

Which of the following organelles is involved in the synthesis of proteins?

Options:

- (A) Ribosome
- (B) Lysosome
- (C) Golgi apparatus
- (D) Peroxisome

If a heterozygous tall plant (Tt) is crossed with a dwarf plant (tt), what will be the phenotypic ratio of the offspring?

Options:

- (A) 1 Tall : 3 Dwarf
- (B) 1 Tall : 1 Dwarf
- (C) All Tall
- (D) All Dwarf

Which of the following elements is essential for the synthesis of chlorophyll?

Options:

- (A) Calcium
- (B) Magnesium
- (C) Sodium
- (D) Potassium

Which part of the nephron is primarily responsible for filtration of blood?

Options:

- (A) Loop of Henle
- (B) Proximal convoluted tubule
- (C) Bowman's capsule
- (D) Collecting duct

Which of the following is a pioneer species in primary succession on rocks?

Options:

- (A) Ferns
- (B) Lichens
- (C) Mosses
- (D) Algae

Which type of bond is found between amino acids in a protein chain?

Options:

- (A) Hydrogen bond
- (B) Peptide bond
- (C) Ionic bond
- (D) Glycosidic bond

Which enzyme is responsible for the unwinding of DNA during replication?

Options:

- (A) DNA polymerase
- (B) DNA ligase
- (C) DNA helicase
- (D) RNA primase

Double fertilization is a characteristic feature of which group of plants?

Options:

- (A) Bryophytes
- (B) Gymnosperms
- (C) Pteridophytes
- (D) Angiosperms

The part of the brain responsible for maintaining posture and balance is the:

Options:

- (A) Cerebrum
- (B) Medulla oblongata
- (C) Cerebellum
- (D) Hypothalamus

The gradual and predictable change in species composition in an area is known as:

Options:

- (A) Succession
- (B) Evolution
- (C) Mutation
- (D) Speciation

During which phase of mitosis do the centromeres split and chromatids move to opposite poles?

Options:

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

Which of the following organisms is correctly matched with its kingdom?

Options:

- (A) Amoeba – Plantae
- (B) Euglena – Fungi
- (C) Paramecium – Protista
- (D) Nostoc – Animalia

In which part of the chloroplast do the light-dependent reactions of photosynthesis occur?

Options:

- (A) Stroma
- (B) Inner membrane
- (C) Thylakoid membrane
- (D) Outer membrane

Which of the following blood vessels carries oxygenated blood?

Options:

- (A) Pulmonary artery
- (B) Pulmonary vein
- (C) Superior vena cava
- (D) Right atrium

Which ion plays a crucial role in the generation of action potential in neurons?

Options:

- (A) Calcium (Ca^{2+})
- (B) Potassium (K^+)
- (C) Magnesium (Mg^{2+})
- (D) Sodium (Na^+)

Which plant hormone is primarily responsible for cell elongation?

Options:

- (A) Cytokinin
- (B) Auxin
- (C) Absciscic acid
- (D) Ethylene

Which technique is used to amplify a segment of DNA?

Options:

- (A) Gel electrophoresis
- (B) PCR (Polymerase Chain Reaction)
- (C) DNA fingerprinting
- (D) ELISA