

**Tutorial N°6****Exercise 1: Answer the following questions briefly.**

1. Define **biology** in your own words.
2. Why is biology important for protecting animal and plant health? Give **three reasons**.
3. What is meant by **infectious diseases**?
4. Give **three examples of non-infectious diseases** in animals.
5. Name **four disciplines of applied biology in health** and briefly explain one of them.
6. What is the role of **microbiology** in the diagnosis of diseases?

**Exercise 2: Match each discipline of biology with its correct description.**

Discipline	Description
1. Microbiology	a. Study of chemical reactions in living organisms
2. Immunology	b. Study of microorganisms
3. Genetics	c. Study of hereditary characteristics
4. Biochemistry	d. Study of the immune response

**Exercise 3: Classify the following organisms into the correct category.****Organisms:**

*Escherichia coli* – *Rabies virus* – *Toxoplasma* – *Dermatophytes* – *Salmonella* – *Trypanosoma* – *Avian influenza virus*

Category	Examples
Bacteria	
Viruses	
Parasites	
Fungi	

**Exercise 4: Complete the sentences using the appropriate terms.**

1. PCR is a \_\_\_\_\_ technique used to detect viral genetic material.
2. ELISA is a \_\_\_\_\_ test used to detect antibodies or antigens.
3. Parasites such as intestinal worms belong to the group called \_\_\_\_\_.
4. Skin infections caused by fungi are often called \_\_\_\_\_.
5. The study of blood cells is called \_\_\_\_\_.

**Exercise 5: True or False**

1. Hematology studies the composition of blood.
2. Viruses can be cultured on bacterial media like ordinary bacteria.
3. PCR is used for detecting genetic material of microorganisms.
4. Parasites can be identified by microscopic examination.
5. Blood biochemistry helps evaluate organ function.

**Exercise 6: Case Study**

A farmer notices that several chickens in his farm show respiratory problems and sudden death.

1. What **type of disease** could this indicate (infectious or non-infectious)?
2. Name **two possible viral diseases** that may affect poultry.
3. Which **diagnostic technique** could be used to confirm the virus?
4. Suggest **two preventive measures** to control the disease in the farm.

**Exercise 7: Data Interpretation**

A blood test from an animal shows:

Parameter	Result	Normal Range
Red blood cells	Low	Normal
White blood cells	High	Normal
Platelets	Normal	Normal

**Questions:**

1. Which biological analysis was performed?
2. What does a **high white blood cell count** usually indicate?
3. What could a **low red blood cell count** suggest?

**Exercise 8: Application Question**

Explain how **biological diagnostic methods** help in the **early detection and control of diseases in livestock**.

**Exercise 9: Terminology Exercise**

Explain the meaning of the following biological terms:

- Pathogen
- Epidemiology
- Vector
- Vaccination
- Metabolic disorder

**Exercise 10: Discussion Question**

Discuss the importance of **biological monitoring and epidemiological surveillance** in preventing animal disease outbreaks.