SAT Chemistry Practice Test 34

1. Which of the following when dissolved in water and placed in the conductivity apparatus would cause the light to glow?

A. table salt

B. ethyl alcohol

C. sugar

D. glycerine

E.

2. In question 1, the reason that a current could flow is that

A. ions combine to form molecules

B. molecules migrate to the charge plates

C. ions migrate to the charge plates

D. sparks cross the gap

E.

3. The extent of ionization depends on the

A. nature of the solvent

B. nature of the solute

C. concentration of the solution

D. temperature of the solution

E. all of the above

4. Which of the following is TRUE?

A. The number of positive ions in solution equals the number of negative ions.

B. The positive ions are called anions.

C. The positive ions are called cathodes.

D. The total positive charge equals the total negative charge in solution.

E. None of the above

5. The hydronium ion is represented as

A. H_2O^+

B. H_3O^+

C. HOH^+

D. H^-

E.

6. In the electrolysis of copper chloride, the substance liberated at the anode is

A. copper

B. chlorine

C. hydrogen

D. copper chloride

E.

7. Ions are particles that exist

A. only in water solutions

B. in some crystals

C. in polar covalent compounds

D. in covalent compounds that are not polar

E.

8. Ionic compounds will conduct an electric current when they are

A. solidified

B. melted

C. frozen

D. dehydrated

E.

9. The cathode in an electrochemical cell is the electrode that is

A. always negative

B. always positive

C. always neutral

D. the electrode at which reduction takes place

E.

10. Electrolysis of a dilute solution of sodium chloride results in the cathode product

A.

(A) sodium

B.

(B) chlorine

C.

(C) hydrogen

D.

(D) oxygen

E.

11. Electrode potentials are:

$Zn^0 \rightarrow Zn^{2+} + 2e^-$ $E^0 = + 0.76$ V

$Au^0 \rightarrow Au^{3+} + 3e^-$ $E^0 = -1.42$ V

If a gold foil were placed in a solution containing zinc ions, the reaction potential would be calculated to be

A. -1.34 V (no reaction)

B. -2.18 V (no reaction)

C. -0.66 V (no reaction)

D. +2.18 V (reaction)

E. +1.34 V (reaction)

12. A positive reaction potential indicates that

A. the reaction will not occur

B. the reaction will occur and give off energy

C. the reaction will occur if heat or energy is added

D. the reaction will power an outside alternating electric current

E.

13. The following elements are listed in order of decreasing reactivity as they appear in the electrochemical series.

Ca, Na, Mg, Zn, Fe, H, Cu, Hg, Ag, Au

The element that is the best reducing agent and the easiest to oxidize is

A. Ca

B. Au

C. H

D. Fe

E. Cu

14. The following elements are listed in order of decreasing reactivity as they appear in the electrochemical series.

Ca, Na, Mg, Zn, Fe, H, Cu, Hg, Ag, Au

Of the following, the element that does NOT react with hydrochloric acid to produce hydrogen gas is

A. Zn

B. Fe

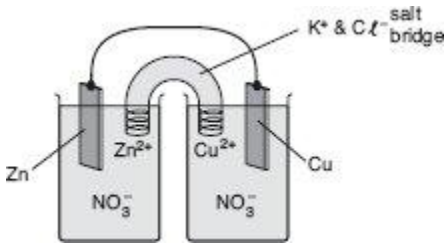
C. Hg

D. Ca

E. Mg

15. The following elements are listed in order of decreasing reactivity as they appear in the electrochemical series.

Ca, Na, Mg, Zn, Fe, H, Cu, Hg, Ag, Au



In the electrochemical cell shown above, which of the following half-reactions occurs at the anode?

A.

(A)$Cu^{2+} + e^- \rightarrow Cu+$

B.

(B)$Zn(s) \rightarrow Zn^{2+} + 2e^-$

C.

(C)$Zn^{2+} + 2e^- \rightarrow Zn(s)$

D.

(D)$Cu(s) \rightarrow Cu^{2+}+2e^-$

E.

(E)$Cu^{2+} + 2e^- \rightarrow Cu(s)$