

Advanced Life Science Assessment

Life Science · Answer Key · 8 Questions

1. In the process of aerobic respiration, which organelle is responsible for the majority of ATP production through the electron transport chain?

- A) Nucleus
- B) Mitochondrion**
- C) Ribosome
- D) Golgi apparatus

2. Which phase of mitosis is characterized by the migration of sister chromatids to opposite poles of the cell?

- A) Prophase
- B) Metaphase
- C) Anaphase**
- D) Telophase

3. In a Mendelian dihybrid cross involving two heterozygous parents (AaBb x AaBb), what is the expected phenotypic ratio in the offspring?

- A) 3:1
- B) 9:3:3:1**
- C) 1:2:1
- D) 1:1:1:1

4. Which structural feature of a leaf is primarily responsible for the exchange of gases such as carbon dioxide and oxygen?

- A) Cuticle
- B) Stomata**
- C) Xylem
- D) Mesophyll

5. During protein synthesis, which molecule carries the genetic code from the DNA in the nucleus to the ribosome?

- A) tRNA
- B) rRNA
- C) mRNA**
- D) DNA polymerase

6. Which type of ecological succession occurs in an area where soil is already present and the previous community was removed by a disturbance?

A) Primary succession

B) Secondary succession

C) Climax succession

D) Pioneer succession

7. What is the functional unit of the human kidney responsible for filtering blood and forming urine?

A) Nephron

B) Alveolus

C) Neuron

D) Glomerulus

8. Which taxonomic rank is the most specific level of classification within the biological hierarchy?

A) Family

B) Order

C) Genus

D) Species