I. R. E. ANALYSIS

1. 12 M of A^{3+} (aq) are reacted with 14 M of B^- (aq) as shown in the following equation. At equilibrium, 20 M of C^+ (aq) are measured. How much of the A^{3+} (aq) and B^- (aq) reacted? How much of the A^{3+} (aq) and B^-(aq) and D^{2-} (aq) are present at equilibrium?

$2A^{3+}$ (aq) + $3B^-$ (aq) ⇄ $5C^+$ (aq) + D^{2-} (aq)

INITIAL	**12 M**		**14 M**		----------		----------
REACTION							
EQUILIBRIUM					**20 M**		

2. X (g) + 3 Y (g) ⇄ 6Z (g)

I	**1.6 M**		**2.4 M**		**2.1 M**
R					
E			**3.0 M**		

3. $3H_2$ (g) + N_2 (g) ⇄ $2NH_3$ (g)

I	**5.0 M**		**3.0 M**		**2.0 M**
C					
E					**5.0 M**

2.1 ESSENTIAL EQUILIBRIUM EXERCISE

1. $CH_4\,(g) + 2O_2\,(g) \rightleftarrows CO_2\,(g) + 2H_2O\,(g)$

I	8.0 M		11.0 M		----------		----------
C							
E					3.0 M		

2. $Cr^{+5}\,(aq) + 3Pb^{+2}\,(aq) \rightleftarrows 3Pb^{+4}\,(aq) + 2Cr^{+2}\,(aq)$

I	0.84 M		0.75 M		----------		----------
R							
E	0.60 M						

3. $2MnO_4^-\,(aq) + 5H_2\,(g) \rightleftarrows 2Mn^{+2}\,(aq) + 6OH^-\,(aq) + 2H_2O\,(g)$

I	5.50 M	7.00 M	4.00 M	1.50 M	6.00 M
C					
E				0.54 M	