CHE 112 - Homework - Ch $16\mathrm{a}$ Review of Oxidation/Reduction 7.2

1. What	are three signs (ways	to identify) that an oxidation or reduction realection	Date:action has occurred:
1. What			action has occurred:
	Oxidation F	Reduction	
2 Revie	w the rules (Tro 4.9) f	or assigning oxidation numbers by completing	the following table
	the rules (110 110) 1		
(a)	Atoms in elemental	Statement state has an oxidation number of	Exam
	Atoms in cicinental	state has an extraction number of	
(b)	A monatomic atom	has an oxidation number identical to its	
(c)	Hydrogen's normal of	9	
	Hydrogen when bon	ded to a metal is:	
(d)	Oxygen is normally:		
	Oxygen is rarely (an	d not in this class:	
(e)	Halogens usually ha	ve an oxidation number of:	
(f)	The sum of the oxid	ation numbers for a neutral molecule is:	
	The sum of the oxid	ation numbers for a polyatomic ion is:	
3. What	is the oxidation numb	per of each of the atoms in the following comp	ounds or ions.

[8 pt] 4. In each of the following balanced oxidation-reduction reactions, identify the charge on all elements that undergo changes in oxidation numbers and write the balanced 1/2-reactions (electrons only).

(a)
$$\operatorname{Cd}(s) + \operatorname{NiO}_2(s) + 2\operatorname{H}_2\operatorname{O}(l) \longrightarrow \operatorname{Cd}(\operatorname{OH})_2(s) + \operatorname{Ni}(\operatorname{OH})_2(s)$$

Reduction 1/2 reaction

(b)
$$2H_2O(l) + Al(s) + MnO_4^-(aq) \longrightarrow Al(OH)_4^-(aq) + MnO_2(s)$$

Oxidation 1/2 reaction	Reduction 1/2 reaction

(c)
$$I_2O_5(s) + 5CO(g) \longrightarrow I_2(s) + 5CO_2(g)$$

Oxidation 1/2 reaction	Reduction 1/2 reaction

(d)
$$3H_2S(aq) + 2H^+(aq) + 2NO_3^-(aq) \longrightarrow 3S(s) + 2NO(g) + 4H_2O(l)$$

Balance each redox reaction. Write the final answer in the space provided.

[8 pt] 5.
$$MnO_4^-(aq) + CH_3OH(l) \longrightarrow Mn^{+2}(aq) + HCO_2H(l)$$
 (Acidic Solution)

[8 pt] 6.
$$Pb(OH)_4^{-2}(aq) + ClO^{-}(aq) \longrightarrow PbO_2(aq) + Cl^{-}(aq)$$
 (Basic Solution)