

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code:3160408

Date:28-05-2025

Subject Name:Food and Agriculture biotechnnology

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) What is SCP (Single Cell Protein)?	03
	(b) Explain how fatty acid biosynthesis is manipulated in genetically engineered oilseed crops.	04
	(c) How does the nutritional quality of food impact public health?	07
Q.2	(a) Name any three biopesticides and their source organisms.	03
	(b) What factors contribute to the global disparity in food availability?	04
	(c) Discuss the genetic engineering of tomato for delayed fruit ripening and its commercial significance.	07
	OR	
	(c) Explain the process of site-directed manipulation in the biosynthesis of starch and fatty acids.	07
Q.3	(a) Differentiate between mold, yeast, and bacteria with reference to food contamination.	03
	(b) Explain the mode of action of any two commonly used biopesticides.	04
	(c) Describe the steps involved in <i>Agrobacterium</i> -mediated gene transfer with a neat diagram	07
	OR	
Q.3	(a) What are mycotoxins? Explain their effects on human health.	03
	(b) How does organic farming help in sustainable agriculture?	04
	(c) What is molecular farming? Discuss its applications and challenges with examples from vaccine and enzyme production.	07
Q.4	(a) State the difference between food spoilage and food poisoning.	03
	(b) Explain how intrinsic and extrinsic factors affect microbial growth in food.	04
	(c) Describe how transgenic plants can be used for the commercial production of enzymes and peptides.	07
	OR	
Q.4	(a) List any three uses of enzymes in the food industry.	03
	(b) Explain the process and benefits of mushroom production.	04
	(c) Discuss the various food preservation methods with suitable examples	07

- Q.5** (a) Define Codex Alimentarius. Why is it important? **03**
(b) Evaluate the use of food flavors and additives with respect to consumer health and safety **04**
(c) Describe microbial examination methods of food and discuss how spoilage occurs due to microbial activity. **07**

OR

- Q.5** (a) What is a unit operation in food processing? Give two examples. **03**
(b) How can Big Data be utilized in agriculture and food processing? **04**
(c) Write a comprehensive note on HACCP: principles, implementation, and benefits in food safety. **07**
