

Duration: 2 hours 30 minutes

Marks: 60

Instructions to the candidates:

1. Attempt all questions
2. Neat diagrams must be drawn wherever necessary
3. Figures to the right indicate marks for each question

- Q1. Attempt any **two** of the following
- | | | |
|----|---|----|
| a) | What is RNA? State its properties and types. | 06 |
| b) | How are molecular probes used in transgenics? | 06 |
| c) | Explain the types of in situ bioremediation techniques. | 06 |
- Q2. Attempt any **two** of the following
- | | | |
|----|--|----|
| a) | What is bio compost? Add a note on preparation of bio compost. | 06 |
| b) | Briefly explain biosensors in environmental monitoring. | 06 |
| c) | Elaborate on microbial degradation of surfactants. | 06 |
- Q3. Attempt any **two** of the following
- | | | |
|----|--|----|
| a) | What are insecticides? Comment on the effect of overapplications of insecticides on the environment. | 06 |
| b) | Explain how <i>Bacillus thuringiensis</i> can be used as a biopesticide. | 06 |
| c) | Explain symbiotic nitrogen fixers with a suitable example. | 06 |
- Q4. Attempt any **two** of the following
- | | | |
|----|---|----|
| a) | What is the role and application of nanotechnology in the food and agriculture industry? | 06 |
| b) | What is the current status of nanotechnology used in the treatment of waste? Explain it with suitable examples. | 06 |
| c) | Explain the role of nanotechnology for the benefits of the environment. | 06 |
- Q5. Attempt any **four** of the following
- | | | |
|----|---|----|
| a) | Agrobacterium tumefaciens. | 03 |
| b) | Advantages and disadvantages of phytoremediation. | 03 |
| c) | Phosphate solubilizing microorganisms. | 03 |
| d) | Bioleaching. | 03 |
| e) | Carbon nanotubes. | 03 |
| f) | Windrow aerobic compost method. | 03 |
