

Exploring the Frontiers of Advanced Biology

Advanced Biology · Answer Key · 12 Questions

1. Which organelle is responsible for the majority of ATP production through cellular respiration?

- A) Endoplasmic Reticulum
- B) Golgi Apparatus
- C) Mitochondrion**
- D) Lysosome

2. What is the primary function of ribosomes in a cell?

- A) DNA replication
- B) Protein synthesis**
- C) Lipid metabolism
- D) Waste removal

3. The process by which a single cell divides into two identical daughter cells is called:

- A) Meiosis
- B) Mitosis**
- C) Fertilization
- D) Transcription

4. What is the term for the total genetic information of an organism?

- A) Phenotype
- B) Genotype
- C) Genome**
- D) Allele

5. In ecological terms, a community of living organisms interacting with their physical environment is known as a(n):

- A) Population
- B) Biosphere
- C) Ecosystem**
- D) Habitat

6. Which of the following is the basic building block of proteins?

- A) Nucleotide
- B) Monosaccharide
- C) Fatty acid
- D) Amino acid**

7. The theory of evolution by natural selection was famously proposed by:

- A) Gregor Mendel
- B) James Watson
- C) Charles Darwin**
- D) Louis Pasteur

8. What molecule carries the genetic instructions for the development and functioning of all known living organisms?

- A) RNA
- B) ATP
- C) DNA**
- D) Protein

9. Photosynthesis, the process by which plants convert light energy into chemical energy, primarily occurs in which organelle?

- A) Mitochondrion
- B) Chloroplast**
- C) Nucleus
- D) Vacuole

10. A substance that speeds up a specific biochemical reaction without being consumed is called a(n):

- A) Hormone
- B) Enzyme**
- C) Antibody
- D) Neurotransmitter

11. The process where water moves across a semipermeable membrane from an area of high water concentration to an area of low water concentration is called:

- A) Diffusion
- B) Active transport
- C) Osmosis**
- D) Facilitated diffusion

12. Which of the following is a characteristic feature of prokaryotic cells?

- A) Presence of a nucleus
- B) Presence of membrane-bound organelles
- C) Absence of a nucleus**
- D) Large central vacuole