Chem.11-Q3W5-Electrochamistry-Test

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is produced at the cathode?
a. Cl_2 c. Cl^-
b. K d. K^+

____ 2. One type of experimental battery for electric cars uses the active metal _____.
a. lithium c. sodium
b. potassium d. rubidium

____ 3. The part of the electrolytic cell at which electrons are produced is the _____.
a. anode c. salt bridge
b. cathode d. external circuit

____ 4. A Downs cell can be used to prepare _____.
a. hydrogen gas c. sodium chloride
b. oxygen gas d. chlorine gas

____ 5. One of the metals most difficult to oxidize is _____.
a. copper c. sodium
b. calcium d. potassium

____ 6. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is oxidized?
a. K c. Cl_2
b. K^+ d. Cl^-

____ 7. The size of an electrical current depends on _____ potential difference.
a. the direction of the c. the size of the
b. whether there is a d. the source of the

____ 8. When a lead storage battery operates, _____ is oxidized.
a. Pb^{2+} c. H_2SO_4
b. Pb d. Pb^{4+}

____ 9. A common flashlight battery is not a _____.
a. lead storage battery c. dry cell
b. carbon-zinc battery d. galvanic cell

____ 10. Which process might be used for DNA fingerprinting in a criminal case?
a. anodizing c. electrolytic cleaning
b. electroplating d. electrophoresis

____ 11. When two halves of a spontaneous redox reaction are separated and made to transfer electrons through a wire, a(n) _____ is formed.
a. battery c. half-cell
b. anode d. cathode

____ 12. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is the cation?
a. Cl_2 c. K^+
b. K d. Cl^-

____ 13. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is the anion?
a. Cl_2 c. K
b. Cl^- d. K^+

____ 14. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is reduced?
a. Cl_2 c. K^+
b. Cl^- d. K

____ 15. The properties of the _____ makes a dry cell "dry."
a. electrolyte c. anode
b. casing d. cathode

____ 16. A device used to measure the flow of current in a cell is the _____.
a. voltmeter c. cathode
b. anode d. salt bridge

____ 17. The flow of electrons in a particular direction is called _____.
a. reduction c. an electrical current
b. electrolysis d. oxidation

____ 18. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is produced at the anode?
a. Cl_2 c. K^+
b. K d. Cl^-

____ 19. In electrolysis, which reaction—oxidation or reduction—occurs at a faster rate?
a. reduction c. It depends on the reaction.
b. oxidation d. They occur at the same rate.

____ 20. In the electrolysis of potassium bromide, bromine appears at the _____.
a. cathode c. anode
b. cation d. anion

____ 21. The purpose of adding cryolite (Na_3AlF_6) in the process of extracting aluminum from bauxite is to _____.
a. provide an electrolyte c. lower the melting point of bauxite
b. provide a source of aluminum d. provide a source of fluorine

____ 22. Using an electrical current to break molten bauxite, Al_2O_3, into aluminum metal and a gas is an example of _____.
a. an anode c. recycling
b. electrolysis d. a cathode

____ 23. A strip of magnesium is placed in a silver nitrate solution, and a strip of silver is placed in a solution of magnesium chloride. In which case will a reaction take place?
a. magnesium in silver nitrate c. Neither will react.
b. silver in magnesium chloride d. Both will react.

____ 24. An example of a cation is _____.
a. Cl_2 c. Na^+
b. Cl^- d. Na

____ 25. In a galvanic cell, the electrode that is more easily oxidized is the _____.
a. cathode c. anion
b. cation d. anode

____ 26. Assume an object is to be plated with copper. In the electroplating process, the anode is made of _____.
a. carbon c. the object itself
b. an electrolyte d. copper

____ 27. One disadvantage of nickel-cadmium batteries that improved technology cannot overcome is the _____.
a. size c. power limitations
b. cost d. toxicity of cadmium

____ 28. Aluminum is more easily oxidized than tin. In an aluminum-tin galvanic cell, electrons flow from the _____ electrode to the _____ electrode.
a. Sn^{2+}, Sn c. Sn, Al
b. Al, Sn d. Al^{3+}, Al

Matching

Match each item with the correct statement below.

a. anion
b. anode
c. cathode
d. cation
e. electrical current
f. electrolysis
g. electrolytic cell
h. galvanic cell
i. potential difference
j. voltage

____ 29. A system designed to produce electricity from chemical changes is known as a(n) _____.
____ 30. In a(n) _____, electrical energy is used to bring about chemical changes.
____ 31. If there is no _____ between electrodes, electric current will not flow.
____ 32. The flow of electrons through a system is called a(n) _____.
____ 33. An ion with a negative charge is called a(n) _____.
____ 34. A process in which electrical energy is used to decompose a compound into its elements is called _____.
____ 35. _____ is a region of low negative potential.
____ 36. The difference in electrical potential is called _____.
____ 37. In an electrochemical cell, electrons travel from the _____, a region of high negative potential.
____ 38. An ion with a positive charge is called a(n) _____.

Match each item with the correct item below.

a. oxidation
b. reduction

____ 39. $Sn^{2+} + 2e^- \rightarrow Sn$
____ 40. $Ag^+ + e^- \rightarrow Ag$
____ 41. $Ni \rightarrow Ni^{2+} + 2e^-$
____ 42. $Zn \rightarrow Zn^{2+} + 2e^-$

==========