

## X SCIENCE TEST ON CHEMICAL REACTIONS AND EQUATIONS

TIME: 1 HOUR

M.M: 30

### 1. Multiple Choice Questions:

1×5 = 5

- A. Calcium oxide reacts vigorously with water to produce:  
a. Calcium hydroxide releasing a large amount of heat.    b. Calcium hydroxide absorbing a large amount of heat.  
c. Calcium oxide and hydrogen with a release of large amount of heat.  
d. Calcium oxide and hydrogen with the absorption of large amount of heat.
- II. The reaction,  $3\text{MnO}_2(\text{s}) + 4\text{Al}(\text{s}) \rightarrow 3\text{Mn}(\text{l}) + 2\text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$  is an example of:  
a. Combination and exothermic reaction.                      b. Combination and endothermic reaction.  
c. Displacement and exothermic reaction.                      d. Displacement and exothermic reaction.
- III. Which is the oxidising agent in the following reaction?  $\text{CuO}(\text{s}) + \text{H}_2(\text{g}) \rightarrow \text{Cu}(\text{s}) + \text{H}_2\text{O}(\text{l})$   
a.  $\text{CuO}(\text{s})$                       b.  $\text{H}_2(\text{g})$                       c.  $\text{Cu}(\text{s})$                       d.  $\text{H}_2\text{O}(\text{l})$
- IV. The changes which take place when fats and oils are oxidised:  
a. They become better in taste.                      b. They become rancid and give good smell.  
c. They become rancid and their smell and taste change.  
d. They remain unaffected.
- V. The colour formed on the surface of copper powder when it is heated in a china dish:  
a. Red                      b. Blue                      c. Green                      d. Black
2. A solution of a substance 'X' is used for whitewashing.                      2  
a. Name the substance 'X' and write its formula.    b. Write the reaction of the substance 'X' named in (a) above with water.
3. Identify the substances that are oxidised and the substances that are reduced in the following reactions.                      2  
a.  $4\text{Na}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{Na}_2\text{O}(\text{s})$                       b.  $\text{CuO}(\text{s}) + \text{H}_2(\text{g}) \rightarrow \text{Cu}(\text{s}) + \text{H}_2\text{O}(\text{l})$
4. Why are decomposition reactions called the opposite of combination reactions? Write equations for these reactions.                      2
5. Explain the following terms with one example each:    a. Corrosion                      b. Rancidity                      3
6. a. When a metal 'X' is added to salt solution of a metal 'Y', following chemical reaction takes place: Metal X + Salt solution of 'Y' → Salt solution of 'X' + Metal 'Y'.                      3  
b. Mention the inference you draw regarding the reactivity of metal 'X' and 'Y' and also about the type of reaction. State the reason of your conclusions.
7. State reason for the following:                      3  
a. Potato chips manufacturers usually flush bags of chips with nitrogen gas.  
b. Iron articles lose their shine gradually.                      c. Foods should be kept in airtight containers.
8. A metal 'X' acquires a green colour coating on its surface on exposure to air.                      5  
a. Identify the metal 'X' and name the process responsible for this change.  
b. Name and write chemical formula of the green coating formed on the metal.  
c. List two important methods to prevent the process.
9. Balance the following chemical equations and identify the type of chemical reaction:                      5  
a.  $\text{Mg}(\text{s}) + \text{Cl}_2(\text{g}) \rightarrow \text{MgCl}_2(\text{s})$                       b.  $\text{HgO}(\text{s}) \xrightarrow{\text{Heat}} \text{Hg}(\text{l}) + \text{O}_2(\text{g})$                       c.  $\text{Na}(\text{s}) + \text{S}(\text{s}) \xrightarrow{\text{Fuse}} \text{Na}_2\text{S}(\text{s})$   
d.  $\text{TiCl}_4(\text{l}) + \text{Mg}(\text{s}) \rightarrow \text{Ti}(\text{s}) + \text{MgCl}_2(\text{s})$                       e.  $\text{CaO}(\text{s}) + \text{SiO}_2(\text{s}) \rightarrow \text{CaSiO}_3(\text{s})$                       f.  $\text{H}_2\text{O}_2(\text{l}) \xrightarrow{\text{UV}} \text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$