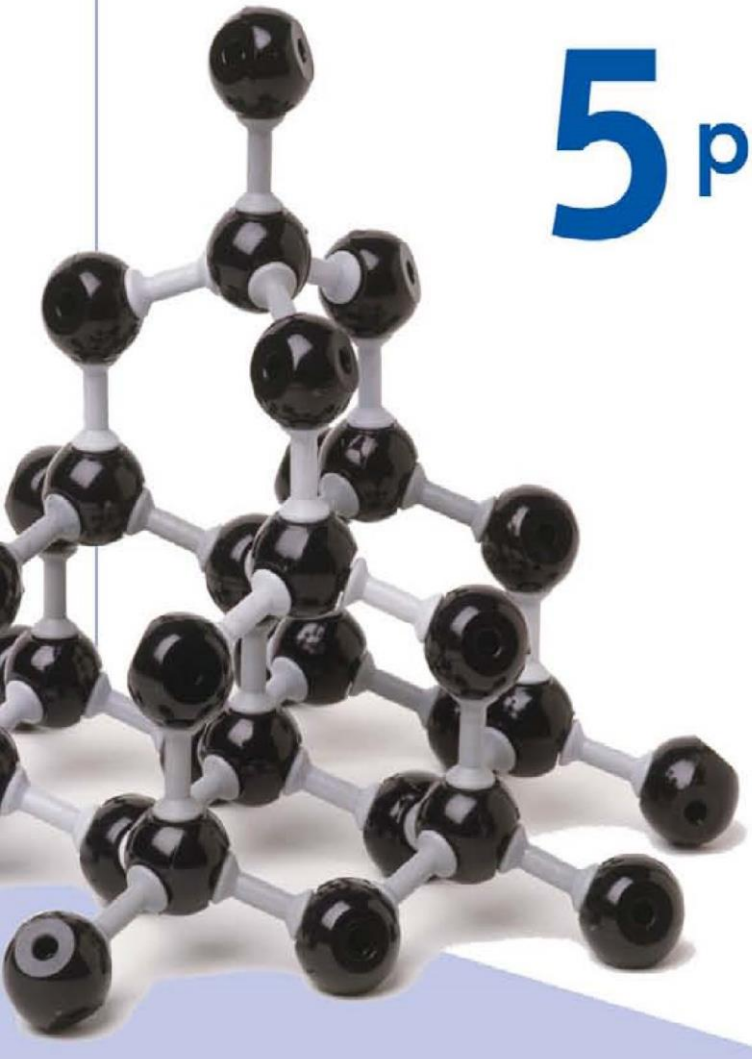
McGraw-Hill's

SAT Subject Test Chemistry

5 practice tests



- More than 500 practice questions with explanations
- Strategies for answering every question type
- Detailed review of all chemistry topics

Second Edition

THE TOP 40 THINGS YOU NEED TO KNOW FOR TOP SCORES IN CHEMISTRY

1. CHANGES

Understand and be able to identify the difference between physical and chemical changes.

See Chapter 1.

2. REACTIONS

Understand and be able to identify the difference between exothermic and endothermic reactions.

See Chapter 1.

3. MIXTURES

Know the differences between substances, mixtures, and the components of mixtures.

See Chapter 1.

4. GAS LAWS AND CALCULATIONS

Be able to use the gas laws to calculate moles, pressure, volume, and mass of a sample of gas at various temperatures and conditions.

See Chapter 2.

5. MATTER

Be able to name the changes in phases of matter and identify them on a heating/ cooling curve.

See Chapter 2.

6. SUBATOMIC PARTICLES

Understand the properties of the subatomic particles and how they allow isotopes to exist.

See Chapter 3.

7. ELECTRON CONFIGURATION

Be able to provide the electron configuration of an element given the number of electrons.

See Chapter 3.

8. MOLECULES

Know how to distinguish between the various hybridization states and the shapes of molecules that can be formed.

See Chapter 3.

9. THE OCTET RULE

Understand the octet rule and how it allows atoms and ions to be stable.

See Chapter 3.

10. GROUPING AND THE PERIODIC TABLE

Know the properties and names of various groups/families within the periodic table.

See Chapter 4.

11. METALS, NONMETALS, AND THE PERIODIC TABLE

Know the properties and locations of the metals and nonmetals.

See Chapter 4.

12. TRENDS AND THE PERIODIC TABLE

Know the trends for electronegativity, ionization energy, and atomic radius across the periodic table.

See Chapter 4.

13. BONDS

Be able to distinguish between the various intramolecular bonds: covalent (polar vs. nonpolar), ionic, network covalent, hydrogen, coordinate covalent, metallic, dispersion/Van der Waals, and molecule-ion attraction.

See Chapter 5.

14. SIGMA AND PI BONDS

Be able to tell the difference between sigma and pi bonds and be able to locate them within a molecule.

See Chapter 5.

15. COMPOUNDS

Be able to name ionic and covalent compounds using both traditional methods and the stock method.

See Chapter 5.

16. CHEMICAL EQUATIONS

Know how to balance and classify chemical equations.

See Chapter 6.

17. CALCULATIONS OF COMPOUNDS

Be able to calculate percent hydration and percent composition of a compound.

See Chapter 6.

18. SOLUBILITY RULES

Understand how to use solubility rules to predict the products of a reaction and write net ionic equations.

See Chapter 6.

19. SOLUTIONS

Know how to calculate the concentration of a solution.

See Chapter 6.

20. THE MOLE

Understand how to use the mole to calculate the number of liters a gas will occupy, the number of molecules present, the mass of a sample, and the number of moles of another substance in a reaction.

See Chapter 6.

21. POTENTIAL ENERGY DIAGRAMS

Be able to draw and label a potential energy diagram.

See Chapter 7.

22. HEAT

Know how to use a potential energy diagram and Hess's Law to calculate heat involved in reactions.

See Chapter 7.

23. RATE OF REACTION

Be able to determine how to change the rate of reaction.

See Chapter 8.

24. EQUILIBRIUM

Be able to determine how changing conditions changes the point of equilibrium of a reaction.

See Chapter 8.

25. PRODUCTS AND REACTANTS

Understand how to use K_{eq} and K_{sp} values to find concentrations of products and reactants.

See Chapter 8.

26. SPONTANEOUS REACTIONS

Know how to determine if a reaction will be spontaneous.

See Chapter 8.

27. ACIDS AND BASES

Understand the various operational and conceptual methods for defining acids and bases.

See Chapter 9.

28. K_a

Understand what K_a can tell us about an acid or a base.

See Chapter 9.

29. MOLARITY AND pH

Know how to calculate the molarity and pH of an acid or a base solution.

See Chapter 9.

30. OXIDATION NUMBERS

Be able to determine the oxidation numbers for the elements in a compound.

See Chapter 10.

31. OXIDIZING AND REDUCING AGENTS

Know how to identify the substances that had a change in oxidation number and identify which serve as an oxidizing or a reducing agent in a halfreaction.

See Chapter 10.

32. REDOX REACTIONS

Be able to balance both simple and complex redox reactions.