Starters for 10

Transition skills answers

0.1 Basic chemistry competencies

0.1.1. Balancing equations

Accept multiples or appropriate fractions, 1 mark each.

1. $\underline{2}C + ...O_2 \longrightarrow \underline{2}CO$

2. $.....Ba + \underline{2}H_2O \longrightarrow .....Ba(OH)_2 + ...H_2$

3. $.....C_2H_6 + \underline{3.5}O_2 \longrightarrow \underline{2}CO_2 + \underline{3}H_2O$

4. $\underline{2}HCl + ...Mg(OH)_2 \longrightarrow .....MgCl_2 + \underline{2}H_2O$

5. $.....N_2 + ...O_2 \longrightarrow \underline{2}NO$

6. $\underline{2}Fe_2O_3 + ...\underline{3}C \longrightarrow \underline{4}Fe + \underline{3}CO_2$

7. $.....CH_3CH_2OH + \underline{2}[O] \longrightarrow .....CH_3COOH + ...H_2O$

8. $\underline{2}HNO_3 + ...CuO \longrightarrow .....Cu(NO_3)_2 + H_2O$

9. $.....Al^{3+} + \underline{3}e^- \longrightarrow .....Al$

10. $\underline{2}Fe(H_2O)_6^{3+} + \underline{3}CO_3^{2-} \longrightarrow \underline{2}Fe(OH)_3(H_2O)_3 + \underline{3}CO_2 + \underline{3}H_2O$

0.1.2. Constructing ionic formulae

1.

a. $Mg^{2+}\ O^{2-} = MgO$ *(1 mark)*

b. $Na^{+}\ SO_4^{2-} = Na_2SO_4$ *(1 mark)*

c. $Ca^{2+}\ OH^{-} = Ca(OH)_2$ *(1 mark)*

d. $Al^{3+}\ O^{2-} = Al_2O_3$ *(1 mark)*

e. $Cu^{+}\ O^{2-} = Cu_2O$ *(1 mark)*

2.

a. SO_4^{2-} *(1 mark)*

b. NO_3^- *(1 mark)*

c. PO_4^{3-} *(1 mark)*

d. $HCOO^-$ *(1 mark)*

e. CO_3^{2-} *(1 mark)*

0.1.3. Writing equations from text

1 mark each, accept multiples for all except question 9.

1. $3Si + 2N_2 \longrightarrow Si_3N_4$

2. $H_2SO_4 + 2NaOH \longrightarrow Na_2SO_4 + 2H_2O$

3. $B + 1.5Cl_2 \longrightarrow BCl_3$

4. $N_2 + O_2 \longrightarrow 2NO$

5. $C_2H_5OH + 3O_2 \longrightarrow 2CO_2 + 3H_2O$

6. $SiO_2 + C + 2Cl_2 \longrightarrow SiCl_4 + CO_2$

7. $Fe_2O_3 + 3CO \longrightarrow 2Fe + 3CO_2$

8. $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$

9. $0.5Cl_2 + 1.5F_2 \longrightarrow ClF_3$

10. $2NO_2 + H_2O + 0.5O_2 \longrightarrow 2HNO_3$