CHEM 1210
Quiz 1
January 23rd, 2014 Name: _____

1) For the following balanced oxidation-reduction reaction:

$35H_2O + 17M_2O_3 + 2X(NO_2)_6^{4-} \rightarrow 2O_2 + 2X^{3+} + 12NO_3^{1-} + 34M^{2+} + 70\ OH^{1-}$

a) Identify the oxidizing agent:

b) How many electrons are transferred in the overall reaction?

c) If the molar mass of M_2O_3 is Z, what is the equivalent mass (in terms of Z)

2) Choose the correct statement about a container in which the following equilibrium in established:

$2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g) \qquad \Delta H^o = -198\ kJ$

A – a decrease in amount of O_2 will decrease the amount of SO_2 present
B – a decrease in volume will decrease the amount of SO_2 present
C – a decrease in temperature will increase the amount of SO_2 present
D – a decrease in the amount of SO_3 present will increase the amount of SO_2 present
E – an increase in the amount of O_2 will increase the amount of SO_2 present _____

3) Consider the following equilibrium reaction: $2A(g) + B(g) \leftrightarrow 2C(g) \qquad K_c = 20$
Determine K_c at the same temperature for the equilibrium:

$3C(g) \leftrightarrow 3A(g) + 1.5B(g)$

A – 30
B – 0.075
C – 0.050
D – 0.033
E – 0.011 _____

4) Consider the reaction: $2NO_2(g) \leftrightarrow 2NO(g) + O_2(g)$, a sample of pure NO_2 is placed in a sealed container and allowed to reach equilibrium. The partial pressure of O_2 at equilibrium is found to be 0.3500 atm and the total pressure to be 1.0866 atm. Determine K_p for the reaction.

A – 2.86
B – 66.9
C – 128
D – 182
E – none of these _____