

TEST – CHEMISTRY

Choose one of the possible answers:

- Which of the following is an observable property of many acids?
 - they produce salts when mixed with other acids
 - they become more acidic when mixed with a base
 - they become slippery when reacting with water
 - they react with metals to release hydrogen gas
- Which of the following statements is false regarding sub-atomic particles?
 - the electron has a positive one charge
 - the proton has a positive one charge
 - the neutron has no charge
 - protons and neutrons are the nucleons of the atom
- A solution of salt in 100 g of water that still dissolve more solute at a given temperature is classified as?
 - saturated
 - dilute
 - unsaturated
 - supersaturated
- Which bond has the least ionic character?
 - H — F
 - K — F
 - K — Cl
 - F — F
- Which of the following is the weakest acid?
 - hydrochloric acid
 - acetic acid
 - nitric acid
 - sulfuric acid
- The water solution of which compound has the lowest pH?
 - NH₃
 - HBr
 - NaHCO₃
 - H₂S
- Which statement for an equilibrium system is true?
 - the concentration of the reactants is equal to the concentrations of the products

- B. the concentration of the reactants and the products does not change with the change in the temperature
C. the concentration of the reactants and the products are changed by addition of a catalyst
D. the rates of the straight and the reverse reactions are equal
8. The aqueous solution of ethanol
A. boils at the same temperature as that of water
B. boils at a lower temperature than that of water
C. freezes at a higher temperature than that of water
D. freezes at a lower temperature than that of water
9. MgSO₄ is called:
A. magnesium sulfide
B. magnesium sulfate
C. magnesium sulfite
D. magnesium sulfoxide
10. If the reaction $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$ takes place inside a sealed reaction container, then which of these procedures will cause a decrease in the rate of reaction?
A. increasing the volume inside the reaction container
B. raising the temperature of the reaction container
C. removing the NH₃ as it is formed
D. adding more N₂ to the reaction container
11. All of the following are true of aluminum except:
A. it is good conductor of electricity
B. it is a good reducing agent
C. it is a metal of high density
D. its hydroxide is soluble in both, strong base and acid
12. The concentration of hydroxide anions in a given aqueous solution is 0,1 mol/l. What is the pH of this solution?
A. 1
B. 13
C. 0.1
D. 10
13. Where all oxides are basic?
A. CaO, SO₂, Na₂O
B. SO₂, SO₃, CO
C. BaO, FeO, Cl₂O₇
D. Na₂O, K₂O, BaO

14. Which of the claims about the osmotic pressure (π) is NOT true:
- A. π depends on the volume of the solution
 - B. π depends on the number of particles of dissolved substance in a given volume
 - C. π depends on the degree of electrolyte dissociation of a given electrolyte
 - D. π depends on the concentration of the solution
15. All of the following statements about carbon dioxide are true except:
- A. it is used to extinguish fires
 - B. it can be prepared by the action of acid on limestone
 - C. it dissolves in water at room temperature
 - D. it sublimates rather than melts at 20°C and 1 atmosphere pressure
16. What could be the name of a compound that has the general formula R-COOH?
- A. an alkane
 - B. an ester
 - C. a carboxylic acid
 - D. an alcohol
17. The product of complete bromination of phenol is:
- A. 5-bromophenol
 - B. 4-bromophenol
 - C. 2,4-dibromophenol
 - D. 2,4,6-tribromophenol
18. The general formula of alkenes is:
- A. C_nH_{2n+2}
 - B. C_nH_{2n+1}
 - C. C_nH_{2n-2}
 - D. C_nH_{2n}
19. The formula of methanal (formaldehyde) is:
- A. CH_3COOH
 - B. C_6H_5COOH
 - C. CH_3NH_2
 - D. $HCHO$
20. The formula C_6H_5CN represents:
- A. benzamide
 - B. benzamine
 - C. benzonitrile
 - D. nitrobenzene

21. How many moles of water are needed for the hydrolysis of 1 mol of the fat $C_3H_5(OCOC_{17}H_{35})_3$?

- A. 9
- B. 1
- C. 3
- D. 6

22. Ethene is used to make ethanol. Which of these reactions is used to make ethanol from ethene?

- A. catalytic hydration
- B. oxidation using oxygen
- C. fermentation
- D. reduction using hydrogen

23. The chemical character of aniline is:

- A. acidic
- B. amphoteric
- C. basic
- D. neutral

24. The "silver mirror" reaction is characteristic of:

- A. C_2H_5OH
- B. CH_3COOH
- C. C_6H_5OH
- D. $HCHO$

25. The aspirin is:

- A. sodium benzoate
- B. acetylsalicylic acid
- C. nitrobenzoic acid
- D. acetic acid ethyl ester

26. How a solution containing benzene, naphthalene, phenol and aniline can be separated?

A. the phenol and aniline are separated with sodium hydroxide solution, and benzene and naphthalene – with hydrochloric acid

B. the phenol is extracted after treatment with sodium hydroxide, the aniline is extracted after treatment with hydrochloric acid, and benzene and naphthalene – through distillation

C. the phenol and aniline are separated with nitric acid, and benzene and naphthalene – with sulphuric acid

D. the phenol and aniline are separated through distillation, and benzene and naphthalene – by nitration with nitrating mixture

27. The presence of an amino group in the molecule of amino acids determine their interaction with:
- A. alcohols
 - B. acids
 - C. metals
 - D. bases
28. When water interacts with 1-butene, the following is produced:
- A. 1-butanol
 - B. 1,3-butanediol
 - C. 2-butanol
 - D. 1,2-butanediol
29. The oxidation of secondary alcohol produces:
- A. aldehydes
 - B. esters
 - C. amines
 - D. ketones
30. Protein hydrolysis products are:
- A. a mixture of α -amino acids
 - B. dipeptides
 - C. tripeptides
 - D. polypeptides

Answers:

1-D; 2-A; 3-C; 4-D; 5-B; 6-B; 7-D; 8-D; 9-B; 10-A; 11-C; 12-B; 13-D; 14-A; 15-D; 16-C; 17-D; 18-D; 19-D ; 20-C; 21-C; 22-A; 23-C; 24-D; 25-B; 26-B; 27-B; 28-C; 29-D; 30-A.