

p. 245 #2-10

CALVIN

2) (D)

3) $PV = nRT$ $P = \frac{nRT}{V} = \frac{(1.00 \text{ mol})(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(300.\text{K})}{(1.00\text{L})} = \boxed{24.6 \text{ atm}}$ (A)

4) $12x + 1x + 6x + 10x = 58$

$29x = 58$
 $x = 2$

$\boxed{20. \text{ atm}}$ (B)

5) (D)

6) (A) (not Kelvin so not double)

7) (B)

8) (B)

9) $PV = nRT$

$n = \frac{PV}{RT} = \frac{(2.00 \text{ atm})(9.00 \text{ L})}{(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(1 \text{ K})} = 219 \text{ mol}$

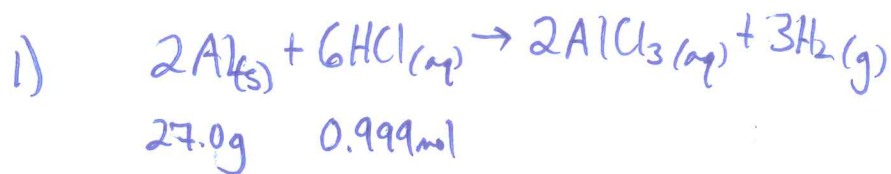
$n = \frac{PV}{RT} = \frac{(4.00 \text{ atm})(3.00 \text{ L})}{(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(1 \text{ K})} =$

$\frac{219}{146} = \boxed{1.5}$ 146 mol

10) $PV = nRT$

$V = \frac{nRT}{P} = \frac{(9.38 \text{ mol})(0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(273 \text{ K})}{(1 \text{ atm})} = \boxed{210. \text{ L}}$ (D)

p. 295 #1-6, 12, 15



$$\frac{27.0\text{g Al}}{26.98\text{g Al}} \times \frac{1\text{ mol Al}}{1\text{ mol Al}} \times \frac{3\text{ mol H}_2}{2\text{ mol Al}} \times \frac{22.4\text{ L H}_2}{1\text{ mol H}_2} = 33.6\text{ L H}_2$$

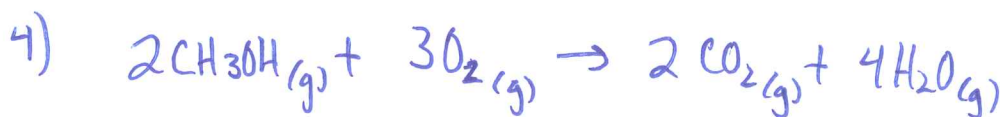
$$\frac{0.999\text{ mol HCl}}{6\text{ mol HCl}} \times \frac{3\text{ mol H}_2}{1\text{ mol H}_2} \times \frac{22.4\text{ L H}_2}{1\text{ mol H}_2} = \boxed{11.2\text{ L H}_2} \quad (\text{C})$$

2) $\frac{1.01\text{g}}{11.2\text{L}} = 0.09\text{g/L} \quad (\text{A})$

3) $\Delta H^\circ_{\text{RXN}} = \Delta H_{\text{PROD}} - \Delta H_{\text{REACTANTS}}$
 $= [(10 \times -285.8) + (8 \times -393.5)] - (2 \times -124.7) =$

(negative not subtraction)

$$\boxed{-5756.6\text{ kJ}}$$



$$\Delta H^\circ_{\text{RXN}} = \Delta H_{\text{PROD}} - \Delta H_{\text{REACTANTS}}$$

$$= [(4 \cdot -285.8) + (2 \cdot -393.5)] - (2 \cdot -201.0) =$$

$$\boxed{-1528.2\text{ kJ}} \quad (\text{B})$$

5) (C)

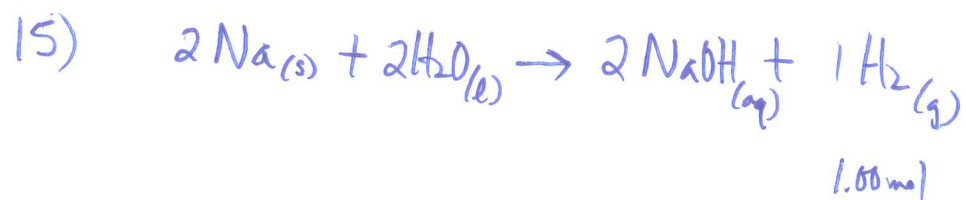
6) $q = (250\text{kg})(332\text{kJ/kg}) = 83\text{kJ}$

$$q = m \cdot \Delta T \cdot C_p$$

$$= (250\text{g})(25.0^\circ\text{C})(4.18\text{J/g}^\circ\text{C}) = 26,125\text{J}$$

$$\begin{array}{r} 83\text{kJ} \\ + 26\text{kJ} \\ \hline \boxed{109\text{kJ}} \end{array} \quad (\text{D})$$

12) (c)



$$\Delta H_{\text{rxn}} = (2 \cdot -470 \text{ kJ/mol}) - (2 \cdot -286 \text{ kJ/mol}) = -368 \text{ kJ/mol} \cdot \text{mol}$$

$$\boxed{-368 \text{ kJ}}$$

(A)

p. 415 #1-9, 11

1) (B)

2) (B)

3) (C)

4) (D)

5) (D)

6) (D)

7) (C)

8) (A)

9) (C)

11) (A)