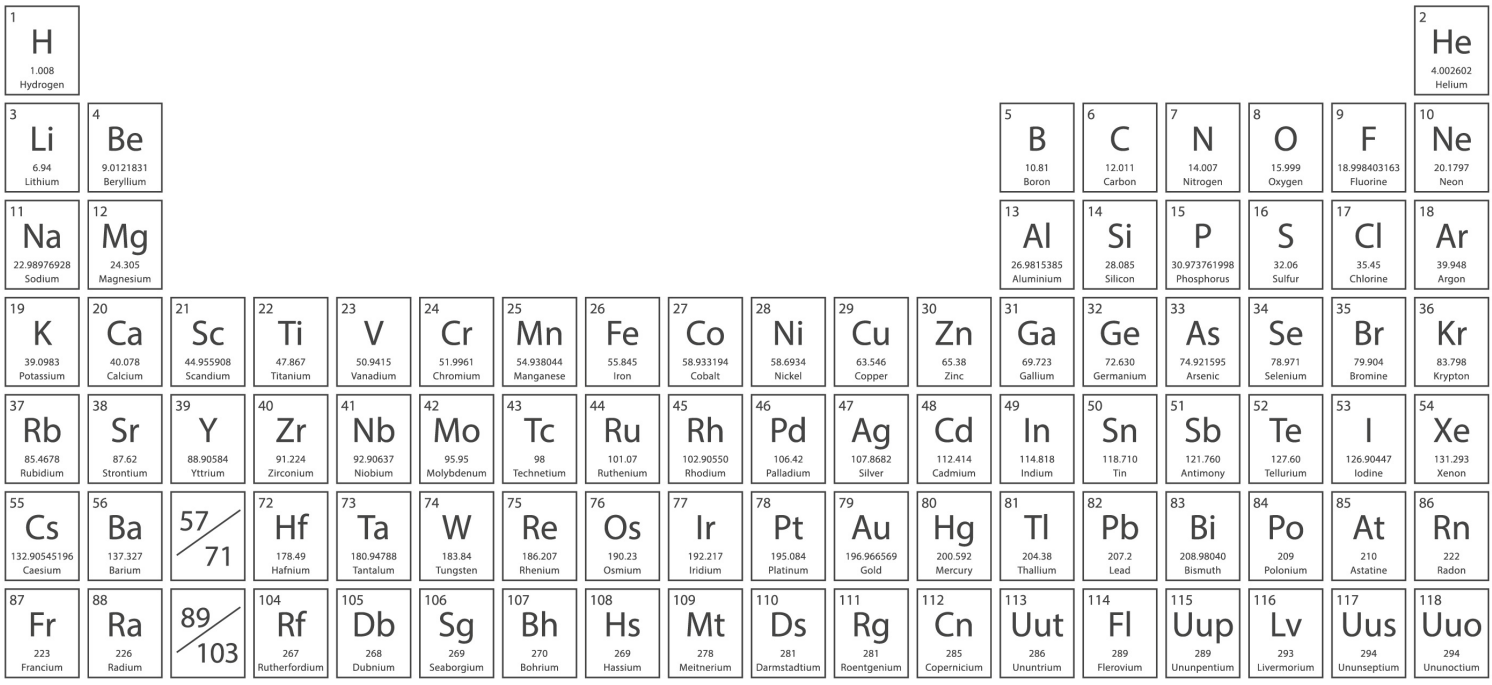
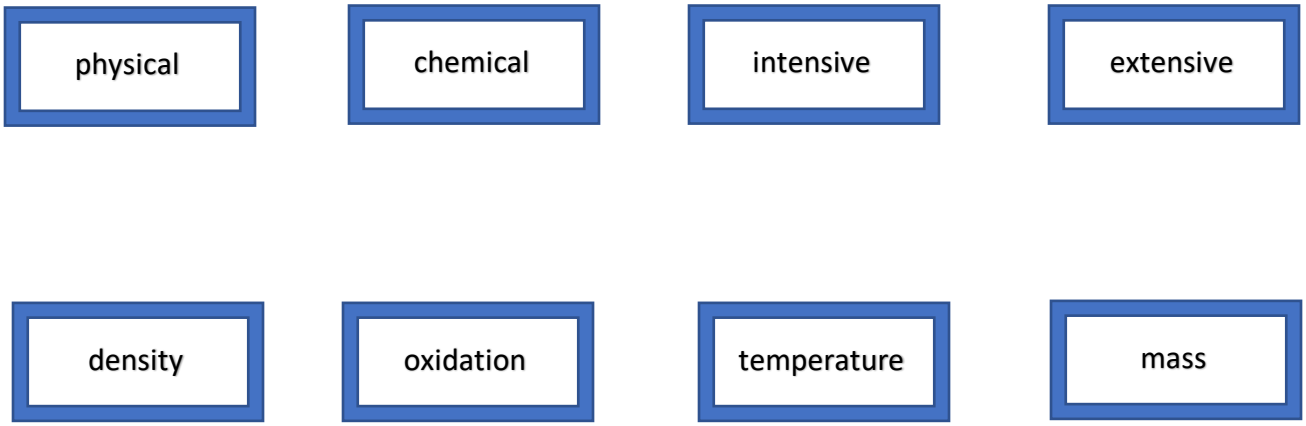
General Chemistry Review
Exam 1

PERIODIC TABLE OF THE ELEMENTS



Presented by the Academic Skills Center
Fall 2018

1. Use lines to connect the terms in the top row with the appropriate property in the bottom row. There can be multiple connections to each.



2. Convert 28.5°C to kelvin.

3. Convert 335 mm to km.

4. At 0°C a cube of ice that is 3 cm by 2 cm by 2 cm weighs 10.8 g.
    a. What is the density of the ice?

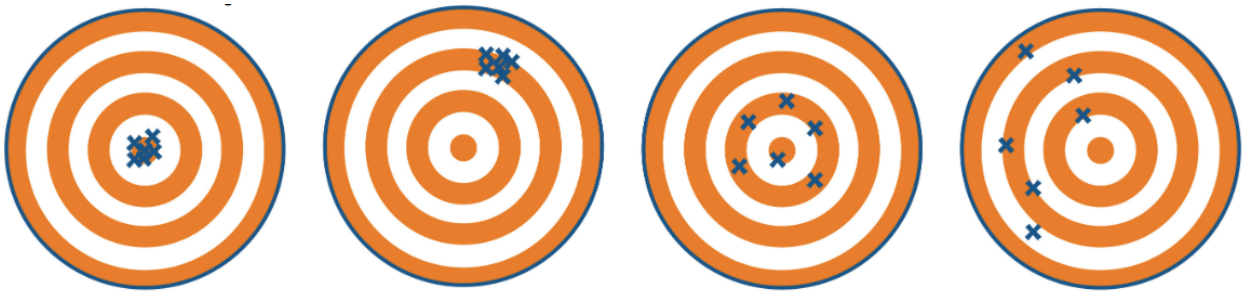
    b. Using the above density, what is the volume occupied by 17.4 g of ice?

5. Do the following calculations to the correct significant figures:
    a. 1.4 x 1.04 =

    b. 11.50/1.055 =

    c. 102.55 – 22.5 x 12.005 =

6. Match the labels to the corresponding bullseye:



High Accuracy Low Precision	Low Accuracy Low Precision	High Accuracy High Precision	Low Accuracy High Precision

7. Given that there are 2.54 cm in 1 in, how many meters is a foot?

8. If I have 2 and a half dozen eggs, how many moles of eggs do I have?

9. J. J Thomson discovered _____ using cathode ray experiments.

10. Rutherford discovered the _____ using gold foil experiments.

11. Identify the following:
    a. Atomic number of zinc.
    b. Mass number of carbon.
    c. Number of electrons around phosphorous.
    d. Number of neutrons in polonium.
    e. Charge on a neutron, proton, and electron.

12. In your own words, describe an isotope.

13. Calculate the average atomic mass of magnesium using the following data:

Isotope	mass (amu)	relative abundance
Mg-24	23.985	0.7870
Mg-25	24.986	0.1013
Mg-26	25.983	0.1117

14. Vertical columns on the periodic table are known as _____, horizontal columns on the periodic table are known as _____.

15. If I have 250 mg of sodium, how many moles do I have?

16. _____ energy is energy stored within structural units of chemical compounds.

17. A joule is equal to what?

18. Calculate the kinetic energy of a 1,250 g object travelling at 20 m/s.

19. Calculate the wavelength (in nm) of light with a frequency of $4.25 \times 10^{14}\ s^{-1}$.

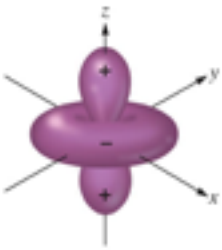
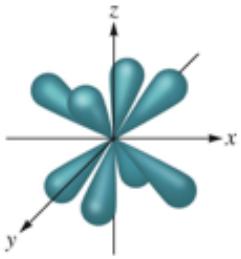
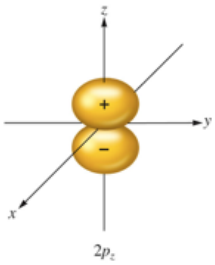
20. Calculate the frequency of light with a wavelength of 180 cm.

21. The _____ designates the size of an orbital.

22. The _____ designates the shape of an orbital.

23. How many orbitals are there in a subshell designated by the quantum numbers $m = 3$, $\ell = 2$

24. Label the orbitals (S, P, D, or F):

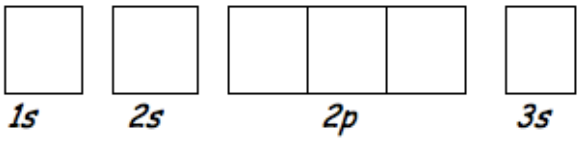




_____ _____ _____ _____

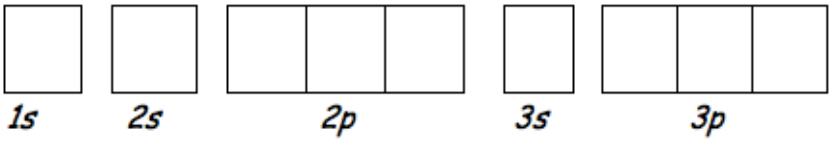
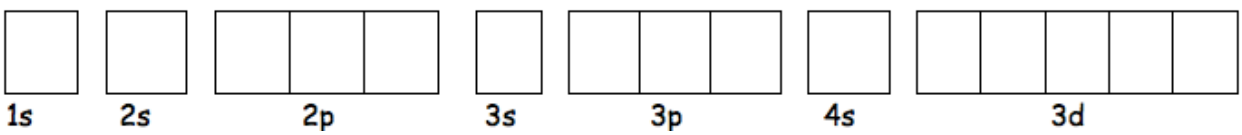
25. Write the abbreviated electron configurations of the following elements/ions:
    a. Iridium: _____
    b. Chlorine: _____
    c. Caesium: _____
    d. $Iron^{2+}$: _____

26. What elements/ion do the following electron configurations belong to?
    a. $[Ar]3d^7 4s^2$ _____
    b. $[Ar]3d^5 4s^1$ _____
    c. $[Xe]6s^2 4f^{14} 5d^{10} 6p^4$ _____

27. Fill in the orbital diagrams for the following elements:
    a. Nitrogen



    b. Sodium



    c. Copper