KERUGOYA BOYS HIGH SCHOOL

FORM FOUR CHEMISTRY SPEED TEST 2 FEBRUARY 2016

NAME......................................... CLASS............. ADM.................... (30 min)

**Answer all Questions in the spaces provided**

1. An ion X3+ has the electron arrangement 2.8.
2. What is the atomic number of the element? (1 mark)
3. To which group and period of the periodic table does the element belong? (2 marks)
4. What types of bonds exist between the atoms of elements in its solid form? (1 mark)
5. Give the formula of the oxide of the element and state its nature (2 marks)
6. An element Y atomic number 11 while another element Z has an atomic number of 16. (The letters are not the actual symbols of the elements.)
7. Using dots (.) and crosses (x) draw diagrams to show the bonding in the chlorides of Y and Z. (3 marks)
8. In each case, name the type of bond formed. (2 marks)
9. Explain in terms of bonding and structure how the melting points of the chlorides of Y and Z compare. (3 marks)
10. The table below shows some data on the elements K to R. Study it and answer the questions that follow. The letters do not represent the actual symbols of the elements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element | Atomic No. | M.P(0C) | B.P(0C) | Ionic radius(nm) |
| K | 11 | 98 | 890 | 0.095 |
| L | 12 | 650 | 1110 | 0.065 |
| M | 13 | 660 | 2470 | 0.050 |
| N | 14 | 1410 | 2360 | 0.041 |
| O | 15 | 44.2  590 | 280 | 0.034  0.21 |
| P | 16 | 113  119 | 445 | 0.184 |
| Q | 17 | -101 | -35 | 0.181 |
| R | 18 | -189 | -186 |  |

1. Which elements are gases at room temperature (room temperature= 250C). Explain (2 marks)
2. Explain why the ionic radius of R is not shown. ( 1 mark)
3. Why do O and P have two values of m.pts. (1 mark)
4. Explain in terms of structure and bonding the following observations.
5. There is an increase in melting and boiling points from K to M. (3 Marks)
6. Element N has high melting point and boiling point. (1 mark)
7. Write the formula and electronic arrangement of the ions of O that have the ionic radii. (3 marks)
8. 0.034 nm
9. 0.212 nm
10. Arrange the species O, O5+ and O3- in order of increasing size. (1mark)