**CHEMISTRY FORM 2**

**APRIL HOLIDAY ASSIGNMENT**

1. The electron arrangement ions X3- and Y2- are 2, 8, and 2, 8, 8 respectively.

(a) Write the electronic arrangement of the elements X and Y.

(b) Write the formula of the compound that would be formed between X and Y.

2. With reference to atomic number of one, explain why hydrogen can be placed in either group I and VII of the periodic table.

3. An ion of phosphorous can be represented as 3115P3−. Draw a diagram to show the distribution of the electrons and the composition of the nucleus of the ion of phosphorous.

4. The electronic structures for elements represented by letters A, B, C and D are A, 2 .8.6 B, 2.8.2 C, 2. 8.1 D, 2. 8. 8.

a) Select the element which forms: (i) a double charged cation. (ii) a soluble carbonate.

b) Which element has the shortest atomic radius?

5. A) Write the electronic configuration of calcium (atomic number 20) and beryllium (Atomic number4).

b) Why is calcium more reactive than beryllium?

6. The table below gives information on four elements by letters K, L, M and N. Study it and answer the questions that follow. The letters do not represent the actual symbols of the elements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ELEMENT | Electron arrangement | Atomic radius nm | Ionic radius nm |  |
| K  L  M  N | 2.8.2  2.8.7  2.8.8.1  2.8.8.2 | 0.036  0.099  0.203  0.174 | 0.065  0.181  0.133  0.099 |  |

a) Which two elements have two similar properties? Explain

b) What is most likely formula of oxide of L?

c) Which element is a non-metal? Explain

d) Which one of elements is the strongest reducing agent? Explain

e) Explain why ionic radius of N is less than that of M

F) Explain why the ionic radius of L is bigger than its atomic radius

7. The melting point of phosphorous dichloride is – 91oC. While that of magnesium chloride is 715oC.In terms of structure and bonding, explain the difference in their melting points.

8. Oxygen and sulphur belong to group (VI) of the periodic table. Explain why there is a big difference their (melting points of oxygen is – 2160C while that of sulphur is 440C.)

9. With reference to iodine, distinguish between covalent bonds and Van Der Waals forces.

10. Study the information in the table below and answer the questions that follow. The letters do not represent the symbols of the elements.

|  |  |  |
| --- | --- | --- |
| ELEMENT | ATOMIC NUMBER | MELTING POINT |
| L  M  N  O  R | 11  13  14  17  19 | 97.8  660  1410  -101  63.7 |

(a) Write the electrons arrangement for the atom formed by elements and M and Q

(b) Select an element which is

(i) the most reactive non – metal

(ii) a poor conductor of electricity

(c) In which period of the periodic table does elements R belong?

(d) Element R loses its outermost electron more readily than L. Explain.

(e) Using dots (.) and crosses (x) to represent outermost electrons show bonding in the compound formed between elements N and Q.

(f) Explain why the melting point element M is higher than that of element L.

(g) Write an equation for the reaction that would occur between L and water.

(h) Describe how a solid mixture of sulphate of R and lead sulphate can be separated into solid samples.

10. Compound Q is a solid with a giant ionic structure. In what form would the compound conduct an electric current?

11. Given that the atomic number of Y is 13 and that of Z is 9:

(a) Write the electronic arrangement of Y and Z;

(b) Draw the dot (.) and cross (x) diagram for the compound formed by Y and Z.

12. Use the following information on substances S, T, V and hydrogen to answer the questions that follow:

(i) T displaces V from a solution containing V ions.

(ii) Hydrogen reacts with the heated oxide of S but has no effect on heated oxide of V.

(a) Arrange substances S, T, V and hydrogen in the order of increasing reactivity.

(b) If T and V are divalent metals, write an ionic equation for the reaction in (i) above.