

PLEASE READ THESE DIRECTIONS CAREFULLY BEFORE STARTING THE EXAMINATION!

It is *extremely* important that you fill in the answer sheet EXACTLY as indicated, otherwise your answer sheet may not be processed; ALL entries are to be made on SIDE 1 of the answer sheet. Use a #2 pencil (or softer); fill in the circles completely and firmly. Erasures must be complete. Use only the following categories:

NAME:	Print your name starting at the first space, LAST NAME first, then a space, followed by your FIRST NAME, then another space, followed by your MIDDLE INITIAL. Fill in the <u>correct</u> circles below your printed name corresponding to the letters of your name; for the spaces, fill in the top blank circle.				
STUDENT NUMBER:	This is VERY IMPORTANT! Under IDENTIFICATION NUMBER, put in your 8 DIGIT STUDENT ID NUMBER (do not use the 9 at the beginning of your number) beginning in column A and continuing through column H, column I will be blank, (do NOT use column J at this time); be sure to fill in the correct circles (a common error to be avoided is mistaking "0" for "1").				
TEST FORM:	Fill in the "1" blank in the J column under IDENTIFICATION NUMBER (to indicate Hour Examination I).				
SPECIAL CODES:	Use for course and section number; in positions K-P write in one of the following: <div style="text-align: center;"> <table> <tr> <td>Dr. Ladipo</td> <td>105-001</td> </tr> <tr> <td>Dr. Yates</td> <td>105-002, 105-401</td> </tr> </table> </div>	Dr. Ladipo	105-001	Dr. Yates	105-002, 105-401
Dr. Ladipo	105-001				
Dr. Yates	105-002, 105-401				
SIGNATURE:	You MUST sign the examination answer sheet (bubble sheet) on the line directly above your printed name. Use your legal signature.				

Answering Questions:

Starting with answer "1" on SIDE 1, fill in the circle indicating the one best answer for each of the **33 questions** in this examination. Your score is the sum of the appropriate credit for each response. On the day following the examination, an answer key will be posted on Blackboard.

Grading and Reporting:

The examination scores will be posted in Blackboard as soon as possible after the examination. If an error has occurred in scoring your answers, inform your instructor within 48 hours of the posting of your score.

<p>BE SURE THAT YOUR TEST HAS 33 QUESTIONS, A PERIODIC TABLE, AND ONE SHEET OF SCRATCH PAPER. You may <u>NOT</u> use your own scratch paper during this examination. Cell phones, computers, and pagers are to be turned off and out of sight during the exam.</p>

1. Which of the following is a homogeneous mixture?

- A. wine
B. concrete
C. trail mix
D. chicken soup

2. Which one of the following statements is incorrect?

- A. Elements and compounds are pure substances.
B. When elements undergo chemical reaction, the reacting elements do not turn into other elements.
C. Compounds are composed of one type of molecule, or an array of ions.
D. Each element has a unique number of electrons.

3. Which of the following represents a chemical property of hydrogen gas

- A. It is gaseous at room temperature.
B. It is less dense than air.
C. It reacts explosively with oxygen.
D. It is colorless.

4. Which of the following correctly expresses the relationship between the decigram (dg) and the kilogram (kg)?

- A. $1 \text{ dg} = 10^{-4} \text{ kg}$
B. $1 \text{ dg} = 10^{-6} \text{ kg}$
C. $1 \text{ dg} = 10^{-5} \text{ kg}$
D. $1 \text{ dg} = 10^2 \text{ kg}$

5. Which of the following is equivalent to 6.96×10^{-6} meters?

- A. 6.96 mm
B. 69.6 nm
C. $6.96 \times 10^{-3} \text{ mm}$
D. 69.6 μm
-

6. Which of the following is NOT a measurement of volume

- A. 18.5 cm^3 C. 2.40 mm^3
B. 20.1 m^2 D. 2.10 mL
-

7. What is the volume of an object that has a mass of 455.6 g and a density of 19.3 g/cm^3 ?

- A. 31.2 mL C. 42.4 mL
B. 23.6 mL D. 18.5 mL
-

8. What answer should be reported, with the correct number of significant figures, for the following calculation?

$$(965.43 \times 3.911) \div 9413.4136 =$$

- A. 1.319×10^4 C. 13189
B. 13189.2 D. 1.32×10^4
-

9. An ibuprofen suspension contains 90 mg/ 4.0 mL. The recommended dose is 10. mg/kg body weight. How many mL of this suspension should be given to an infant weighing 6.6 kg?

- A. 9.2 mL C. 14 mL
B. 2.6 mL D. 3.1 mL
-

10. Which of the following statements is FALSE according to Dalton's Atomic Theory?

- A. All atoms of chlorine have identical properties that distinguish them from other elements.
B. An atom of nitrogen can be broken down into smaller particles that will still have the unique properties of nitrogen.
C. Atoms of sodium do not change into another element during a chemical reaction with chlorine.
D. One carbon atom will combine with one oxygen atom to form a molecule of carbon monoxide.
-

-
11. Rutherford's nuclear model of the atom is more consistent with the results of the alpha-particle-scattering experiment than Thomson's "plum-pudding" model because:
- A. The deflection of alpha-particles by the atom's electrons indicate that the majority of the mass of an atom is due to its electrons, which reside outside the nucleus.
 - B. The majority of the alpha-particles were deflected and some even bounced back.
 - C. The majority of the of alpha-particles passed through the atom and deflections of alpha-particles indicate that the mass and positive charge of an atom must be concentrated in a small region of the atom
 - D. The volume of an atom is mostly occupied by protons, which deflect alpha-particles.
-

12. What species is described as having 17 protons, 18 neutrons, and 18 electrons?

- A. ^{35}Ar
 - B. ^{36}Cl
 - C. $^{36}\text{Ar}^+$
 - D. $^{35}\text{Cl}^-$
-

13. Which of the following is an isotope of $^{14}_7\text{N}$?

- A. $^{15}_7\text{N}$
 - B. $^{14}_6\text{C}$
 - C. $^{14}_7\text{N}^-$
 - D. $^{14}_6\text{C}^-$
-

14. Which of the following elements would form a stable 1- ion?

- A. Na
 - B. Ca
 - C. Ne
 - D. Br
-

15. Silver has two stable isotopes and an atomic mass of 107.868 amu. The natural abundance of the ^{109}Ag isotope (108.905 amu) is 48.161%. What is the atomic mass of the other isotope?

- A. 107.23 amu
 - B. 106.51 amu
 - C. 106.14 amu
 - D. 106.90 amu
-

16. How many moles of sulfur atoms have a mass of 67.3 grams?

- A. 4.32 moles
B. 2.10 moles
C. 3.52 moles
D. 1.06 moles

17. How many molecules are in 2.50 moles of CO_2 ?

- A. 3.52×10^{24} molecules
B. 1.51×10^{24} molecules
C. 3.01×10^{24} molecules
D. 7.53×10^{23} molecules

18. Which is the best description of a covalent bond?

- A. A covalent bond forms from the sharing of two electrons between two non-metal atoms.
B. A covalent bond forms from the sharing of two electrons between metal and non-metal atoms.
C. A covalent bond forms from the transfer of electrons from a non-metal atom to a metal atom.
D. A covalent bond forms from the transfer of electrons from a metal to non-metal atoms.

19. Which of the following is a possible molecular formula for $\text{C}_4\text{H}_4\text{O}$?

- A. $\text{C}_8\text{H}_8\text{O}$
B. $\text{C}_{12}\text{H}_{12}\text{O}_2$
C. $\text{C}_8\text{H}_8\text{O}_2$
D. $\text{C}_2\text{H}_2\text{O}$

20. Which one of the following is an ionic compound?

- A. SiCl_4
B. CsBr
C. Cl_2
D. CH_4
-

21. What is the formula for the compound formed when potassium and selenium combine?

- A. KSe
B. K₂Se
C. KSe₂
D. K₂SeO₄
-

22. What is the correct name for Fe₂(SO₄)₃?

- A. Iron(III) sulfate
B. Iron(II) sulfate
C. Iron sulfate
D. Iron(VI) sulfate
-

23. What is the correct name for Sn(SO₄)₂? Keep in mind that Sn forms several different ions.

- A. tin(I) sulfate
B. tin(IV) sulfate
C. tin(II) sulfite
D. tin(I) sulfite
-

24. What is the correct name for P₂O₅?

- A. Diphosphorus pentaoxide
B. Pentoxy diphosphorus
C. Phosphorus(II) pentaoxide
D. Pentaoxy diphosphoride
-

25. What is the correct formula for sulfurous acid?

- A. HSO₃(aq)
B. HSO₄(aq)
C. H₂SO₃(aq)
D. H₂SO₄(aq)
-

26. Which one of the following atmospheric pollutants does not contribute to acid rain?

- A. SO₂
B. NO₂
C. SO₃
D. CH₄
-

27. What is the final process in the production of the element bromine?

- A. the Big Bang
B. nuclear fusion in stars
C. gravitational collapse of planets
D. exploding supernovae
-

28. The mass of 2.51×10^{-3} moles of a compound is 0.452 grams. What is the molar mass of this compound?

A. 1.13 g/mol

C. 146g/mol

B. 113g/mol

D. 180g/mol

29. What is the mass percent of lithium in Li_3PO_4 ?

A. 17.98 %

30.72%

B. 20.82%

55.27%

30. How many grams of chlorine are present in 0.0721 moles of CHBrCl_2 ?

A. 2.56 g

C. 5.90 g

B. 11.8 g

D. 5.11 g

31. What is the empirical formula of a compound that contains 52.14% carbon, 13.13% hydrogen, and 34.73% oxygen by mass?

A. CHO

C. $\text{C}_2\text{H}_6\text{O}$

B. CH_3O

D. CH_4O_3

32. The molar mass of a compound is 235.91 g/mol and its empirical formula is $\text{C}_3\text{H}_2\text{Br}$. What is the molecular formula of this compound?

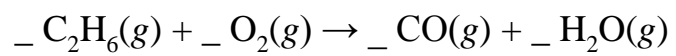
A. $\text{C}_3\text{H}_4\text{Br}_3$

C. $\text{C}_9\text{H}_6\text{Br}$

B. $\text{C}_{12}\text{H}_{14}\text{Br}$

D. $\text{C}_6\text{H}_4\text{Br}_2$

33. For the reaction shown below, what is the ratio of the coefficients of C_2H_6 and O_2 when the equation is properly balanced?



A. 3:5

C. 2:7

B. 2:5

D. 1:3

CHE 105 SP 2012 Exam 1 key

1. A
2. D
3. C
4. A
5. C
6. B
7. B
8. C
9. B
10. B
11. C
12. D
13. A
14. D
15. D
16. B
17. B
18. A
19. C
20. B
21. B
22. A
23. B
24. A
25. C
26. D
27. D
28. D
29. A
30. D
31. C
32. D
33. B