

Tutorial N°7**Exercise I: Short Answer Questions**

1. What is meant by **plant pathogen identification**?
2. Name **three major groups of plant pathogens**.
3. Which laboratory technique is commonly used to observe **fungal structures**?
4. What is the role of **PCR in plant disease diagnosis**?
5. Give **two examples of insect vectors** that transmit plant diseases.

Exercise II: MCQ: Choose the correct answer.

1. Powdery mildew and rust diseases are mainly caused by:
 - a) Bacteria
 - b) Fungi
 - c) Viruses
 - d) Insects
2. The **tobacco mosaic virus** belongs to:
 - a) Bacteria
 - b) Viruses
 - c) Fungi
 - d) Parasites
3. Which technique is commonly used to detect plant viruses?
 - a) PCR
 - b) ELISA
 - c) Microscopy
 - d) All of the above
4. Aphids are important in plant pathology because they:
 - a) Produce toxins
 - b) Transmit viruses
 - c) Increase soil nutrients
 - d) Produce antibiotics

Exercise III: True or False: Indicate whether the following statements are **True or False** and correct the false ones.

1. Fungi can cause diseases such as rust and fusarium wilt.
2. PCR is used only for detecting fungi.
3. Agrobacterium is a bacterial plant pathogen.
4. Insect vectors can contribute to disease spread.
5. ELISA is used to detect plant viruses.

Exercise IV: Fill in the Blanks; Complete the following sentences.

1. Soil analysis helps evaluate soil _____, _____, and microorganisms.
2. Yellowing of leaves is commonly called _____.
3. Plant tissue analysis measures compounds such as _____, _____, and enzymes.
4. Necrosis refers to _____ **of plant tissues**.

Exercise V: Match the **indicator** with its **purpose**.

Indicator	Purpose
Soil analysis	a. Detection of stress or infection
Plant tissue analysis	b. Evaluate nutrients and microorganisms
Symptom monitoring	c. Early disease detection

Exercise VI: Short Questions

1. What is the importance of **disease-resistant plant varieties**?
2. Define **biological control** in plant disease management.
3. What is meant by **integrated pest management (IPM)**?
4. How does maintaining plant health improve **agricultural productivity**?

Exercise VII: Analytical Question: Explain how the following strategies help reduce plant diseases:

- Prevention
- Biological control
- Integrated pest management

Exercise VIII: Complete the table using the appropriate technique.

Technique	Example Application in Plants
Optical	
Microbial	
PCR / qPCR	
ELISA	
Genetic	

Exercise IX: Case Study Analysis

A farmer observes that potato plants show **mosaic patterns on leaves**. Laboratory testing using **ELISA** confirms the presence of a virus.

Questions:

1. What type of pathogen caused the disease?
2. Why is ELISA useful for detecting this pathogen?
3. What management strategy should the farmer adopt?

Exercise X: A field shows **yellow leaves and reduced growth**. Soil analysis reveals **low nitrogen levels**.

1. What is the probable cause of the problem?
2. Which biological indicator helped detect the issue?
3. Suggest a solution to improve plant health.