SCHOOL OF INDIANA

2012G.C 3RD QUARTER CHEMISTRY WORKSHEET FOR GRADE 11

Name _____ section _____ Date_____

I. Write "True" for correct statements and "False" for the incorrect one.

1. The number of molecular orbitals formed must equal the number of atomic orbitals available for combination.
2. Full filled $(\pi_{2py})^*$ cancels half the effect of (π_{2py}).
3. Both N_2 and F_2 exhibit paramagnetic property.
4. Metallic crystals are transparent, brittle and break easily when stressed.
5. During the course of a reaction, the concentration of a reactants increase while those of products decrease.

II. Choose the correct answer from the given alternatives

6. Which pair is the correct reaction rate expression for the following reaction?

$$2O_3(g) \longrightarrow 3O_2(g)$$

A. $-\frac{1}{2}\Delta\frac{[0_3]}{\Delta t}$ and $\frac{1}{3}\Delta\frac{[O_2]}{\Delta t}$

B. $-\frac{1}{2}\frac{[O_3]}{\Delta t}$ and $-\frac{1}{3}\frac{\Delta[O_2]}{\Delta t}$

C. $\frac{1}{2}\frac{\Delta[O_3]}{\Delta t}$ and $-\frac{1}{2}\frac{\Delta[O_2]}{\Delta t}$

D. $-\frac{1}{3}\Delta\frac{\Delta[0_3]}{\Delta t}$ and $\frac{1}{2}\frac{\Delta[O_2]}{\Delta t}$

7. Which of the following is incorrect about rate of a reaction?
   A. Different chemical rxns have different rates.
   B. Chemical rxns involving the same reactants must have the same rate under different conditio
   C. Concentration and catalyst affects the rate of rxn.
   D. A and B E. None
8. Identify a homogeneous reaction
   A. $3Fe_{(s)} + 4H_2O_{(g)} \longrightarrow Fe_3O_{4(s)} + 4H_{2(g)}$
   B. $Ca_{(s)} + 2H2O_{(l)} \longrightarrow Ca(OH)_2(ag) + H_2(g)$
   C. $NH_4NO_{3(s)} \longrightarrow N_2O_{(g)} + 2H_2O_{(g)}$
   D. $Co_{(g)} + H2_{(g)} \longrightarrow CH4_{(g)} + H_2O_{(g)}$
9. During heart surgery, the body of patient is cooled to slow down the rates of biological reaction.This shows:
   A. The effect of concentration on reaction rate
   B. The effect of catalyst on reaction rate
   C. The effect of temperature on reaction rate.
   D. The effect of surface area on reaction rate.
10. Which of the following is true about catalyst?
   A. Positive catalyst increases the rate of reaction by increasing the activation energy.
   B. Negative catalyst increases the rate of reaction by lowering the activation energy
   C. Positive catalyst increases the rate of reaction by lowering the activation energy
   D. Negative catalyst decreases the reaction rate by lowering the value of activation energy.
   E. A and B F. C and D

_____11. Which of the following is wrong about Network crystals.

A. Have high melting point C. They are hard crystals

B. Non conductors D. A and C E. None

_____12. Which of the following species shows paramagnetic properties?

A. Cl_2 B. H_2 C. N_2 D. A and C E. None

III. Answer the following questions accordingly.

1. Write the electronic configuration of a homonueclear diatomic molecules using molecular orbitals and decide whether the species are paramagnetic or diamagnetic? …. (3pt)

   a. F_2 b. Cl_2

2. Define Activation energy (E_A) and explain the positive and negative impacts of catalyst on activation energy(2pt)

3. For the reaction $N_2O_5(g) \longrightarrow No_2(g) + ½\ O_2(g)$

   The rates of rxn of $N_2O_5(g)$, and $NO_2(g)$ as a function of time at 45^0_C is given in the table below.

Time(min)	**N_2O_5 (M)**	**NO_2 (m)**
0	1.24 x 10-2	0
10	0.92 x 10-2	0.64 x 10-2
20	0.68 x 10-2	1.12 x 10-2
30	0.50 x 10-2	1.48 x 10-2
40	0.37 x 10-2	1.74 x 10-2
50	0.28 x 10-2	1.92 x 10-2

   Use the data given in the table and calculate the rate of… (2pt)

   a. Formation of NO_2 over the first 10 minute

   b. Decomposition of N_2O_5 during the time interval t = 30min to t = 50mm