AS Homework 1

MOLES AND REACTING MASS CALCULATIONS

1) Calculate the number of moles in the following.

a) 1.00×10^{-4} g of H_2O b) 20.0 kg of $Ca(NO_3)_2$ c) 5.00 tonnes of oxygen

2) Calculate the mass of the following.

a) 3.00 moles of Al
b) 5.00×10^6 moles of C_6H_6
c) 1.00×10^{-5} moles of ammonia

3) Calculate the M_r of the following substances.

a) 0.0150 moles has a mass of 1.11 g

b) 3.70×10^{-5} moles has a mass of 1.554×10^{-3} g

4) What mass of hydrogen is produced when 10.0 g of aluminium reacts with excess hydrochloric acid?

$$2\ Al + 6\ HCl \rightarrow 2\ AlCl_3 + 3\ H_2$$

5) What mass of sodium just reacts with 40.0 g of oxygen?

$$4\ Na + O_2 \rightarrow 2\ Na_2O$$

6) What mass of nitrogen is produced when 2.00 tonnes of ammonia gas decomposes?

$$2\ NH_3 \rightarrow N_2 + 3\ H_2$$

7) What mass of oxygen is produced when 136 g of hydrogen peroxide molecules decompose?

$$2\ H_2O_2 \rightarrow 2\ H_2O + O_2$$

8) What mass of lead (II) oxide is produced when 0.400 moles of lead (II) nitrate decomposes?

$$2\ Pb(NO_3)_2 \rightarrow 2\ PbO + 4\ NO_2 + O_2$$

Total = (13) % = Grade=