

REVIEW QUESTIONS

Chapter 3

1. Complete each question below with an appropriate term:
 - a) _____ Un-reactive elements in the last group of the periodic table.
 - b) _____ Elements in group 2 of the periodic table.
 - c) _____ Elements between the main group elements.
 - d) _____ Elements in group 7 of the periodic table.

2. Name and write symbol for each element described below:
 - a) Alkali metal in period 4: _____
 - b) Halogen in period 2: _____
 - c) Alkaline-earth metal in period 3: _____
 - d) Metalloid in period 3: _____
 - e) Noble gas in period 5: _____

3. Complete each statement below with a suitable word or phrase:
 - A) The “soccer ball” model of the atom is associate with a scientist named _____
 - B) Thomson discovered the _____ in 1897.
 - C) Rutherford discovered that the atom was mostly hollow through the _____ experiment.
 - D) The number of protons in an atom is called the _____
 - E) Isotopes of an atom have the same _____ but different _____

4. For each element below, use the information given to determine the number of protons, neutrons and electrons in its atom, and write shorthand notation for each.

a) Krypton (Kr) atomic number ($Z=36$); mass number ($A=84$)

$p^+ =$ _____ $n^0 =$ _____ $e^- =$ _____ Notation: _____

b) Barium (Ba) atomic number ($Z=56$); mass number ($A=137$)

$p^+ =$ _____ $n^0 =$ _____ $e^- =$ _____ Notation: _____

5. Complete the missing information in the table below:

Symbol	Ga	
Protons		15
Neutrons	39	
Electrons		
Mass number		31

6. An unknown element Q has the following isotopic data:

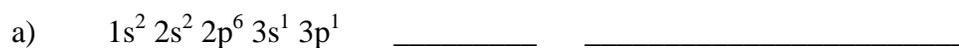
Isotope	Mass (amu)	Abundance (%)
1	80.0	60.0
2	84.0	30.0
3	82.0	10.0

Calculate the average atomic mass of this element.

11. Identify each of the following elements from their electron configurations:



12. Shown below are excited states for some elements. Identify each element and write its ground state configuration:



13. Using only a periodic table, write the notations requested for each element below:

Sulfur (S): _____ (complete configuration)

Selenium (Se): _____ (abbreviated configuration)

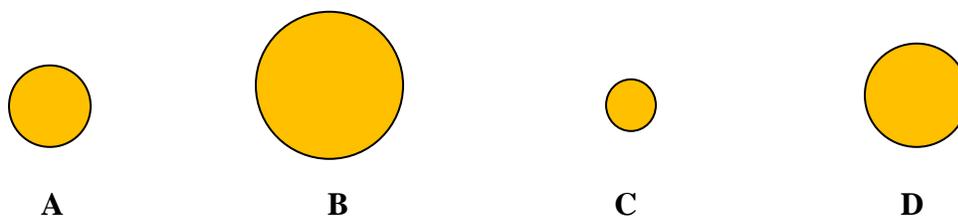
Nickel (Ni): (valence orbital notation)

14. Rank the elements in each of the following groups in order of increasing ionization energy:

a) F, Na, Cl, S

b) C, O, Li, N

15. Match the spheres A-D with atoms of K, Ge, Ca and Kr.



16. Complete each statement below with a suitable word or phrase:

- A) Based on Bohr's model of atom, the electrons exist in _____ around the nucleus.
- B) The arrangement of the electrons around the nucleus is called _____.
- C) A particle of light is referred to as a(n) _____.
- D) The group number of representative elements represents the _____.
- E) The number of waves per unit of time is called _____.
- F) Electrons that exist in the same orbital must possess _____.
- G) When electrons descend from higher energy levels to lower ones they _____.