Chem. G11-Q3W8-Quarter revision-H.W

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

____ 1. The total number of possible different kinds of acid-base reactions is _____.
a. 1
b. 4
c. 2
d. 3

____ 2. The type of acid-base reaction that always goes to completion is the reaction between _____.
a. a strong acid and a strong base
b. a weak acid and a strong base
c. a weak acid and a weak base
d. a strong acid and a weak base

____ 3. The size of an electrical current depends on _____ potential difference.
a. whether there is a
b. the source of the
c. the direction of the
d. the size of the

____ 4. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is the cation?
a. Cl^-
b. K^+
c. K
d. Cl_2

____ 5. The part of the electrolytic cell at which electrons are produced is the _____.
a. anode
b. external circuit
c. cathode
d. salt bridge

____ 6. An element or compound losing electrons to a more electronegative element is _____.
a. oxidation
b. redox
c. combination
d. reduction

____ 7. In the equation $Al + Cl_2 \rightarrow AlCl_3$, the oxidation number of Al changes from _____ to _____.
a. 3+, 0
b. 0, 3+
c. -1, 0
d. 0, 1-

____ 8. Fractional distillation of petroleum works because the components all have different _____.
a. boiling points
b. melting points
c. chemical properties
d. molecular structures

____ 9. One disadvantage of nickel-cadmium batteries that improved technology cannot overcome is the _____.
a. cost
b. toxicity of cadmium
c. size
d. power limitations

____ 10. Acids produce _____ in order to conduct electricity in water.
a. OH^-
b. H_2O
c. H^+
d. H_3O^+

____ 11. The best way to represent water in an ionic equation is as _____.
a. $H_2O(aq)$
b. $H^+ + OH^-$
c. $H_2O(l)$
d. $H^+(aq) + OH^-(aq)$

____ 12. In a galvanic cell, the electrode that is more easily oxidized is the _____.
a. anode
b. cation
c. anion
d. cathode

____ 13. Conductivity of an acid or a base in water is affected by all of the following except _____.
a. molarity
b. an indicator
c. strength
d. pH

____ 14. During respiration, what element is reduced?
a. oxygen
b. carbon
c. magnesium
d. hydrogen

____ 15. Assume an object is to be plated with copper. In the electroplating process, the anode is made of _____.

a. carbon
b. the object itself
c. an electrolyte
d. copper

____ 16. Isomers have _____.
a. different chemical and physical properties
b. the same chemical properties, but different physical properties
c. different chemical properties, but the same physical properties
d. the same chemical and physical properties

____ 17. The properties of the _____ makes a dry cell "dry."
a. casing
b. cathode
c. anode
d. electrolyte

____ 18. When iron is obtained from iron ore according to the equation $2Fe^{3+} + 3O^{2-} + 3CO \rightarrow 2Fe + 3CO_2$, what is the reducing agent?
a. O^{2-}
b. Fe
c. Fe^{3+}
d. C^{2+}

____ 19. A monomer can take part in an addition reaction if it contains _____.
a. two functional groups
b. a double or triple bond
c. glucose
d. a pair of single bonds

____ 20. The flow of electrons in a particular direction is called _____.
a. reduction
b. an electrical current
c. electrolysis
d. oxidation

____ 21. All of the following are biochemical redox processes except _____.
a. bioluminescence
b. respiration
c. photosynthesis
d. corrosion

____ 22. The reaction between an acid and a base always results in the formation of _____.
a. an acid anhydride
b. a basic anhydride
c. a salt
d. a spectator ion

____ 23. The top industrial chemical produced in the United States for many years has been _____.
a. hydrochloric acid
b. oxygen
c. sulfuric acid
d. ammonia

____ 24. Oxides of nitrogen and sulfur are _____.
a. bases
b. basic anhydrides
c. acidic anhydrides
d. acids

____ 25. A device used to measure the flow of current in a cell is the _____.
a. anode
b. voltmeter
c. salt bridge
d. cathode

____ 26. A Downs cell can be used to prepare _____.
a. hydrogen gas
b. chlorine gas
c. sodium chloride
d. oxygen gas

____ 27. In the equation $Al + Cl_2 \rightarrow AlCl_3$, the oxidation number of Cl changes from _____ to _____.
a. 3+, 0
b. 0, 3+
c. -1, 0
d. 0, 1-

____ 28. In electrolysis, which reaction—oxidation or reduction—occurs at a faster rate?
a. oxidation
b. They occur at the same rate.
c. It depends on the reaction.
d. reduction

____ 29. The effect of antacid on stomach fluids is to _____.
a. make them neutral
b. make them basic
c. decrease their pH
d. increase their pH

____ 30. In the electrolysis of potassium bromide, bromine appears at the _____.
a. cation
b. anion
c. anode
d. cathode

____ 31. The spectator ions in the reaction between HNO_3 and NH_4OH are _____.

a. $NH_4^+ + OH^-$
b. $H^+ + OH^-$
c. $H^+ + NO_3^-$
d. $NH_4^+ + NO_3^-$

____ 32. An oxidation reaction occurs only in the presence of _____.
a. oxygen
b. a metal
c. a reduction reaction
d. hydrogen

____ 33. An example of a cation is _____.
a. Na^+
b. Na
c. Cl^-
d. Cl_2

____ 34. Aluminum is more easily oxidized than tin. In an aluminum-tin galvanic cell, electrons flow from the _____ electrode to the _____ electrode.
a. Al^{3+}, Al
b. Sn, Al
c. Al, Sn
d. Sn^{2+}, Sn

____ 35. An acidic solution would have a pH of _____.
a. more than 7
b. 7 or below
c. less than 7
d. 7 or above

____ 36. According to the Bronsted-Lowry definition, an acid is a substance that _____.
a. releases H^+ in solution
b. accepts protons
c. donates hydrogen atoms
d. donates protons

____ 37. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is produced at the cathode?
a. K^+
b. Cl_2
c. K
d. Cl^-

____ 38. A process that typically yields alcohols is _____.
a. polymerization
b. fermentation
c. distillation
d. cracking

____ 39. Acids react with carbonates to produce _____.
a. carbon dioxide
b. a hydronium ion
c. hydrogen
d. a base

____ 40. How do mammals keep from freezing during the winter?
a. hibernation
b. combustion
c. oxidation of fats stored in the body
d. chemiluminescence

____ 41. For every oxidation reaction that occurs, a _____ reaction must also take place.
a. combustion
b. decomposition
c. reduction
d. synthesis

____ 42. A silver vase exposed to the air for a long time is most likely to have an outer coating of _____.
a. silver oxide
b. silver sulfide
c. hydrogen sulfide
d. silver metal

____ 43. Using an electrical current to break molten bauxite, Al_2O_3, into aluminum metal and a gas is an example of _____.
a. electrolysis
b. a cathode
c. an anode
d. recycling

____ 44. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is produced at the anode?
a. Cl_2
b. K
c. Cl^-
d. K^+

____ 45. Is the following reaction a redox reaction? $H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + 2H_2O$
a. no
b. yes
c. It is impossible to determine.
d. if energy is added

____ 46. The weak acid in the following list is _____.
a. nitric acid
b. hydrochloric acid
c. sulfuric acid
d. acetic acid

____ 47. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is oxidized?

a. Cl^-
b. K
c. Cl_2
d. K^+

____ 48. In the equation, $2K^+ + 2Cl^- \rightarrow 2K(l) + Cl_2(g)$, what is the anion?
a. Cl_2
b. Cl^-
c. K
d. K^+

____ 49. The purpose of adding cryolite (Na_3AlF_6) in the process of extracting aluminum from bauxite is to _____.
a. provide a source of fluorine
b. lower the melting point of bauxite
c. provide an electrolyte
d. provide a source of aluminum

____ 50. 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. Neither will react.
b. magnesium in silver nitrate
c. silver in magnesium chloride
d. Both will react.

____ 51. Chemiluminescent reactions release _____.
a. light
b. odors
c. heat
d. gases

____ 52. The substance that is oxidized in the reaction $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$ is _____.
a. Al
b. Al_2O_3
c. Fe_2O_3
d. Fe

____ 53. One type of experimental battery for electric cars uses the active metal _____.
a. lithium
b. sodium
c. rubidium
d. potassium

____ 54. The six extra electrons in a benzene molecule are _____.
a. arranged in alternate single and double bonds
b. arranged in double bonds
c. shared equally by all six carbon atoms
d. shared equally by all six hydrogen atoms

____ 55. One physical property of acids is a _____.
a. sour taste
b. presence of hydrogen
c. slippery feel
d. pink color

____ 56. When a lead storage battery operates, _____ is oxidized.
a. Pb^{2+}
b. H_2SO_4
c. Pb^{4+}
d. Pb

____ 57. Reduction is a(n) _____.
a. half-reaction
b. loss of electrons
c. redox reaction
d. agent

____ 58. When an element is reduced, its oxidation number _____.
a. increases
b. stays the same
c. decreases
d. may increase or decrease

____ 59. When silver reacts with sulfur to form tarnish, what element is the oxidizing agent?
a. S^{2-}
b. S
c. Ag^+
d. Ag

____ 60. When two halves of a spontaneous redox reaction are separated and made to transfer electrons through a wire, a(n) _____ is formed.
a. anode
b. battery
c. cathode
d. half-cell

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