

# SAMPLE QUESTIONS - BIOLOGY

Q1: Which of the following best describes the difference between the functions of nucleic acids and enzymes?

- a) nucleic acids inhibit biochemical reactions, while enzymes provide structural support in cells
- b) nucleic acids are used as the building blocks of proteins, while enzymes are used as the building blocks of phospholipids
- c) nucleic acids transmit signals that begin biochemical processes, while enzymes convert carbohydrates into lipids and proteins
- d) nucleic acids contain the genetic code for protein synthesis, while enzymes catalyze chemical reactions
- e) nucleic acids convert carbohydrates phospholipids, while enzymes form the skeleton of cells

ANS: D

Q2: Multicellular organisms use mitosis for growth, development and:

- a) apoptosis
- b) reproduction
- c) repair
- d) necrosis
- e) pinocytosis

ANS: C

Q3: What is the major function of mitochondria?

- a) synthesis of adenosine triphosphate
- b) protein synthesis
- c) cholesterol synthesis
- d) enzyme degradation
- e) production of phagolysosomes

ANS: A

Q4: The loss of a protein's native structure is called:

- a) renaturation
- b) folding
- c) denaturation
- d) secretion
- e) allosteric regulation

ANS: C

Q5: When two species of different genealogy come to resemble each other as a result of environmental adaptations, the phenomenon is termed:

- a) microevolution
- b) divergent evolution
- c) convergent evolution
- d) co-evolution
- e) industrial melanism

ANS: C

Q6: Which is true of the human circulatory system?

- a) the right ventricle of the heart has the thickest wall
- b) veins have thick walls consisting of smooth muscle cells to assist in returning blood to the heart
- c) blood flow is slowest in capillaries to maximize the diffusion of nutrients and wastes
- d) the left and right ventricles contract alternately, which is responsible for the pulse sound
- e) no correct answer

ANS: C

Q7: Which of the following structures contains an abundance of axons?

- a) in the gray matter of the brain and the white matter of the spinal cord
- b) in the white matter of the brain and the gray matter of the spinal cord
- c) in the gray matter of the brain and the gray matter of the spinal cord
- d) in the white matter of the brain and the white matter of the spinal cord
- e) no correct answer

ANS: D

Q8: The bonds that hold the two strands of DNA together come from:

- a) the attraction of phosphate groups for each other
- b) strong bonds between nitrogenous bases and the sugar-phosphate backbone
- c) weak hydrogen bonds between nitrogenous bases
- d) carbon-to-carbon bonds in the sugar portion of the nucleotides
- e) strong peptide bonds

ANS: C

Q9: A sample of double-stranded DNA contains 32% adenine. Approximately what percent of the nucleotides in this sample will be guanine?

- a) 8%
- b) 16%
- c) 18%
- d) 32%
- e) 58%

ANS: C

Q10: Which of the following molecules carries information from DNA and directs incorporation of amino acids at the ribosome?

- a) enzymes
- b) rRNA
- c) mRNA
- d) tRNA
- e) primase

ANS: C