

**Third Semester FYUGP Degree (Reg) Examination November
2025**

**KU3VACBTC101 - BIOTECHNOLOGY IN SUSTAINABLE
DEVELOPMENT**

2024 Admission onwards

Time : 1.5 hours

Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Give an example of a bioplastic-based product.
2. Explain how microplastics affect human health.
3. Present any two challenges of using biofuel
4. Biofuels made from non food sources like wood chips or crop waste are called which 'generation' of biofuel?
5. How does biotechnology support food security?
6. State the two major mechanisms of PGPR action.
7. Discuss why omega-3 enrichment in fish is important for human diets.
8. Mention any two common challenges faced by biotechnology in promoting sustainability.

Section B

Answer any 4 questions. Each carry 6 marks.

9. How do sustainable societies manage resources for long-term use?
10. Explain any three reasons why forests must be conserved.
11. Elaborate the role of PGPR as an alternative to chemical fertilizers in achieving sustainable agriculture. Support your answer with economic and environmental justifications.
12. Propose a method to improve productivity in NFT culture.
13. Construct an aquaculture system that integrates biotechnology to increase both yield and nutritional value of fish.
14. Compare and contrast aerated static pile, in-vessel and trench methods of composting

Section C

Answer any 1 questions. Each carry 14 marks.

15. Which is better: recycling or biodegradation of plastics?
16. Examine the fundamental differences in the production processes for bioethanol and biodiesel. How do these distinct conversion technologies influence the required feedstock.