

Anatomy & Physiology Focus

1. What Is the Primary Function of Red Blood Cells?

Answer: Red blood cells carry oxygen from the lungs to body tissues and transport carbon dioxide back to the lungs.

2. Which Chamber of the Heart Pumps Oxygenated Blood to the Body?

Answer: The left ventricle pumps oxygenated blood to the body through the aorta.

3. What Connects Muscles to Bones?

Answer: Tendons connect muscles to bones, while ligaments connect bones to other bones.

4. Where Does Gas Exchange Occur in the Respiratory System?

Answer: Gas exchange occurs in the alveoli, tiny air sacs in the lungs.

5. What Is the Largest Organ in the Human Body?

Answer: The skin is the largest organ, protecting the body from external threats.

6. Which Part of the Brain Controls Balance and Coordination?

Answer: The cerebellum controls balance, coordination, and fine motor movements.

7. What Is the Function of the Small Intestine?

Answer: The small intestine absorbs nutrients from digested food into the bloodstream.

8. Which Hormone Regulates Blood Sugar Levels?

Answer: Insulin, produced by the pancreas, regulates blood sugar levels by helping cells absorb glucose.

9. What Type of Joint Is the Shoulder?

Answer: The shoulder is a ball-and-socket joint, allowing a wide range of motion.

10. What Is the Main Function of White Blood Cells?

Answer: White blood cells fight infections and defend the body against disease.

11. Where Is Bile Produced and What Does It Do?

Answer: Bile is produced in the liver and helps break down fats during digestion.

12. What Are the Three Types of Muscle Tissue?

Answer: The three types are skeletal (voluntary movement), cardiac (heart), and smooth (organs).

13. Which Gland Is Considered the Master Gland of the Endocrine System?

Answer: The pituitary gland controls other endocrine glands and regulates growth and metabolism.

14. What Is the Function of Nephrons in the Kidneys?

Answer: Nephrons filter blood, remove waste, and regulate water and electrolyte balance.

15. What Is the Difference Between Arteries and Veins?

Answer: Arteries carry blood away from the heart; veins carry blood back to the heart.

16. Which Vitamin Is Produced When Skin Is Exposed to Sunlight?

Answer: Vitamin D is produced when skin is exposed to ultraviolet rays from sunlight.

17. What Is the Role of Hemoglobin?

Answer: Hemoglobin is a protein in red blood cells that binds to oxygen for transport.

18. What Are the Four Chambers of the Heart?

Answer: The four chambers are the right atrium, right ventricle, left atrium, and left ventricle.

Biology & Genetics

19. What Is the Basic Unit of Heredity?

Answer: The gene is the basic unit of heredity, carrying genetic information from parents to offspring.

20. How Many Chromosomes Do Humans Have?

Answer: Humans have 46 chromosomes, organized in 23 pairs.

21. What Is the Difference Between Mitosis and Meiosis?

Answer: Mitosis produces two identical cells for growth and repair. Meiosis produces four sex cells with half the chromosomes.

22. What Does DNA Stand For?

Answer: DNA stands for deoxyribonucleic acid, which contains genetic instructions.

23. What Is a Dominant Allele?

Answer: A dominant allele is expressed even when only one copy is present.

24. What Is Photosynthesis?

Answer: Photosynthesis is the process plants use to convert sunlight, water, and carbon dioxide into glucose and oxygen.

25. What Are the Four Bases in DNA?

Answer: The four bases are adenine, thymine, cytosine, and guanine.

26. What Is the Function of Ribosomes?

Answer: Ribosomes build proteins by reading messenger RNA instructions.

27. What Is Natural Selection?

Answer: Natural selection is the process by which organisms better adapted to their environment survive and reproduce more successfully.

28. What Is the Difference Between Prokaryotic and Eukaryotic Cells?

Answer: Prokaryotic cells lack a nucleus and membrane-bound organelles. Eukaryotic cells have both.

29. What Is ATP and Why Is It Important?

Answer: ATP (adenosine triphosphate) is the energy currency of cells, powering cellular processes.

30. What Organelle Is Called the Powerhouse of the Cell?

Answer: Mitochondria are called the powerhouse because they produce most of the cell's ATP.

Chemistry & Scientific Reasoning

31. What is the pH of a Neutral Solution?

Answer: A neutral solution has a pH of 7. Values below 7 are acidic; above 7 are basic.

32. What Is an Atom?

Answer: An atom is the smallest unit of an element that retains the element's properties.

33. What Are the Three States of Matter?

Answer: The three states are solid, liquid, and gas.

34. What Is the Difference Between an Element and a Compound?

Answer: An element contains only one type of atom. A compound contains two or more elements chemically bonded.

35. What Is a Covalent Bond?

Answer: A covalent bond forms when atoms share electrons.

36. What Does the Atomic Number Represent?

Answer: The atomic number represents the number of protons in an atom's nucleus.

37. What Is an Isotope?

Answer: Isotopes are atoms of the same element with different numbers of neutrons.

38. What Is the Difference Between Exothermic and Endothermic Reactions?

Answer: Exothermic reactions release energy as heat. Endothermic reactions absorb energy from their surroundings.

39. What Is Molarity?

Answer: Molarity measures concentration as moles of solute per liter of solution.

40. What Is the Scientific Method?

Answer: The scientific method is a systematic process of observation, hypothesis formation, experimentation, and conclusion.

41. What Are the Products of Cellular Respiration?

Answer: Cellular respiration produces ATP, carbon dioxide, and water from glucose and oxygen.

42. What Is the Law of Conservation of Mass?

Answer: Mass cannot be created or destroyed in a chemical reaction; it only changes form.

43. What Is Electronegativity?

Answer: Electronegativity measures an atom's ability to attract electrons in a chemical bond.

44. What Is a Catalyst?

Answer: A catalyst speeds up a chemical reaction without being consumed in the process.

45. What Is the Difference Between Kinetic and Potential Energy?

Answer: Kinetic energy is the energy of motion. Potential energy is stored energy based on position.

Bonus Mini Mixed Practice Test

46. Which Organ Produces Insulin?

Answer: The pancreas produces insulin to regulate blood sugar levels.

47. What Is the Function of the Cell Membrane?

Answer: The cell membrane controls what enters and exits the cell, maintaining internal balance.

48. What Is an Ionic Bond?

Answer: An ionic bond forms when one atom transfers electrons to another atom.

49. What Are Enzymes?

Answer: Enzymes are proteins that speed up chemical reactions in living organisms.

50. What Is Osmosis?

Answer: Osmosis is the movement of water across a membrane from low to high solute concentration.

51. What Is the Difference Between RNA and DNA?

Answer: RNA is single-stranded and contains ribose sugar and uracil. DNA is double-stranded with deoxyribose sugar and thymine.

52. What Happens During an Oxidation Reaction?

Answer: During oxidation, an atom or molecule loses electrons.

53. What Is Homeostasis?

Answer: Homeostasis is the body's ability to maintain stable internal conditions despite external changes.

54. What Is a Buffer Solution?

Answer: A buffer solution resists pH changes when small amounts of acid or base are added.

55. What Is the Function of the Lymphatic System?

Answer: The lymphatic system removes excess fluid from tissues, absorbs fats, and supports immune function