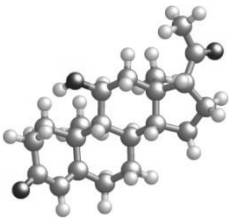

Chem!stry

Name: …… **( )**

Class: ……

Date: …… **/** …… **/** ……

Assignment on Acids, Bases and Salts #1

1. Define the tem *acid*.

……...

……...

2. Give the formulae of the following acids.

- Hydrochloric acid ……
- Nitric acid ……
- Sulfuric acid ……
- Phosphoric acid ……
- Ethanoic acid ……

3. **a)** From the list of acids given in **Question 2**, identify which acids are *strong acids* and which acids are *weak acids*.

- Strong acid(s): ……..
- Weak acid(s): ……..

b) Define the term *strong acid*.

……...

c) Define the term *weak acid*.

……...

d) How do the reactions of strong acids and weak acids differ? Give an example to illustrate your answer.

……...

……...

……...

……...

4. From the list of acids given in **Question 2**, identify which acids are *monobasic*, which acids are *dibasic* and which acids are *tribasic*.

- Monobasic acid(s) ……
- Dibasic acid(s) ……
- Tribasic acid(s) ……

5. **a)** Complete the general word equation for the reaction between an acid and a metal.

acid + metal → …… + ……

b) Describe the test for hydrogen gas.

……...

……...

c) Complete and balance the following chemical equations:

…HNO_3(aq) + …Zn(s) → …… + ……

…H_2SO_4(aq) + …Na(s) → …… + ……

6. **a)** Complete the general word equation for the reaction between an acid and a carbonate:

acid + carbonate → …… + …… + ……

b) Describe the test for carbon dioxide gas.

……...

……...

c) Complete and balance the following chemical equations.

…HCl(aq) + …$CaCO_3$(s) → …… + …… + ……

…H_2SO_4(aq) + …Na_2CO_3(s) → …… + …… + ……

7. **a)** Complete the general word equation for the reaction between an acid and an alkali / base:

acid + base / alkali → …… + ……

b) Complete and balance the following chemical equations.

…HCl(aq) + …$Ca(OH)_2$(s) → …… + ……

…H_3PO_4(aq) + …NaOH(aq) → …… + ……

8. **a)** Define the term *base*?

……...

……....

b) Define the term *alkali*?

……...

……...

9. **a)** Complete the general word equation for the reaction between an ammonium salt and a base / alkali.

ammonium salt + base / alkali → …… + …… + ……

b) Complete and balance the following chemical equations.

…NH_4NO_3(aq) + …CaO(s) → …… + …… + ……

…$(NH_4)_2SO_4$(aq) + …NaOH(aq) → …… + …… + ……

10. Study the pH scale given below and then answer the following questions:

pH Scale													
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
A			**B**			**C**	**D**			**E**			

a) Which letter corresponds to the pH range of a weak acid? Give an example of a weak acid.

……...

b) Which letter corresponds to the pH range of a strong alkali? Give an example of a strong alkali.

……...

c) Which letter corresponds to the pH range of a strong acid? Give an example of a strong acid.

……...

d) Which letter corresponds to the pH range of a neutral solution? Give an example of a neutral solution.

……...

e) Which letter corresponds to the pH range of a weak alkali? Give an example of a weak alkali.

……...

11. Complete the solubility rules given below:

a) All sodium, potassium and ammonium salts are ..... in water.

b) All nitrates are ..... in water.

c) All carbonates are ..... in water except …….

d) All chlorides are ..... in water except …….

e) All hydroxides are ..... in water except ……..

f) All sulfates are ..... in water except ……...

12. Balanced the following chemical equations and add state symbols.

a) …H_2SO_4( ) + …Na_2CO_3( ) → …Na_2SO_4( ) + …H_2O( ) + …CO_2( )

b) …HCl( ) + …Mg( ) → …$MgCl_2$( ) + …H_2( )

c) …H_2SO_4( ) + …$Ba(NO_3)_2$( ) → …$BaSO_4$( ) + …HNO_3( )

d) …HNO_3( ) + …CuO( ) → …$Cu(NO_3)_2$( ) + …H_2O( )

e) …$(NH_4)_2CO_3$( ) + …KOH( ) → …K_2CO_3( ) + …H_2O( ) + …NH_3( )

13. Study the list of oxides given below:

Al_2O_3	CO	Na_2O	SO_2	H_2O
CO_2	Fe_2O_3	ZnO	MgO	NO_2
P_2O_5	NO	CuO	SO_3	PbO

a) Which oxides are acidic?

……...

b) Which oxides are basic?

……...

c) Which oxides are neutral?

……....

d) Which oxides are amphoteric?

……...

- Scan the QR code given below for the answers to this assignment.

http://www.chemist.sg/acids/acids_assignments/acids_assignment_1_ans.pdf