## Chit 6 Elements \& the Periodic Table Recap

Part A: Multiple Choice - Circle the best answer. [9 marks]

1. Which of the following is a non-metal:
a. chromium
b. sulfur
c. silicon
d. francium
2. Which of the following is a metalloid?
(a.) silicon
b. francium
c. sulfur
d. chromium
3. Which of these elements is the most reactive?
a. nitrogen
S
b. fluorine
7
c. sulphur
6
d. oxygen
6
4. Which of the following is a metal?
a. nitrogen
b. silicon
c. sulphur
(d) francium
5. The element sodium has the following properties: silver lustre, reactivity, electrical conductivity, malleability. Potassium is found directly below sodium in the periodic table. You can expect potassium to:
a. have fewer electrons than sodium.
b. be malleable and a good conductor, but to be non-reactive.
(c. have similar properties to sodium since they are in the same family.
d. have very different properties from sodium since it is in a different period.
6. A group of elements is:
(a) located in a vertical column in the periodic table.
b. located in a horizontal row in the periodic table.
c. a group of elements related by atomic mass.
d. another name for a period in the periodic table.
7. Which is a correct comparison of the alkali metals and the alkaline earth metals?
a. The alkali metals are softer.
b. The alkali metals are less reactive. $X$
c. The alkali metals all sink in water, but the alkaline earth metals float.
d. The alkali metals burn readily, but the alkaline earth metals never catch fire. $x$
8. On bags of fertilizers, there are usually three numbers, such as 20-10-10. These numbers stand for the percentages of the elements $\mathrm{N}, \mathrm{P}, \& \mathrm{~K}$ in the fertilizer. These elements are:
a. nickel, phosphorus and potassium
b. nitrogen, phosphorus and chlorine
(c. nitrogen, phosphorus and potassium
d. nitrogen, potassium, and sodium
b. solutions and elements.
c. mechanical mixtures and solutions.
d. mechanical mixtures and compounds.


Part B: Modified True/False. Indicate if the following statements are True or False. If you choose False, change the underlined word/phrase to make the statement true. [6 marks]

| True/False | Statement | Correction (if necessary) |
| :---: | :---: | :---: |
| 10. <br> True | An element cannot be broken down into simpler chemical substances by any physical or chemical means |  |
| 11. Faluen | If an element is a gas at room temperature, it is likely to be $\underline{a}$ metal. | a nom-mata |
| 12. Faloe | If a negatively charged particle is attracted to a second particle, the second particle must have a negative charge | posker charec |
| 13. Fale | The Bohr-Rutherford model of the atom is useful for explaining the properties of all of the elements on the Periodic Table | first 20 elemonds |
| 14. True | An atom with 16 protons, 16 electrons and 18 neutrons has a mass number of 34 . | 16 <br> 18 <br> 4 |
| 15. True | As you go down a family on the Periodic Table, the number of electron orbits increases. |  |

## Part C: Matching.

On the Periodic Table shown, sets of elements have been outlined and labelled A through F. Match the sets of elements to the names stated below. [6 marks]

16. alkaline earth metals $B$
17. alkali metats $\qquad$
18. rare earth metals/inner transition metals $\qquad$
19. noble gases $\qquad$ $F$
20. halogens $\qquad$
21. transition elements $\qquad$

Match the scientist to a key experiment or discovery. [6 marks]
22. billiard ball model $\qquad$ A. Bohr
23. the electron
$B$
B. Thomson
24. first atomic theory $\qquad$ C. Tilaturick
25. electron orbits
$A$
D. Rutherford
26. gold foil experiment $D$
E. Democritus
27. neutron
F. Dalton

## Part D: Short Answer

28. Using the given standard atomic notation, fill in the blanks at the right. [3 marks]

$$
{ }_{15}^{31} \boldsymbol{P}_{\frac{3!}{16}}^{\frac{31}{16}}
$$

a. Phosphorous has 15 protons.
b. Phosphorous has _15 electrons.
c. Phosphorous has Ib_ neutrons. 29
29. Using the following standard atomic notations, draw the Bohr-Rutherford diagram for: [8 marks]

Helium ${ }_{2}^{4} \mathrm{He}$
\# of protons: 2
\# of neutrons ${ }^{2}$
\# of electrons 2


Magnesium: ${ }_{12}^{24} \mathrm{Mg}$
\# of protons: 12
\# of neutrons 12
\# of electrons 12

30. Using examples, explain why you think the Periodic Table is more than just a listing of the known elements.[2 marks]


