

Midterm spring-practice test**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. What is conserved in the reaction shown below?
$$\text{H}_2(g) + \text{Cl}_2(g) \rightarrow 2\text{HCl}(g)$$
- a. mass only
b. mass and moles only
c. mass, moles, and molecules only
d. mass, moles, molecules, and volume
- _____ 2. What is conserved in the reaction shown below?
$$\text{N}_2(g) + 3\text{F}_2(g) \rightarrow 2\text{NF}_3(g)$$
- a. atoms only
b. mass only
c. mass and atoms only
d. moles only
- _____ 3. In the reaction $2\text{CO}(g) + \text{O}_2(g) \rightarrow 2\text{CO}_2(g)$, what is the ratio of moles of oxygen used to moles of CO_2 produced?
- a. 1:1
b. 2:1
c. 1:2
d. 2:2
- _____ 4. Which of the following is true about the total number of reactants and the total number of products in the reaction shown below?
$$\text{C}_5\text{H}_{12}(l) + 8\text{O}_2(g) \rightarrow 5\text{CO}_2(g) + 6\text{H}_2\text{O}(g)$$
- a. 9 moles of reactants chemically change into 11 moles of product.
b. 9 grams of reactants chemically change into 11 grams of product.
c. 9 liters of reactants chemically change into 11 liters of product.
d. 9 atoms of reactants chemically change into 11 atoms of product.
- _____ 5. Which of the following is an INCORRECT interpretation of the balanced equation shown below?
$$2\text{S}(s) + 3\text{O}_2(g) \rightarrow 2\text{SO}_3(g)$$
- a. 2 atoms S + 3 molecules $\text{O}_2 \rightarrow$ 2 molecules SO_3
b. 2 g S + 3 g $\text{O}_2 \rightarrow$ 2 g SO_3
c. 2 mol S + 3 mol $\text{O}_2 \rightarrow$ 2 mol SO_3
d. none of the above
- _____ 6. How many moles of aluminum are needed to react completely with 1.2 mol of FeO?
$$2\text{Al}(s) + 3\text{FeO}(s) \rightarrow 3\text{Fe}(s) + \text{Al}_2\text{O}_3(s)$$
- a. 1.2 mol
b. 0.8 mol
c. 1.6 mol
d. 2.4 mol
- _____ 7. When iron rusts in air, iron(III) oxide is produced. How many moles of oxygen react with 2.4 mol of iron in the rusting reaction?
$$4\text{Fe}(s) + 3\text{O}_2(g) \rightarrow 2\text{Fe}_2\text{O}_3(s)$$
- a. 1.2 mol
b. 1.8 mol
c. 2.4 mol
d. 3.2 mol

- _____ 8. At STP, how many liters of oxygen are required to react completely with 3.6 liters of hydrogen to form water?
 $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$
- a. 1.8 L
b. 3.6 L
c. 2.0 L
d. 2.4 L
- _____ 9. The equation below shows the decomposition of lead nitrate. How many grams of oxygen are produced when 11.5 g NO_2 is formed?
 $2\text{Pb}(\text{NO}_3)_2(\text{s}) \rightarrow 2\text{PbO}(\text{s}) + 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$
- a. 1.00 g
b. 2.00 g
c. 2.88 g
d. 32.0 g
- _____ 10. When glucose is consumed, it reacts with oxygen in the body to produce carbon dioxide, water, and energy. How many grams of carbon dioxide would be produced if 45 g of $\text{C}_6\text{H}_{12}\text{O}_6$ completely reacted with oxygen?
- a. 1.5 g
b. 1.8 g
c. 11 g
d. 66 g
- _____ 11. Mercury can be obtained by reacting mercury(II) sulfide with calcium oxide. How many grams of calcium oxide are needed to produce 36.0 g of Hg?
 $4\text{HgS}(\text{s}) + 4\text{CaO}(\text{s}) \rightarrow 4\text{Hg}(\text{l}) + 3\text{CaS}(\text{s}) + \text{CaSO}_4$
- a. 1.80 g
b. 7.56 g
c. 10.1 g
d. 13.4 g
- _____ 12. How many moles of H_3PO_4 are produced when 71.0 g P_4O_{10} reacts completely to form H_3PO_4 ?
 $\text{P}_4\text{O}_{10}(\text{s}) + 6\text{H}_2\text{O}(\text{l}) \rightarrow 4\text{H}_3\text{PO}_4(\text{aq})$
- a. 0.063 5 mol
b. 1.00 mol
c. 4.00 mol
d. 16.0 mol
- _____ 13. How many liters of hydrogen gas are needed to react with CS_2 to produce 2.50 L of CH_4 at STP?
 $4\text{H}_2(\text{g}) + \text{CS}_2(\text{l}) \rightarrow \text{CH}_4(\text{g}) + 2\text{H}_2\text{S}(\text{g})$
- a. 2.50 L
b. 5.00 L
c. 7.50 L
d. 10.0 L
- _____ 14. Which conversion factor do you use first to calculate the number of grams of CO_2 produced by the reaction of 50.6 g of CH_4 with O_2 ? The equation for the complete combustion of methane is:
 $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l})$
- a. 1 mol CH_4 /16.0 g CH_4
b. 2 mol O_2 /1 mol CO_2
c. 16.0 g CH_4 /1 mol CO_2
d. 44.0 g CO_2 /2 mol CO_2
- _____ 15. How many liters of NH_3 are needed to react completely with 30.0 L of NO (at STP)?
 $4\text{NH}_3(\text{g}) + 6\text{NO}(\text{g}) \rightarrow 5\text{N}_2(\text{g}) + 6\text{H}_2\text{O}(\text{g})$
- a. 5.0 L
b. 20.0 L
c. 7.5 L
d. 120.0 L
- _____ 16. Calcium oxide, or lime, is produced by the thermal decomposition of limestone in the reaction $\text{CaCO}_3(\text{s}) \xrightarrow{\Delta} \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$. What mass of lime can be produced from 1.5×10^3 kg of limestone?
- a. 8.4×10^5 kg
b. 8.4×10^2 kg
c. 8.4 kg
d. none of the above

- ___ 17. Hydrogen gas is produced when zinc reacts with hydrochloric acid. If the actual yield of this reaction is 85%, how many grams of zinc are needed to produce 112 L of H_2 at STP?
- $$Zn(s) + 2HCl(aq) \rightarrow ZnCl_2(s) + H_2(g)$$
- a. 95 g c. 280 g
b. 180 g d. 380 g
- ___ 18. In a particular reaction between copper metal and silver nitrate, 12.7 g Cu produced 38.1 g Ag. What is the percent yield of silver in this reaction?
- $$Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$$
- a. 56.7% c. 88.2%
b. 77.3% d. 176%
- ___ 19. Standard conditions when working with gases are defined as ____.
- a. 0 K and 101.3 kPa c. 0°C and 101.3 kPa
b. 0 K and 1 kPa d. 0°C and 1 kPa
- ___ 20. What is the number of moles of solute in 250 mL of a 0.4M solution?
- a. 0.1 mol c. 0.62 mol
b. 0.16 mol d. 1.6 mol
- ___ 21. What mass of Na_2SO_4 is needed to make 2.5 L of 2.0M solution? (Na = 23 g; S = 32 g; O = 16 g)
- a. 178 g c. 356 g
b. 284 g d. 710 g
- ___ 22. How many mL of a 2.0M NaBr solution are needed to make 200.0 mL of 0.50M NaBr?
- a. 25 mL c. 100 mL
b. 50 mL d. 150 mL
- ___ 23. To 225 mL of a 0.80M solution of KI, a student adds enough water to make 1.0 L of a more dilute KI solution. What is the molarity of the new solution?
- a. 180M c. 0.35M
b. 2.8M d. 0.18M
- ___ 24. Which of the following is NOT a cation?
- a. iron(III) ion c. Ca^{2+}
b. sulfate d. mercurous ion
- ___ 25. In which of the following are the symbol and name for the ion given correctly?
- a. NH_4^+ : ammonia; H^+ : hydride c. OH^- : hydroxide; O^{2-} : oxide
b. $C_2H_3O_2^-$: acetate; $C_2O_4^-$: oxalite d. PO_3^{3-} : phosphate; PO_4^{3-} : phosphite
- ___ 26. An -ate or -ite at the end of a compound name usually indicates that the compound contains ____.
- a. fewer electrons than protons c. only two elements
b. neutral molecules d. a polyatomic anion
- ___ 27. Which of the following shows correctly an ion pair and the ionic compound the two ions form?
- a. Sn^{4+} , N^{3-} ; Sn_4N_3 c. Cr^{3+} , I^- ; CrI
b. Cu^{2+} , O^{2-} ; Cu_2O_2 d. Fe^{3+} , O^{2-} ; Fe_2O_3
- ___ 28. Which of the following correctly represents an ion pair and the ionic compound the ions form?
- a. Ca^{2-} , F^- ; CaF_2 c. Ba^{2+} , O^{2-} ; Ba_2O_2
b. Na^+ , Cl^- ; $NaCl_2$ d. Pb^{4+} , O^{2-} ; Pb_2O_4

- ____ 29. What is the correct formula for potassium sulfite?
a. KHSO_3 c. K_2SO_3
b. KHSO_4 d. K_2SO_4
- ____ 30. Which of the following correctly shows a prefix used in naming binary molecular compounds with its corresponding number?
a. *deca-*, 7 c. *hexa-*, 8
b. *nona-*, 9 d. *octa-*, 4
- ____ 31. Consider a mystery compound having the formula M_xT_y . If the compound is not an acid, if it contains only two elements, and if M is not a metal, which of the following is true about the compound?
a. It contains a polyatomic ion. c. Its name ends in *-ic*.
b. Its name ends in *-ite* or *-ate*. d. It is a binary molecular compound.
- ____ 32. What is the correct formula for calcium dihydrogen phosphate?
a. CaH_2PO_4 c. $\text{Ca}(\text{H}_2\text{PO}_4)_2$
b. $\text{Ca}_2\text{H}_2\text{PO}_4$ d. $\text{Ca}(\text{H}_2\text{HPO}_4)_2$
- ____ 33. How many moles of silver atoms are in 1.8×10^{20} atoms of silver?
a. 3.0×10^{-4} c. 3.0×10^2
b. 3.3×10^{-3} d. 1.1×10^{44}
- ____ 34. How many molecules are in 2.10 mol CO_2 ?
a. 2.53×10^{24} molecules c. 3.49×10^{-24} molecules
b. 3.79×10^{24} molecules d. 1.26×10^{24} molecules
- ____ 35. What is the molar mass of $(\text{NH}_4)_2\text{CO}_3$?
a. 144 g c. 96 g
b. 138 g d. 78 g
- ____ 36. A 22.4-L sample of which of the following substances, at STP, would contain 6.02×10^{23} representative particles?
a. oxygen c. cesium iodide
b. gold d. sulfur
- ____ 37. If the density of an unknown gas Z is 4.50 g/L at STP, what is the molar mass of gas Z?
a. 0.201 g/mol c. 26.9 g/mol
b. 5.00 g/mol d. 101 g/mol
- ____ 38. If 60.2 grams of Hg combines completely with 24.0 grams of Br to form a compound, what is the percent composition of Hg in the compound?
a. 28.5% c. 71.5%
b. 39.9% d. 60.1%
- ____ 39. What is the percent by mass of carbon in acetone, $\text{C}_3\text{H}_6\text{O}$?
a. 20.7% c. 1.61%
b. 62.1% d. 30.0%
- ____ 40. $\text{P}_4\text{O}_{10} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{PO}_4$
When correctly balanced, what will be the coefficient for phosphoric acid?
a. 1 c. 6
b. 4 d. 8

- ___ 41. What type of reaction is the following?

$$Al_2(SO_4)_3(aq) + KOH(aq) \rightarrow Al(OH)_3 \text{ and } K_2SO_4$$
 a. synthesis
 b. decomposition
 c. single replacement
 d. double replacement
- ___ 42. If you rewrite the following word equation as a balanced equation, what will the coefficient and symbol for iodine be?

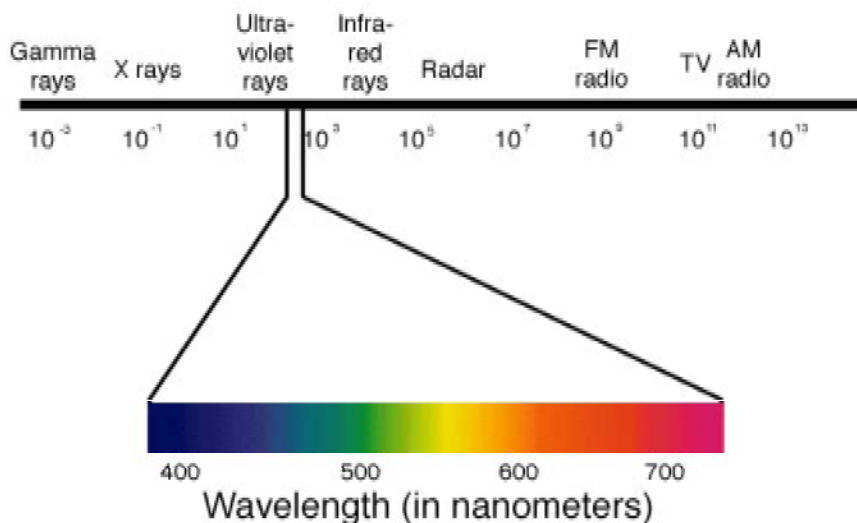
$$\text{Bromine} + \text{Potassium iodide} \rightarrow \text{Potassium bromide} + \text{Iodine}$$
 a. 2I
 b. 2I₂
 c. 2I
 d. I
 e. I₂
- ___ 43. What type of reaction is shown below?

$$H_3PO_4 + KOH \rightarrow K_3PO_4 + H_2O$$
 a. combination
 b. double replacement
 c. acid-base neutralization
 d. single replacement
 e. combustion
- ___ 44. What particle is needed to complete the following nuclear equation?

$${}_{25}^{56}\text{Mn} \rightarrow \text{___} + {}_{-1}^0\text{e}$$
 a. ${}_{24}^{58}\text{Cr}$
 b. ${}_{27}^{56}\text{Co}$
 c. ${}_{26}^{56}\text{Fe}$
 d. ${}_{25}^{27}\text{Mn}$
- ___ 45. Which of the following sets of symbols represents isotopes of the same element?
 a. ${}_{42}^{91}\text{J}$, ${}_{42}^{92}\text{J}$, ${}_{40}^{93}\text{J}$
 b. ${}_{59}^{138}\text{Q}$, ${}_{55}^{133}\text{Q}$, ${}_{54}^{133}\text{Q}$
 c. ${}_{38}^{84}\text{M}$, ${}_{38}^{86}\text{M}$, ${}_{38}^{87}\text{M}$
 d. ${}_{19}^{50}\text{L}$, ${}_{20}^{50}\text{L}$, ${}_{21}^{50}\text{L}$
- ___ 46. Which of the following formulas represents a molecular compound?
 a. ZnO
 b. Xe
 c. SO₂
 d. BeF₂
- ___ 47. Which of the following compounds contains the lead(II) ion?
 a. PbO
 b. PbCl₄
 c. Pb₂O
 d. PbS₂
- ___ 48. The correct name for H₂SO₄ is:
 a. dihydrogen sulfur tetroxide
 b. sulfuric acid
 c. sulfurous acid
 d. hydrogen sulfate
- ___ 49. What are the missing coefficients for the skeleton equation below?

$$\text{Cr}(s) + \text{Fe}(\text{NO}_3)_2(aq) \rightarrow \text{Fe}(s) + \text{Cr}(\text{NO}_3)_3(aq)$$
 a. 4, 6, 6, 2
 b. 2, 3, 2, 3
 c. 2, 3, 3, 2
 d. 1, 3, 3, 1

_____ 50. Using the diagram below, which electromagnetic radiation would have the longest wavelength?



- a. radio waves
b. infrared
c. x-rays
d. gamma rays
e. radar

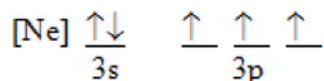
_____ 51. What is the correct formula for Carbonic Acid?

- a. HCO_3
b. H_2CO_3
c. HC_2O_4
d. $\text{H}_2\text{C}_2\text{O}_4$

_____ 52. Choose the correct electron configuration for **phosphide ion**.

- a. $1s^2 2s^2 2p^6 3s^2$
b. $1s^2 2s^2 2p^6 3s^2 3p^6$
c. $1s^2 2s^2 2p^6 3s^2 3p^3$
d. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$

_____ 53. Which ground-state atom has an electron configuration described by the following *orbital diagram*?



- a. phosphorus
b. nitrogen
c. arsenic
d. vanadium

_____ 54. Which of the following elements has the greatest ionization energy?

- a. Sr
b. Ag
c. Sn
d. Te

_____ 55. Which element has the greatest electronegativity?

- a. Al
b. Ga
c. In
d. B

_____ 56. How many valence electrons are in an atom of phosphorus?

- a. 2
b. 3
c. 4
d. 5

- _____ 57. Under what conditions can potassium bromide conduct electricity?
- only when melted
 - only when dissolved
 - only when it is in crystal form
 - only when melted or dissolved in water
- _____ 58. What is the correct polarity for CF_4 ?
- polar
 - nonpolar
- _____ 59. Which of the following covalent bonds is the most polar?
- H—F
 - H—C
 - H—H
 - H—N
- _____ 60. Choose the correct noble gas electron configuration for Platinum
- $[\text{Xe}] 6s^2 5d^8$
 - $[\text{Rn}] 6s^2 4f^{14} 5d^8$
 - $[\text{Rn}] 7s^2 5f^{14} 6d^8$
 - $[\text{Xe}] 6s^2 4f^{14} 5d^8$
- _____ 61. Chlorine-32 undergoes beta decay. What will be one of the products?
- Sulfur-32
 - Argon-32
 - Phosphorus-28
 - Chlorine-33
- _____ 62. For the compound, PH_3 , which intermolecular forces are present?
- dispersion force, dipole-dipole
 - dispersion & hydrogen-bonding, dipole-dipole
 - dispersion force
 - dispersion & hydrogen-bonding
- _____ 63. In an ionic bond, the cation and anion are held together by what force?
- intermolecular forces
 - electrostatic forces
 - intramolecular forces
- _____ 64. The diameter of a carbon atom is 0.000 000 000 154 m. What is this number expressed in scientific notation?
- 1.54×10^{12} m
 - 1.54×10^{-12} m
 - 1.54×10^{10} m
 - 1.54×10^{-10} m
- _____ 65. When a test instrument is calibrated, does its accuracy, precision, or reliability improve?
- precision
 - accuracy
 - reliability
 - all of the above
- _____ 66. How many significant figures are in the measurement 0.003 4 kg?
- two
 - four
 - five
 - This cannot be determined.
- _____ 67. How many significant figures are in the measurement 811.40 grams?
- two
 - three
 - four
 - five
- _____ 68. Express the product of 2.2 mm and 5.00 mm using the correct number of significant digits.
- 10 mm^2
 - 11 mm^2
 - 11.0 mm^2
 - 11.00 mm^2
- _____ 69. What is the measurement 1042 L rounded off to two significant digits?
- 1.0×10^3 L
 - 1040 L
 - 1050 L
 - 1.1×10^3 L

- ____ 70. What quantity is represented by the metric system prefix *deci*-?
- 1000
 - 100
 - 10
 - 1000000
- ____ 71. Which of the following units is NOT an official SI unit?
- kilogram
 - ampere
 - mole
 - liter
- ____ 72. Which temperature scale has no negative temperatures?
- Celsius
 - Fahrenheit
 - Joule
 - Kelvin
- ____ 73. What is the temperature -34°C expressed in kelvins?
- 139 K
 - 207 K
 - 239 K
 - 339 K
- ____ 74. What is the quantity 0.0075 meters expressed in centimeters? Use the table above to help you.
- 0.075 cm
 - 0.75 cm
 - 7.5 cm
 - 70.5 cm
- ____ 75. What is the volume of 80.0 g of ether if the density of ether is 0.70 g/mL?
- 5.6×10^1
 - 1.1×10^2
 - 8.8×10^{-3}
 - 8.0×10^1
- ____ 76. What is the volume of 45.6 g of silver if the density of silver is 10.5 g/mL?
- 0.23 mL
 - 4.34 mL
 - 479 mL
 - none of the above

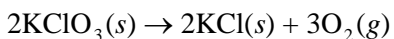
Multiple Response

Identify one or more choices that best complete the statement or answer the question.

- ____ 77. What intermolecular forces are present in CH_3OH ? (choose all that apply)
- Dispersion
 - Dipole-Dipole
 - Hydrogen Bonding
 - Ionic Bonding
- ____ 78. Which of the following is NOT classified correctly as a representative particle? (choose all that apply)
- CO = molecular
 - Ag = formula unit
 - $(\text{NH}_4)_2\text{SiO}_3$ = molecule
 - Li = atom

Short Answer

79. The decomposition of potassium chlorate yields oxygen gas. If the yield is 95%, how many grams of KClO_3 are needed to produce 10.0 L of O_2 ?



80. How many liters of a 1.5M solution are required to yield 5.0 grams of solute? (molar mass of solute = 30.0 g)

Midterm spring-practice test Answer Section

MULTIPLE CHOICE

- | | | | | |
|-----|-----------------------|-----------------------|---------|--|
| 1. | ANS: D
OBJ: 12.1.2 | PTS: 1
STA: Ch.3.d | DIF: L1 | REF: p. 356 |
| 2. | ANS: C
OBJ: 12.1.2 | PTS: 1
STA: Ch.3.d | DIF: L1 | REF: p. 356 |
| 3. | ANS: C
OBJ: 12.1.2 | PTS: 1
STA: Ch.4.c | DIF: L1 | REF: p. 356 |
| 4. | ANS: A
OBJ: 12.1.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 356 |
| 5. | ANS: B
OBJ: 12.1.2 | PTS: 1
STA: Ch.3.a | DIF: L2 | REF: p. 356 |
| 6. | ANS: B
OBJ: 12.2.1 | PTS: 1
STA: Ch.3.d | DIF: L1 | REF: p. 359 p. 360 |
| 7. | ANS: B
OBJ: 12.2.1 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 359 p. 360 |
| 8. | ANS: A
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L1 | REF: p. 363 p. 364 p. 365 p. 366 |
| 9. | ANS: B
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 360 p. 361 p. 362 |
| 10. | ANS: D
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 360 p. 361 p. 362 |
| 11. | ANS: C
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 360 p. 361 p. 362 |
| 12. | ANS: B
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 360 p. 361 p. 362 |
| 13. | ANS: D
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 363 p. 364 p. 365 p. 366 |
| 14. | ANS: A
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 360 p. 361 p. 362 |
| 15. | ANS: B
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 363 p. 364 p. 365 p. 366 |
| 16. | ANS: B
OBJ: 12.2.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 363 p. 364 p. 365 p. 366 |
| 17. | ANS: D
OBJ: 12.3.2 | PTS: 1
STA: Ch.3.d | DIF: L2 | REF: p. 374 |
| 18. | ANS: C
OBJ: 12.3.2 | PTS: 1
STA: Ch.3.f | DIF: L2 | REF: p. 375 |
| 19. | ANS: C
OBJ: 13.1.2 | PTS: 1
STA: Ch.4.d | DIF: L1 | REF: p. 387 |
| 20. | ANS: A
OBJ: 16.2.1 | PTS: 1
STA: Ch.6.d | DIF: L2 | REF: p. 480 p. 482 |
| 21. | ANS: D
OBJ: 16.2.1 | PTS: 1
STA: Ch.6.d | DIF: L3 | REF: p. 481 p. 482 |

22.	ANS: B OBJ: 16.2.2	PTS: 1 STA: Ch.6.d	DIF: L2	REF: p. 483 p. 484
23.	ANS: D OBJ: 16.2.2	PTS: 1 STA: Ch.6.d	DIF: L3	REF: p. 483 p. 484
24.	ANS: B OBJ: 9.1.1 9.1.2	PTS: 1 STA: Ch.2	DIF: L1	REF: p. 254 p. 255 p. 257
25.	ANS: C OBJ: 9.1.1 9.1.2	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 254 p. 257
26.	ANS: D OBJ: 9.1.2	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 257
27.	ANS: D OBJ: 9.2.1	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 262
28.	ANS: A OBJ: 9.2.1	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 262
29.	ANS: C OBJ: 9.2.2	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 257 p. 261 p. 262
30.	ANS: B OBJ: 9.3.2	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 269
31.	ANS: D OBJ: 9.3.2	PTS: 1 STA: Ch.2	DIF: L3	REF: p. 268 p. 269
32.	ANS: C OBJ: 9.2.2 9.2.3 9.5.2	PTS: 1 STA: Ch.5	DIF: L3	REF: p. 257 p. 264
33.	ANS: A OBJ: 10.1.2	PTS: 1 STA: Ch.3.d	DIF: L2	REF: p. 290 p. 291
34.	ANS: D OBJ: 10.1.2	PTS: 1 STA: Ch.3.d	DIF: L2	REF: p. 291 p. 292
35.	ANS: C OBJ: 10.1.4	PTS: 1 STA: Ch.3	DIF: L2	REF: p. 295 p. 296
36.	ANS: A OBJ: 10.2.2	PTS: 1 STA: Ch.4.h	DIF: L2	REF: p. 300
37.	ANS: D OBJ: 10.2.2	PTS: 1 STA: Ch.4.h	DIF: L2	REF: p. 302
38.	ANS: C OBJ: 10.3.1	PTS: 1 STA: Ch.3	DIF: L2	REF: p. 305 p. 306
39.	ANS: B OBJ: 10.3.1	PTS: 1 STA: Ch.3	DIF: L2	REF: p. 307
40.	ANS: B	PTS: 1		
41.	ANS: C	PTS: 1		
42.	ANS: E	PTS: 1		
43.	ANS: C	PTS: 1		
44.	ANS: C OBJ: 25.2.1	PTS: 1 STA: Ch.11.d	DIF: L3	REF: p. 803 p. 804
45.	ANS: C OBJ: 4.3.1	PTS: 1 STA: Ch.11.c	DIF: L3	REF: p. 112 p. 113
46.	ANS: C OBJ: 9.3.2	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 269
47.	ANS: A OBJ: 9.2.1	PTS: 1 STA: Ch.2	DIF: L2	REF: p. 262 p. 263

48. ANS: B PTS: 1 DIF: 2 STA: 2a
TOP: Acid Identification
49. ANS: C PTS: 1 DIF: L2 REF: p. 324 | p. 325
OBJ: 11.1.3 STA: Ch.3.a | Ch.3.e
50. ANS: A PTS: 1
51. ANS: B PTS: 1
52. ANS: B PTS: 1
53. ANS: A PTS: 1 DIF: Medium REF: Section: 7.9
OBJ: EK.1.B.2
54. ANS: D PTS: 1 DIF: L2 REF: p. 174
OBJ: 6.3.1 | 6.3.3 STA: Ch.1.c
55. ANS: D PTS: 1 DIF: L2 REF: p. 177 | p. 178
OBJ: 6.3.3 STA: Ch.1.c
56. ANS: D PTS: 1 DIF: L1 REF: p. 187
OBJ: 7.1.1 STA: Ch.1.c | Ch.2.a | Ch.1.d
57. ANS: D PTS: 1 DIF: L1 REF: p. 198
OBJ: 7.2.2 STA: Ch.5.a
58. ANS: A PTS: 1 DIF: L2 REF: p. 233
OBJ: 8.3.2 STA: Ch.2.a
59. ANS: A PTS: 1 DIF: L3 REF: p. 238 | p. 239
OBJ: 8.4.1 STA: Ch.2.a
60. ANS: D PTS: 1
61. ANS: B PTS: 1
62. ANS: C PTS: 1 STA: 3d
KEY: Moles to Representative Particles within formula
63. ANS: B PTS: 1 DIF: L1 REF: p. 194
OBJ: 7.2.1 STA: Ch.2.a
64. ANS: D PTS: 1 DIF: L1 REF: p. 63
OBJ: 3.1.1
65. ANS: B PTS: 1 DIF: L2 REF: p. 64
OBJ: 3.1.2
66. ANS: A PTS: 1 DIF: L1 REF: p. 66
OBJ: 3.1.3
67. ANS: D PTS: 1 DIF: L1 REF: p. 66
OBJ: 3.1.3
68. ANS: B PTS: 1 DIF: L1 REF: p. 68 | p. 71
OBJ: 3.1.3
69. ANS: A PTS: 1 DIF: L2 REF: p. 66 | p. 68
OBJ: 3.1.3
70. ANS: C PTS: 1 DIF: L1 REF: p. 74
OBJ: 3.2.1
71. ANS: D PTS: 1 DIF: L1 REF: p. 73
OBJ: 3.2.1
72. ANS: D PTS: 1 DIF: L1 REF: p. 77
OBJ: 3.2.1 STA: Ch.4.f
73. ANS: C PTS: 1 DIF: L1 REF: p. 77 | p. 78
OBJ: 3.2.3 STA: Ch.4.e

74. ANS: B PTS: 1 DIF: L1 REF: p. 84
 OBJ: 3.3.2
75. ANS: B PTS: 1 DIF: L2 REF: p. 91
 OBJ: 3.4.1
76. ANS: B PTS: 1 DIF: L2 REF: p. 91
 OBJ: 3.4.1

MULTIPLE RESPONSE

77. ANS: A, B, C PTS: 1
78. ANS: B, C PTS: 1

SHORT ANSWER

79. ANS:
 $10.0 \text{ L} \times 100\%/95\% = 10.5 \text{ L theoretical yield}$
 $10.5 \text{ L O}_2 \times 1 \text{ mol O}_2/22.4 \text{ L O}_2 \times 2 \text{ mol KClO}_3/3 \text{ mol O}_2 \times 122.6 \text{ g KClO}_3/1 \text{ mol KClO}_3$
 $= 38.4 \text{ g KClO}_3$

PTS: 1 DIF: L3 REF: p. 374 OBJ: 12.3.2
 STA: Ch.3.d

80. ANS:
 $\frac{1 \text{ L}}{1.5 \text{ mol}} \times \frac{1 \text{ mol}}{30.0 \text{ g}} \times 5.0 \text{ g} = 0.11 \text{ L}$

PTS: 1 DIF: L3 REF: p. 480 | p. 481
 OBJ: 16.2.1 STA: Ch.6.d