids. 7+8=15
3. Write the applications of glucose isomerase. Briefly describe the microbial glucose isomerase production and purification method. Describe HFCS production method with a flow chart. 3+8+4 =15
4. Write the applications of protease in food industries. Give examples of important protease producing microorganisms. Briefly describe the protease production method by solid state fermentation process. 3+3+9 = 15
5. What is the role of biosensor in quality control and food safety of food products? Explain the basic operating principle of biosensor with schematic diagram. What are the different types of biosensor? 4+5+6=15