

- _____ 9. How do the isotopes hydrogen-1 and hydrogen-2 differ?
- Hydrogen-2 has one more electron than hydrogen-1.
 - Hydrogen-2 has one neutron; hydrogen-1 has none.
 - Hydrogen-2 has two protons; hydrogen-1 has one.
 - Hydrogen-2 has one proton; hydrogen-1 has none.
- _____ 10. Select the correct formula for sulfur hexafluoride.
- S_2F_6
 - F_6SO_3
 - F_6S_2
 - SF_6
- _____ 11. What is the temperature of absolute zero measured in $^{\circ}C$?
- $-373^{\circ}C$
 - $-273^{\circ}C$
 - $-173^{\circ}C$
 - $-73^{\circ}C$
- _____ 12. How many valence electrons are transferred from the nitrogen atom to potassium in the formation of the compound potassium nitride?
- 0
 - 1
 - 2
 - 3
- _____ 13. Which of the following is an INCORRECT interpretation of the balanced equation shown below?
- $$2S(s) + 3O_2(g) \rightarrow 2SO_3(g)$$
- 2 atoms S + 3 molecules $O_2 \rightarrow$ 2 molecules SO_3
 - 2 g S + 3 g $O_2 \rightarrow$ 2 g SO_3
 - 2 mol S + 3 mol $O_2 \rightarrow$ 2 mol SO_3
 - none of the above
- _____ 14. What is the measurement 111.009 mm rounded off to four significant digits?
- 111 mm
 - 111.0 mm
 - 111.01 mm
 - 110 mm
- _____ 15. Which of the following are produced when a base is dissolved in water?
- hydronium ions
 - hydroxide ions
 - hydrogen ions
 - ammonium ions
- _____ 16. What is the mass of oxygen in 250 g of sulfuric acid, H_2SO_4 ?
- 0.65 g
 - 3.9 g
 - 16 g
 - 160 g
- _____ 17. Which of the following is true about an ionic compound?
- It is a salt.
 - It is held together by ionic bonds.
 - It is composed of anions and cations.
 - all of the above
- _____ 18. An unstable nucleus _____.
- increases its nuclear mass by fission
 - increases its half-life
 - emits energy when it decays
 - expels all of its protons

Name: _____

ID: A

- _____ 38. Which state of matter has a definite volume and takes the shape of its container?
- a. solid
 - b. liquid
 - c. gas
 - d. both b and c

- _____ 39. What is the coefficient for O₂ when the equation below is correctly balanced?



- a. 4
 - b. 7
 - c. 8
 - d. 10
- _____ 40. All of the following are driving forces for a chemical reaction except
- a. formation of a solid.
 - b. formation of a gas.
 - c. transfer of electrons.
 - d. decrease in temperature.

Midyear Review 821

Answer Section

MULTIPLE CHOICE

- ANS: B PTS: 1 DIF: L2 REF: p. 312
OBJ: 10.3.3 Distinguish between empirical and molecular formulas.
STA: CH.5.4
- ANS: A PTS: 1 DIF: L2 REF: p. 110
OBJ: 4.2.1 Identify three types of subatomic particle. | 4.3.1 Explain what makes elements and isotopes different from each other. STA: CH.2.2 | CH.2.1
- ANS: A PTS: 1 DIF: L2 REF: p. 369
OBJ: 12.3.1 Identify and use the limiting reagent in a reaction to calculate the maximum amount of product(s) produced and the amount of excess reagent that remains unreacted.
- ANS: A PTS: 1 DIF: L2 REF: p. 801
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.
STA: CH.2.5
- ANS: B PTS: 1 DIF: L1 REF: p. 333
OBJ: 11.2.1 Describe the five general types of reactions. STA: CH.5.2
- ANS: C PTS: 1 DIF: L1 REF: p. 336
OBJ: 11.2.1 Describe the five general types of reactions. STA: CH.5.2
- ANS: B PTS: 1 DIF: L1 REF: p. 39
OBJ: 2.1.1 Identify the properties of matter as extensive or intensive.
STA: CH.1.1
- ANS: D PTS: 1 DIF: L1 REF: p. 198
OBJ: 7.2.2 Describe three properties of ionic compounds.
- ANS: B PTS: 1 DIF: L3 REF: p. 111 | p. 112 | p. 113
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other. | 4.3.2 Calculate the number of neutrons in an atom. STA: CH.2.2
- ANS: D PTS: 1 DIF: L2 REF: p. 270 | p. 278
OBJ: 9.3.2 Apply the rules for naming and writing formulas for binary molecular compounds. | 9.5.2 Apply the rules for naming chemical compounds by using a flowchart.
STA: CH.4.6 | CH.SIS4.3
- ANS: B PTS: 1 DIF: L1 REF: p. 77
OBJ: 3.2.1 List SI units of measurement and common SI prefixes.
- ANS: A PTS: 1 DIF: L2 REF: p. 194
OBJ: 7.2.1 Explain the electrical charge of an ionic compound.
STA: CH.4.1 | CH.4.2
- ANS: B PTS: 1 DIF: L2 REF: p. 356
OBJ: 12.1.2 Interpret balanced chemical equations in terms of interacting moles, representative particles, masses, and gas volume at STP. STA: CH.5.1
- ANS: B PTS: 1 DIF: L2 REF: p. 66 | p. 68
OBJ: 3.1.3 Identify the number of significant figures in a measurement and in a calculated answer.
STA: CH.SIS2.5 | CH.SIS3.2
- ANS: B PTS: 1 DIF: L1 REF: p. 273
OBJ: 9.4.3 Apply the rules for naming bases. STA: CH.4.6

16. ANS: D PTS: 1 DIF: L2 REF: p. 298
OBJ: 10.2.1 Describe how to convert the mass of a substance to the number of moles of a substance, and moles to mass. STA: CH.5.3
17. ANS: D PTS: 1 DIF: L1 REF: p. 194
OBJ: 7.2.1 Explain the electrical charge of an ionic compound.
STA: CH.4.1 | CH.4.2
18. ANS: C PTS: 1 DIF: L3 REF: p. 800
OBJ: 25.1.1 Explain how an unstable nucleus releases energy.
STA: CH.2.5
19. ANS: A PTS: 1 DIF: L2 REF: p. 63 | p. 71
OBJ: 3.1.1 Convert measurements to scientific notation. STA: CH.SIS3.2
20. ANS: C PTS: 1 DIF: L2 REF: p. 108
OBJ: 4.2.2 Describe the structure of atoms according to the Rutherford model.
STA: CH.2.2 | CH.2.1
21. ANS: B PTS: 1 DIF: L2 REF: p. 172
OBJ: 6.3.2 Explain how ions form.
22. ANS: B PTS: 1 DIF: L2 REF: p. 45
OBJ: 2.2.2 Distinguish between homogeneous and heterogeneous samples of matter. | 2.2.3 Describe two ways that components of mixtures can be separated. STA: CH.1.2
23. ANS: C PTS: 1 DIF: L2 REF: p. 42
OBJ: 2.1.4 Describe a physical change. STA: CH.1.1
24. ANS: B PTS: 1 DIF: L1 REF: p. 634
OBJ: 20.1.1 Define oxidation and reduction in terms of the loss or gain of oxygen or hydrogen and the loss or gain of electrons. STA: CH.8.4
25. ANS: B PTS: 1 DIF: L2 REF: p. 360 | p. 361 | p. 362
OBJ: 12.2.2 Calculate stoichiometric quantities from balanced chemical equations using units of moles, mass, representative particles, and volumes of gases at STP. STA: CH.5.5
26. ANS: A PTS: 1 DIF: L1 REF: p. 23
OBJ: 1.3.2 Identify three steps in the scientific method.
STA: CH.SIS2 | CH.SIS1 | CH.SIS2.2 | CH.SIS1.2 | CH.SIS2.3
27. ANS: C PTS: 1 DIF: L2 REF: p. 371
OBJ: 12.3.1 Identify and use the limiting reagent in a reaction to calculate the maximum amount of product(s) produced and the amount of excess reagent that remains unreacted.
28. ANS: B PTS: 1 DIF: L2 REF: p. 262
OBJ: 9.2.1 Apply the rules for naming and writing formulas for binary ionic compounds.
STA: CH.4.6
29. ANS: B PTS: 1 DIF: L2 REF: p. 359 | p. 360
OBJ: 12.2.1 Construct mole ratios from balanced chemical equations and apply these ratios in mole-mole stoichiometric calculations. STA: CH.5.5
30. ANS: D PTS: 1 DIF: L2 REF: p. 375
OBJ: 12.3.2 Calculate theoretical yield, actual yield, or percent yield given appropriate information.
STA: CH.5.6
31. ANS: D PTS: 1 DIF: L1 REF: p. 66
OBJ: 3.1.3 Identify the number of significant figures in a measurement and in a calculated answer.
STA: CH.SIS2.5 | CH.SIS3.2
32. ANS: C PTS: 1 DIF: L2 REF: p. 272
OBJ: 9.4.1 Apply three rules for naming acids. STA: CH.4.6

33. ANS: C PTS: 1 DIF: L2 REF: p. 334 | p. 335
OBJ: 11.2.1 Describe the five general types of reactions. STA: CH.5.2
34. ANS: C PTS: 1 DIF: L2 REF: p. 53
OBJ: 2.4.1 Describe what happens during a chemical change.
STA: CH.1.1
35. ANS: B PTS: 1 DIF: L2 REF: p. 371
OBJ: 12.3.1 Identify and use the limiting reagent in a reaction to calculate the maximum amount of product(s) produced and the amount of excess reagent that remains unreacted.
36. ANS: A PTS: 1 DIF: L1 REF: p. 191
OBJ: 7.1.4 Explain how anions form.
37. ANS: D PTS: 1 DIF: L1 REF: p. 587
OBJ: 19.4.1 Define the products of an acid-base reaction.
38. ANS: B PTS: 1 DIF: L1 REF: p. 41
OBJ: 2.1.3 Differentiate among the three states of matter. STA: CH.1.3 | CH.6.3
39. ANS: B PTS: 1
40. ANS: D PTS: 1