**YEAR 10 SCIENCE**

**Natural and processed materials**

**Topic Test - 2011**

**Name: Mark: /35**

Part 1: Multiple Choice

|  |  |
| --- | --- |
| **MULTIPLE CHOICE ANSWERS** | |
| **1** |  |
| **2** |  |
| **3** |  |
| **4** |  |
| **5** |  |
| **6** |  |
| **7** |  |
| **8** |  |
| **9** |  |
| **10** |  |

1. Which of the following elements has 6 protons in its nucleus?

(a) Boron

(b) Magnesium

(c) Carbon

(d) Sulphur

2. Which of the following are all ***transition metals***?

(a) Li, Mn, Ca

(b) Mn, Fe, Cu

(c) F, Cl, Br

(d) Na, K, Fe

3. Which of the following are all ***alkali metals***?

(a) Li, Na, K

(b) Mg, Ca, Na

(c) He, Ne, Ar

(d) Cu, F, Mn

4. A covalent bond is...

(a) Any very reactive bond.

(b) A bond between two or more different metals.

(c) A bond between two or more non metals.

(d) A secret name for James Bond.

5. Which of the following all have ***2 valence electrons***?

(a) F, Cl, Br

(b) Li, Na, Al

(c) Cl, Al, C

(d) Be, Ca, Mg

6. Which of the following are ***noble gases***?

(a) Ne, Ar, He

(b) He, N, H

(c) O, H, Ar

(d) O, He, Ne

7. Which of the following ionic formulae are ***ALL*** correct?

(a) NaI, NaO, Na2O4

(b) MgO, MgCl2, Mg3(PO4)2

(c) CaO2, CaF, CaCl2

(d) Al2O3, Al2Cl3, AlF3

8. The ***valence electrons*** are:

(a) the number of total electrons an atom has.

(b) the number of electrons in the atom's outer shell.

(c) the number of electrons an atom has after it reacts.

(d) the number of electrons an atom has before it reacts.

9. What are the elements in group one (1) of the periodic table called?

(a) Transition metals

(b) Alkali metals

(c) Halogens

(d) Alkali earth metals

10. The mass number of an element is how many \_\_\_\_\_\_\_\_\_\_\_\_ there are one atom.

(a) protons

(b) electrons

(c) neutrons

(d) protons + neutrons

(10 marks)

**Part 2: Short Answer**

11. With the aid of your valency table, fill in the following grid. The first two have been done for you. [6]

|  |  |  |
| --- | --- | --- |
| **ELEMENT** | **ATOMIC NUMBER** | **NUMBER OF ELECTRONS** |
| He | 2 | 2 |
| Ca | 20 | 18 |
| Cl |  |  |
| Na |  |  |
| K |  |  |
| N |  |  |
| F |  |  |
| Al |  |  |

12. Write the chemical formulae for the following. [7]

(a) aluminium sulphate (b) potassium carbonate

(c) sodium chloride (d) ammonium chloride

(e) magnesium oxide (f) iron (II) phosphate

(g) calcium iodide

13. Balance the following equations: [8]

a) H2 + O2 ---> H2O

b) S8 + O2 ---> SO3

c) HgO ---> Hg + O2

d) Zn + HCl ---> ZnCl2 + H2

e) Na + H2O ---> NaOH + H2

f) C10H16 + Cl2 ---> C + HCl

g) Si2H3 + O2 ---> SiO2 + H2O

h) Fe2O3 + H2 ---> Fe + H2O

14. Write balanced chemical equations for the following reactions. [4]

(a) Iron(II) metal reacts with hydrochloric acid to produce iron(II)chloride and hydrogen gas.

(b) Sodium hydroxide and sulphuric acid react to produce sodium sulphate and water.