Tutorial N°8

Exercise 1: Definitions

1. Define biotechnology.
2. What are bioactive molecules? Give two examples.
3. What is genetic engineering?
4. Define fermentation.
5. What is bioremediation.

Exercise 2: Short Answer Questions

1. What is the main goal of biotechnology?
2. Cite three roles of biotechnology in human health.
3. Give two examples of environmental applications of biotechnology.
4. Why is biotechnology considered an interdisciplinary science?
5. What is the importance of enzymes in biotechnology?

Exercise 3 : Multiple Choice Questions (MCQ)

1. Fermentation was first used in:
a) Modern biotechnology
b) Classical biotechnology
c) Ancient biotechnology
d) Contemporary biotechnology

2. The scientist who demonstrated the role of microorganisms in fermentation:
a) Darwin
b) Mendel
c) Pasteur
d) Watson

3. Recombinant DNA technology appeared in:
a) 18th century
b) 19th century
c) 1970s
d) 2000s

4. CRISPR-Cas9 is associated with:
a) Ancient biotechnology
b) Classical biotechnology
c) Modern biotechnology
d) Contemporary biotechnology

Exercise 4: True or False. Correct the false statements.

1. Domestication is part of ancient biotechnology.
2. Vaccination was developed in the 21st century.
3. Recombinant insulin was produced before 1900.

4. Modern biotechnology includes genetic manipulation.
5. Stem cell therapy belongs to contemporary biotechnology.

Exercise 5: Matching

(a. Bioinformatics / b. Drug development / c. Crop improvement / d. Industrial enzymes)

1. Red Biotechnology → _____
2. Green Biotechnology → _____
3. Gold Biotechnology → _____
4. White Biotechnology → _____

Exercise 6: Completion

1. _____ biotechnology is related to marine organisms.
2. _____ biotechnology focuses on ethical issues.
3. _____ biotechnology deals with food production like yogurt.
4. _____ biotechnology involves harmful biological weapons.

Exercise 7: Case Study

A scientist uses bacteria to produce insulin for diabetic patients.
1. What type of biotechnology is used?
2. What technique is involved?
3. What is the importance of this application?

Exercise 8: Analytical Questions

1. Explain how biotechnology improves agriculture.
2. Describe the role of biotechnology in medicine.
3. What are the risks associated with biotechnology?

Exercise 9: Classification

Classify the following molecules:
Insulin, Amylase, Antibiotics, DNA, Vitamins
(Enzymes / Hormones / Genetic material / Drugs / Nutrients)

Exercise 10: Questions

1. Cite two fields where biotechnology is applied.
2. Which type of biotechnology is linked to medicine?
3. Which type is linked to agriculture ?