

Nitrogen Fixation and its Cycle

A. Choose the Correct Answer:

1. Which microorganism helps in nitrogen fixation in legume plants?

- a) Lactobacillus
- b) Rhizobium
- c) Penicillium
- d) Salmonella

2. What is the main function of nitrogen in plants?

- a) Helps in flowering
- b) Provides energy
- c) Promotes protein and chlorophyll formation
- d) Increases seed size

3. Which process returns nitrogen back to the atmosphere?

- a) Nitrogen fixation
- b) Nitrification
- c) Decomposition
- d) Denitrification

B. Fill in the Blanks:

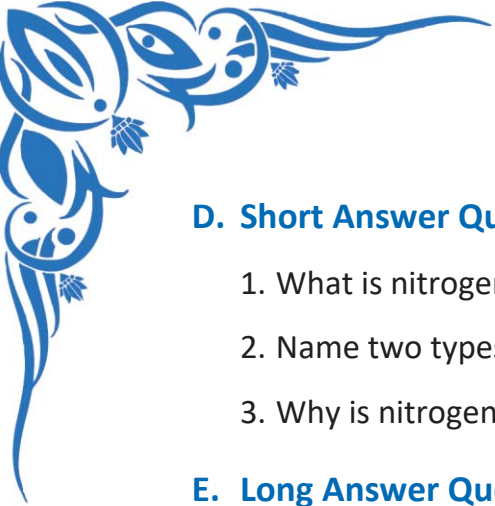
1. _____ is the process by which atmospheric nitrogen is converted into usable forms for plants.
2. The nitrogen-fixing bacteria, _____, live in the root nodules of leguminous plants.
3. The process of converting nitrates into nitrogen gas is known as _____.

C. Case Study:

In a science project, Aman grew two sets of plants — one in normal soil and the other in soil with leguminous plants like peas. After a few weeks, he noticed the second set grew healthier. His teacher explained that the legume plants had special bacteria that helped enrich the soil with nitrogen.

Case Study Questions:

1. What caused the second set of plants to grow better?
2. Name the type of plant Aman used and the microorganism involved.
3. How does this process benefit agriculture?
4. What is the role of nitrogen in plant health?



D. Short Answer Questions:

1. What is nitrogen fixation?
2. Name two types of nitrogen-fixing organisms.
3. Why is nitrogen important for plants?

E. Long Answer Questions:

1. Explain the nitrogen cycle with the help of a labelled diagram.
2. Describe the role of nitrogen-fixing bacteria in agriculture.
3. Discuss how human activities can disturb the natural nitrogen cycle and suggest ways to reduce this impact.