

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3160408

Date: 29/05/2026

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.**

- Q.1** (a) Define Agrobacterium-mediated gene transfer. **03**
(b) Explain direct gene transfer methods in crop plants. **04**
(c) Discuss biopharming and production of foreign compounds in plants. **07**
- Q.2** (a) What are biofertilizers? Give its example. **03**
(b) Write advantages of biopesticides. **04**
(c) Explain organic farming and its advantages. **07**
- OR
- Q.2** (c) Discuss waste management in organic farming. **07**
- Q.3** (a) Define food microbiology. **03**
(b) List intrinsic factors affecting microbial growth in food. **04**
(c) Explain microbial food spoilage with examples. **07**
- OR
- Q.3** (a) What is food poisoning? **03**
(b) Differentiate between exotoxins and endotoxins in food poisoning. **04**
(c) Explain food preservation by high and low temperature. **07**
- Q.4** (a) Define probiotics. **03**
(b) Explain production of mushroom as food. **04**
(c) Discuss brewing process in food industry. **07**
- OR
- Q.4** (a) Define single cell protein (SCP). **03**
(b) Write health benefits of fermented milk products. **04**
(c) Explain food additives with examples. **07**
- Q.5** (a) Define HACCP. **03**
(b) What are food quality assurance methods? **04**
(c) Explain food laws and regulations in India. **07**
- OR
- Q.5** (a) What is Codex Alimentarius? **03**

(b) Write a note on food processing unit operations.

04

(c) Discuss current trends in food biotechnology.

07
