

# SARAJEVO SCHOOL OF SCIENCE AND TECHNOLOGY

## ENTRANCE EXAM QUESTIONS BIOLOGY

### SAMPLE

1. A nucleotide is made of which of the following chemical components?
  - A. A nitrogenous base, a phosphate group, and a pentose sugar
  - B. A nitrogenous base, a fatty acid, and an amino acid
  - C. A nitrogenous base, an amino acid, and a phosphate group
  - D. A series of nitrogenous bases, a nucleic acid backbone, and a hexose sugar
  - E. A nitrogenous base, an amino acid, and a pentose sugar
2. What are the key differences between mitosis and meiosis?
  - A. Mitosis produces haploid cells, while meiosis produces diploid cells
  - B. Mitosis produces four cells, while meiosis produces two cells
  - C. Mitosis produces diploid cells, while meiosis produces haploid cells
  - D. Mitosis produces cells with different genetic material, while meiosis produces identical cells
  - E. Mitosis and meiosis are the same process
3. What type of cells undergo meiosis?
  - A. Somatic cells
  - B. Egg and sperm cells
  - C. Skin cells
  - D. Nerve cells
  - E. Muscle cells?
4. What is crossing over during prophase I?
  - A. The chromosomes line up in pairs
  - B. Homologous chromosomes exchange parts
  - C. The cell divides into two identical cells
  - D. Chromatids separate and move to opposite sides
  - E. The chromosomes condense into chromatids
5. "Cytokinesis" refers to
  - A. Movement of a cell from one place to another
  - B. Division of the cytoplasm
  - C. Division of the entire cell
  - D. Division of the nucleus
  - E. Reduction in the number of chromosomes
6. What does a codon in mRNA represent?
  - A. A single nitrogenous base

- B. An amino acid or a signal to start or stop protein synthesis
  - C. A pair of nucleotides
  - D. A type of sugar in the DNA backbone
  - E. A type of protein produced in the ribosome
7. What is the primary function of most epithelial tissues?
- A. Contracting under voluntary control
  - B. Joining bones and muscles together
  - C. Lining internal or external surfaces of the body
  - D. Conducting electrochemical signals
  - E. Providing elasticity
8. The pancreas produces which of the following hormones?
- A. Insulin and glucagon
  - B. Oxytocin and prolactin
  - C. Estrogen and progesterone
  - D. Epinephrine and norepinephrine
  - E. Cortisol
9. What are the two main types of cells in the nervous system?
- A. Dendrites and axons
  - B. Neurons and glial cells
  - C. Myelin and organelles
  - D. Nucleus and axons
  - E. Brain cells and axons
10. What are endorphins?
- A. Hormones produced in the pineal gland
  - B. Neurotransmitters released during stress or pain
  - C. Chemicals used for digestion
  - D. Receptors used by morphine and other drugs
  - E. Hormones that regulate growth and development
11. What are the three main parts of the circulatory system?
- A. Heart, lungs, and arteries
  - B. Heart, blood vessels, and blood
  - C. Blood vessels, capillaries, and veins
  - D. Heart, veins, and oxygen
  - E. Arteries, veins, and blood
12. What are the main components of blood?
- A. Plasma and red blood cells
  - B. Plasma, red blood cells, white blood cells, and platelets
  - C. White blood cells and platelets only

- D. Red blood cells and plasma
- E. Plasma and glucose

13. What are nephrons?

- A. Blood vessels in the kidneys
- B. Functional units of the kidneys
- C. Cells that carry oxygen
- D. Hormones that regulate excretion
- E. Types of white blood cells

14. What are the two parts of the immune system?

- A. Innate immune system and adaptive immune system
- B. White blood cells and red blood cells
- C. Lymphatic system and circulatory system
- D. Skin and mucous membranes
- E. Antibodies and antigens

15. What is an autoimmune disease?

- A. A disease where the immune system attacks the body's own cells
- B. A disease caused by bacteria
- C. A disease caused by viruses
- D. A disease that affects only the lymphatic system
- E. A disease that is acquired after birth