

10th grade answers

1)

a) i) K and Ca both have 20 neutrons but only K reacts with water highly energetically.

A = K, potassium

ii) B = KOH, potassium hydroxide

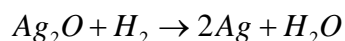
b) oxide C: D_2O

$$16g/mol \leftrightarrow 6,9\% \quad , \quad M(D) = \frac{16 * 93,1}{6,9 * 2} = 107,9g/mol$$

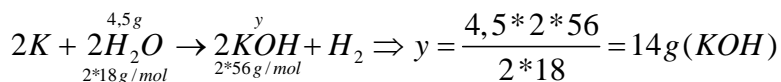
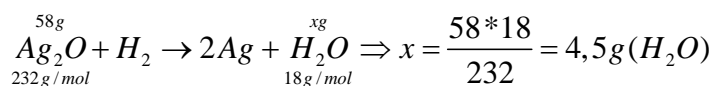
D = Ag, silver

C = Ag_2O , silver(I)oxide

c) $2K + 2H_2O \rightarrow 2KOH + H_2 \uparrow$



d)



2)

a) A = F_2 , fluorine

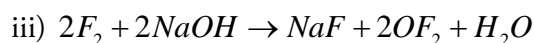
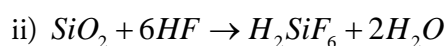
B = HF, hydrogen fluoride

C = HF(aq), hydrofluoric acid

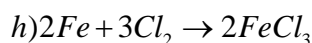
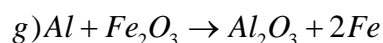
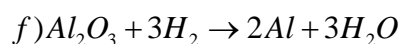
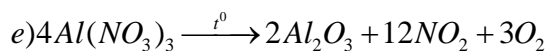
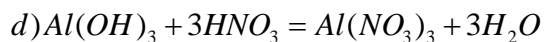
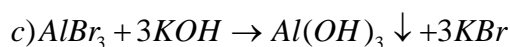
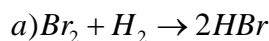
E = OF_2 , oxygen difluoride

F = NaF, sodiumfluoride

b) i) $F_2 + H_2 \rightarrow 2HF$



3)



4)

a) i)
D:

$$6g \Leftrightarrow \frac{5,6l}{2 \cdot 22,4 \text{ mol/l}} \text{ mol}$$

$$x \Leftrightarrow 1 \text{ mol}$$

$$x = 48 \text{ g/mol}$$

D = Ti, titanium

A: $Ti^{4+} O_z^{2-} \rightarrow z = 2 \rightarrow TiO_2$, titanium(IV) oxide

C: $M_r(C) = 2,375 \cdot 80 = 190 \rightarrow M_r(C) = 48 + 4x = 190 \rightarrow x = 35,5 = M_r(Cl)$

$TiCl_4$ - titanium(IV) chloride

G: $M_r(G) = 1,55 \cdot 80 = 124 \rightarrow M_r(G) = 48 + 4y = 124 \rightarrow y = 19 = M_r(F)$

TiF_4 - titanium(IV) fluoride

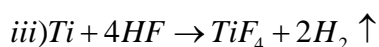
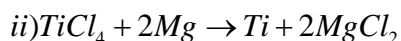
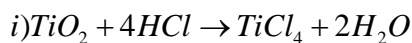
ii)

B = HCl, hydrochloric acid

E = $MgCl_2$, magnesium chloride

F = HF, hydrofluoric acid

b)



c) HCl is a stronger acid than HF, because of the larger atomic radius of Cl or any other correct answer.