Ref. No.PG/T/FTBE/83/2019

M.TECH. FOOD TECHNOLOGY & BIOCHEMICAL ENGINEERING 1st YEAR 2ND SEMESTER EXAMINATION 2019

Advanced Food Biotechnology

Full Marks: 100 **Time: 3hrs**

Part-I

GROUP-A

Answer any one question **1×10 = 10**

1. Why organism produce polysaccharides from mono saccharides? What are the different types and sources of microbial polysaccharides?
2. Mention different characteristics of probiotics. What are prebiotics? Mention their beneficial effects.

GROUP-B

Answer any two questions 2×20 = 40

3. Briefly describe the biosynthetic pathway of bacterial polysaccharides. Briefly describe the industrial production process of microbial polysaccharides. 10+10 =20
4. Briefly describe the biotechnological production process of FOS, GOS and XOS. Mention the simple analysis method of oligosaccharides. Briefly describe the purification methods of oligosaccharides. 12+3+5 = 20
5. What is bacteriocin? Mention its applications. Briefly describe the fermentative production of bacteriocin. Briefly describe the effect of cultivation conditions for bacteriocin fermentation. 2+2+10+6 = 20

MASTER OF TECHNOLOGY (F.T.B.E) EXAMINATION, 2019

(1st Year -2nd Semester)

Advanced Food Biotechnology

Time: 3 hrs. Full Marks : 100

Part – II (Full marks 50)

A. Answer any five of the following : (5 x1 = 5)

(i) Give examples of microbial production of polysaccharide useful in confectioneries
(ii) Why malted barley is used in Breweries?
(ii) Name two genera of Lactic Acid Bacteria (LAB).
(iv) What is the DE value for starch ?
(v) Define probiotic.
(vi) Write the iso-electric point of casein.
(vii) Give one example of enzyme used for improving the colour of wheat flour.

B. Answer any three of the following : (3 x 15 = 45)

1. (a) With the help of flow chart show the manufacturing steps of beer production.
   (b) How can you make alcoholic drinks 'low calorie'?
   (c) Show with example how biotechnology can help developing improved fermenting strain.
   (d) Show how you can produce high DE syrup from corn starch (5+2+3+5)

2. (a) Mention the beneficial effects claimed for lactic acid bacteria.
   (b) Name the factors which actually contribute to the inhibitory activity of LAB in a fermented food product.
   (c) Write the characteristic features of LAB
   (d) Mention characteristic features of two genera of LAB and also give example of each one.
   (e) Name one enzyme and its objective of use in fruit juice processing. (3+2+2+3+5)

3. (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 organisms and their functions in cheese production.
   (d) Name two enzymes, their sources and types of cheese in which they are used.
   (e) What do you understand by 'rennet substitute'? (2+3+3+4+3)

4. (a) Give example of application of biotechnology to utilize dairy industry bi-products
   (b) How biotechnology can be applicable in bakery industry?
   (c) Write the differences between bacteriocin and therapeutic antibiotic.
   (d) Compare two bacteriocins with reference to the following points:
   Producing organism, mode of action, stability and antimicrobial spectrum (4+3+2+6)

5. (a) Define prebiotics . Give one example of it.
   (b) What are the beneficial effects claimed for prebiotics ?
   (c) Mention the characteristics of probiotics.
   (d) Write the beneficial effects of probiotic
   (e) Write the basic principles to be followed during screening of probiotic organisms.
   (f) Give two examples of probiotic strains.
   (g) Dairy product seems to be desired probiotic delivery vehicle – explain (2+2+2+2+2+2+3)