# New English Private School (NEPS)

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Name _____3rdQuarter   Date 2020      Subject: Chemistry
 Review Worksheet        Grade-12__                              Teacher's Name Mr. Lijalem

## I.  Choose the correct answer from the given alternatives

1. Which of the following is not correct about galvanic cells?

    A.  The anode is negative

    B.  The cathode is positive

    C.  The anion of the electrolyte gives its excess electrons to the anode.
    D.  Reduction takes place at the cathode.

2. The anode reaction is the same in all of the following electrolytic cells except _____.

    A. Electrolysis of brine        C. Electrolysis of molten (fused) lead chloride.

    B. Electrolysis of concentrated NaCl.  D. Electrolysis of dilute sodium chloride solution.

3. If you need to cover (electroplate) a tray made of iron with chromium, you must not make one of

    the following. Which one?

    A.  Make chromium the anode.          C. use iron salt as electrolyte

    B.  Make the tray the cathode                D. Use direct current

4. Which substance is reduced in the following chemical reaction?

    $C(s) + 2N_2O(g) \rightarrow CO_2(g) + 2N_2(g)$

    A. C                    B. $N_2O$                    C. $CO_2$          D. $N_2$

5. Which equation represents an oxidation-reduction reaction?

         A.   $H_2SO_4 + Mg \rightarrow MgSO_4 + H_2$

         B.  $H_2SO_4 + Mg(OH)2 \rightarrow MgSO_4 + 2H_2O$

         C.  $H_2SO_4 + Na_2CO_3 \rightarrow Na_2SO_4 + H_2O + CO_2$

         D.  $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

6. What is the number of moles of water obtained when the following chemical reaction is balanced

    using oxidation number change method

    $H_2S + HNO_3 \rightarrow S + NO + H_2O$

   A. 3                         B. 2                         C. 1                         D. 4

7. Which of the following factors has no effect on the product of electrolysis?

   A. Nature of the electrode

   B. The position of the ion in electrochemical series.

   C. Concentration of the ions in the electrolyte.

   D. The size of the electrode.

8. For the reaction A + 3B $\longrightarrow$ 2C, how does the rate of disappearance of B compare to the rate of production of C?
   a. the rate of disappearance of B is 1/2 the rate of appearance of C
   b. the rate of disappearance of B is 3/2 the rate of appearance of C
   c. the rate of disappearance of B is 2/3 the rate of appearance of C
   d. the rate of disappearance of B is 1/3 the rate of appearance of C

9. For the reaction 2A + 3B $\longrightarrow$ 4C + 5D, the rate of the reaction in terms of $\Delta A$ would be
   written as:

| | |
|---|---|
| a. $-A/t$. | d. $+1/2\ A/t$. |
| b. $-1/2\ A/t$. | e. $-2\ A/t$. |
| c. $+A/t$. | |

10. For the reaction 2A + 3B $\longrightarrow$ 4C + 5D, the rate of the reaction in terms of $\Delta B$ would be written as

| | |
|---|---|
| a. $-\Delta B/t$ | d. $+\Delta 1/3\ B/t$ |
| b. $+\Delta B/t$ | e. $-\Delta 3\ B/t$ |
| c. $-1/3\ B/t$ | |

11. For the reaction 2A + 3B $\longrightarrow$ 4C + 5D, the rate of the reaction in terms of $\Delta C$ would be    written as

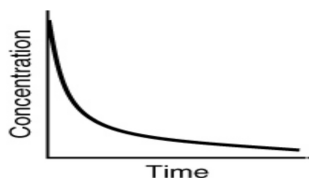| | |
|---|---|
| a. $+\Delta C/\Delta t$ | d. $-4\Delta\ C/\Delta t$ |
| b. $+4\ \Delta C/\Delta t$ | e. $-1/4\Delta\ C\Delta/t$ |
| c. $+1/4\Delta\ C/\Delta t$ | |

12. In the combustion of methane, $CH_4(g) + 2\ O_2(g) \longrightarrow CO_2(g) + 2\ H_2O\ (g)$, which reactant has the greatest rate of disappearance?
   a. $CH_4$
   b. $O_2$
   c. $CO_2$
   d. $H_2O$
   e. $CH_4$ and $O_2$ have the same rate of disappearance.
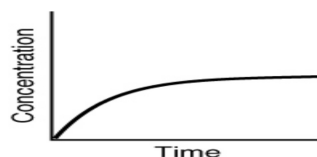
**The look of concentration/time graphs**

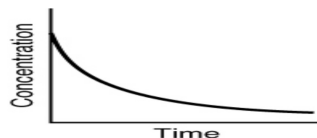13. Which of the following is not a possible graph of concentration versus time for a **reactant**?
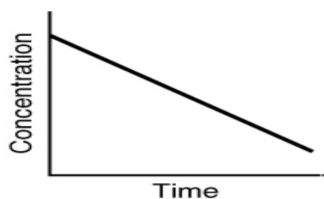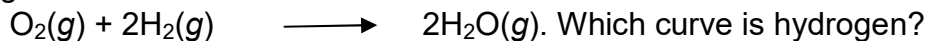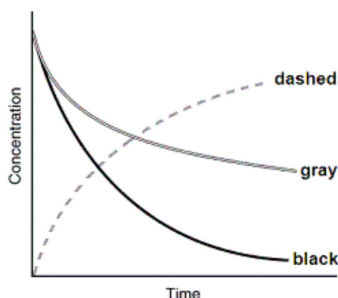
a.


c.


b.

d.

14. The following graph shows the kinetics curves for the reaction of oxygen with hydrogen to form water:

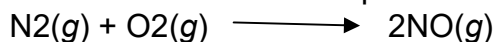$O_2(g) + 2H_2(g) \longrightarrow 2H_2O(g)$. Which curve is hydrogen?
   a. the dashed curve
   b. the gray curve



   c. the black curve
   d. either the gray or the black curve
   e. Any of these curves could be hydrogen

15. A scientist conducts an experiment to determine the rate of the following reaction:

$N2(g) + O2(g) \longrightarrow 2NO(g)$

If the initial concentration of N2 was 0.500 $M$ and the concentration of N2 was 0.450 $M$ after 0.100 s, what is the rate of the reaction?
   a. 0.500 $M$/s
   b. 1.00 $M$/s
   c. 5.00 $M$/s
   d. 10.0 $M$/s
   e. 0.250 $M$/s

16. A scientist conducts an experiment to determine the rate of NO formation in the reaction: $N2(g) + O2(g) \longrightarrow 2NO(g)$ If the initial concentration of N2 was 0.500 $M$ and the concentration of N2 was 0.450 $M$ after 0.100 s, what is the rate of NO formation?
   a. 0.500 $M$/s
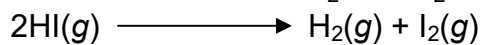   b. 1.00 $M$/s
   c. 5.00 $M$/s
   d. 10.0 $M$/s
   e. 0.250 $M$/s

17. If the rate of appearance of O2 in the reaction:

$2O3(g) \longrightarrow 3O2(g)$
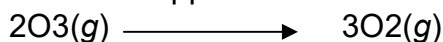
is 0.250 $M$/s over the first 5.50 s, how much oxygen will form during this time?
   a. 1.38 $M$
   b. 4.13 $M$
   c. 0.69 $M$
   d. 0.25 $M$
   e. 0.46 $M$

18. HI dissociates to form $I_2$ and $H_2$:

$2HI(g) \longrightarrow H_2(g) + I_2(g)$

If the concentration of HI changes at a rate of –0.45 $M$/s, what is the rate of

appearance of I2(*g*)?

a. 0.90 *M*/s            d. 1.00 *M*/s

b. 0.45 *M*/s            e. 0.13 *M/s*

c. 0.23 *M*/s

19. If the rate of formation of ammonia is 0.345 *M*/s, what is the rate of disappearance of N2?  $N_2 (g) + 3 H_2 (g) \longrightarrow 2 NH_3 (g)$

a. 0.173 *M*/s            d. 245 *M*/s

b. 0.345 *M*/s            e. 0.518 *M/s*

c. 0.690 *M*/s

20. If the rate of formation of ammonia is 0.345 *M*/s, what is the rate of disappearance of H2?  $N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$

a. 0.173 *M*/s            d. 245 *M*/s

b. 0.345 *M*/s            e. 0.518 *M/s*

c. 0.522 *M*/s

21. For the reaction $2A + B + 2C \longrightarrow D + 2E$, the rate law is: rate $=k[A]^2[B]^1[C]^1$ Which of the following statements is false:

a. the reaction is second order in [A]

b. the reaction is first order in [B]

c. the reaction is second order in [C]

d. the reaction is 4th order overall

22. For the reaction $1A + 2B + 1C \longrightarrow 2D + 1E$, the rate law is: rate $=k [B]^2[C]^1$ Which of the following statements is false:

a. the reaction is first order in [A]

b. the reaction is second order in [B]

c. the reaction is first order in [C]

d. the reaction is third order overall

23. For the rate law Rate $= k[A]^{1/2}[B]$, the partial order with respect to A is _____, the partial order with respect to B is _____, and the total order is _____.

a. 1/2; 0; 1/2

b. 1/2; 1; 1

c. 1/2; 1; 3/2

d. 1/2

e. The orders cannot be determined without a chemical reaction.

24. For the rate law Rate $= k[A][B]3/2$, the order with respect to A is _____, the order with respect to B is _____, and the overall reaction order is _____.

a. 0; 3/2; 3/2

b. 1; 3/2 ; 1

c. 1; 3/2 ; 5/2

d. 1; 3/2; 7/2

e. The orders cannot be determined without a chemical reaction.

25. The reaction A + 2B     C

is first order in B and A. The overall order of the reaction is _____

a. first.            d. zero.

b. second.          e. fourth.

c. third.

26. The reaction $CHCl_3(g) + Cl_2(g) \longrightarrow CCl_4(g) + HCl(g)$ has the following rate law: Rate $= k[CHCl3][Cl2]$. If the concentration of CHCl3 is increased by a factor of five while the concentration of Cl2 is kept the same, the rate will

a. double.                           d. increase by a factor of five.
b. triple.                           e. decrease by a factor of one-fifth.
c. stay the same.

27. The reaction $2NO(g) + O_2(g) \longrightarrow 2NO_2(g)$ has the following rate law:
Rate = $k[O_2][NO]^2$. If the concentration of NO is
reduced by a factor of two, the rate will _____
a. double.                           d. be reduced by one-half.
b. quadruple.                        e. remain the same.
c. be reduced by one-quarter.

28. The rate of a reaction is found to double when the concentration of one reactant is
quadrupled. The order of the  reaction with respect to this reactant is _____
a. first.                                        d. one-half.
b. second.                                       e. third.
c. one-quarter.

29.Collision theory assumes that the rate of a reaction depends on _____
a. the energy of collisions.
b. the orientation of colliding molecules.
c. the energy of collisions and the orientation of colliding molecules.
d. the change in energy between the products and the reactants.
e. the change in free energy between the reactants and products.

30.The energy needed for a reaction to proceed from reactants to products is called
_____
a. collision energy.        d. potential energy.
b. kinetic energy.          e. thermodynamic energy.
c. activation energy.