
Questions 1-13 Exam 1 material (Chapter 1-3)

1. Which of the following statements **best** describe a chemical property?

- A. Ethanol is concentrated during distillation.
- B. Chromium metal is attracted to a magnetic field.
- C. Sodium sublimes to a gas during a Born-Haber process step.
- D. Acetic acid is neutralized by sodium hydroxide.

2. What is the answer to the following calculation using **proper** scientific notation and the **appropriate** number of significant figures?

$$(433.621 - 333.9) \times 11.900$$

- A. 11.9×10^2
- B. 1.19×10^3
- C. 1.1868×10^3
- D. 11.868×10^3

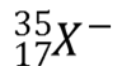
3. If an object has a density of 22.59 g/cm^3 , what is the density in $\mu\text{g/mL}$?

- A. $2.259 \times 10^7 \mu\text{g/mL}$
- B. $22.59 \mu\text{g/mL}$
- C. $2.259 \times 10^{-7} \mu\text{g/mL}$
- D. $11.3 \mu\text{g/mL}$

4. How long does it take light to travel ten parsecs? A parsec = 3.086×10^{16} meters.

- A. 3.262 years
 - B. 1.001 years
 - C. 9.205 years
 - D. 6.785 years
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5. How many protons, neutrons, and electrons are in the following compound?



- A. $p = 35, n = 17, e = 17$ C. $p = 17, n = 18, e = 17$
B. $p = 17, n = 35, e = 17$ D. $p = 17, n = 18, e = 18$

6. Which of the following statements about isotopes is *true*?

- A. Isotopes of the same element do not have the same number of protons.
B. Isotopes of the same element have the same mass.
C. Some elements have 3 or more naturally occurring isotopes.
D. Isotopes of the same element only differ in the number of electrons they contain.

7. Complete the following table:

<i>Atomic Number</i>	<i>Mass Number</i>	<i>Neutrons</i>	<i>Atomic Symbol</i>
92	235	W =	X =
Y =	123	72	Z =

- A. $W = 321, X = \text{U}, Y = 72, Z = \text{Sb}$
B. $W = 143, X = \text{U}, Y = 51, Z = \text{Hf}$
C. $W = 143, X = \text{U}, Y = 51, Z = \text{Sb}$
D. $W = 92, X = \text{U}, Y = 72, Z = \text{Hf}$

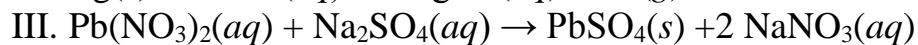
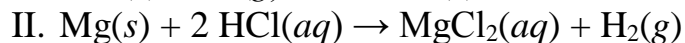
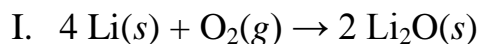
8. How many moles are in 86.7 g of bromine?

- A. 1.25 moles C. 0.243 moles
B. 0.786 moles D. 0.543 moles
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19. What is the oxidation number of copper in CuNO_3 ?

- A. +1
B. -1
C. +2
D. -2
-

20. Identify the redox reaction(s) from the list below:



- A. I
B. I, II, and III
C. I and II
D. II, III, and IV
-

21. What is 1492 mm Hg in units of atm?

- A. 0.7853 atm
B. 1.963 atm
C. 4.162 atm
D. 5.128 atm
-

22. A fixed amount of gas occupies a volume of 10.0 L at a pressure of 667 torr. What is the volume when the pressure is increased by 179 torr at constant temperature?

- A. 3.94 L
B. 7.88 L
C. 5.91 L
D. 6.54 L
-

23. What is the volume of 30.0 g of argon gas at 430 K and 0.0247 atm?

- A. 1.07×10^3 L
B. 4.66×10^2 L
C. 2.01×10^3 L
D. 5.62×10^3 L
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24. A 0.286 g sample of gas occupies 125 mL at 0.789 atm and 25°C. What is the molar mass of the gas?

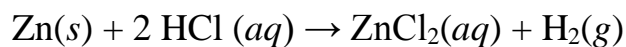
A. 29.6 g/mol

C. 39.9 g/mol

B. 55.4 g/mol

D. 70.9 g/mol

25. How many grams of zinc metal are required to produce 2.00 L of hydrogen gas at STP according to the chemical equation shown below?



A. 2.92 g

C. 5.84 g

B. 8.75 g

D. 11.7 g

26. A mixture of 18 g of neon and 25 g of krypton has a total pressure of 1.6 atm. What is the partial pressure of krypton?

A. 0.10 atm

C. 0.20 atm

B. 0.30 atm

D. 0.40 atm

Answer Key:

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