

Roll No. _____

2019
3rd Sem.

M.Tech. Food Technology
III Semester Examination 2019
Paper Title: Food Biotechnology
Paper Code: MFTC- 301

Time: 3 hours

Max Marks: 75

Attempt all the questions. Marks are mentioned against each question

Q1. Briefly answer the following (1x15)

- Define downstream processing.
- Explain microbial growth kinetics.
- Differentiate between nutraceuticals and functional foods.
- Define fermented foods. Give some benefits.
- Differentiate between solid state and submerged fermentations.
- Enlist various gums used in food applications.
- What are GMOs? Give example.
- Give some health benefits of probiotics.
- Define upstream processing.
- Differentiate between probiotics and prebiotics.
- Differentiate MUFA and PUFA giving examples.
- What are the advantages of functional foods?
- Differentiate essential and non-essential amino acids.
- What do you understand by continuous cultures?
- What are the advantages of Air-lift fermenters?

Q2. Answer any three of the following (5x3)

- Explain any one technique used in nutrigenomics.
- How is Baker's yeast produced industrially?
- Discuss the technologies and strategies in nutrigenetics.
- Explain the current limitations and challenges in nutrigenomics and nutrigenetics research.
- Describe the various clinical trials and health claims of nutraceuticals.

Q3. Answer any three of the following (5X3)

- Classify alcoholic beverages? With the help of an example, describe the manufacturing with a flow sheet?
- How is citric acid recovered from spent medium in the industry? Explain.
- Broadly describe the different go to choices of microorganisms used in production of single cell proteins.
- Given the widely known health benefits of including PUFAs in our diets, how are they of significance to our well-being?

P.T.O.

- e) Give the applications of dextran and its derivatives.

Q4. Answer any three of the following

(5x3)

- a) Bioprocessing requires different unit operations. Justify using a flowchart.
- b) Describe any five types of solid-state fermentations.
- c) What is fermentation medium? Explain in detail. Also give the criteria to be fulfilled by nutrients to make up a nutrient medium.
- d) State the different modes of operations used in running fermentation systems and explain them.
- e) Give the design of a fermenter with the help of a diagram and elucidate the different parts with their respective functions.

Q5. Answer any three of the following

(5X3)

- a) Discuss the different techniques by which secondary metabolites are synthesised and the application of secondary metabolites.
- b) GMOs are in the spotlight often in relation to various concerns and issues. Discuss.
- c) How is biomass production carried out using various microorganisms? Describe the process.
- d) What is Recombinant DNA Technology? Explain the working concept behind it.
- e) What are the different methods used in genetic engineering? Explain giving their applications.