

### JAMB 2024 Chemistry Objective Questions (1–50)

1. Which of the following is a noble gas?
  - A. Oxygen
  - B. Nitrogen
  - C. Helium
  - D. Hydrogen
2. What is the relative atomic mass of oxygen?
  - A. 8
  - B. 12
  - C. 16
  - D. 32
3. Which of the following is not a chemical change?
  - A. Rusting of iron
  - B. Burning of wood
  - C. Melting of ice
  - D. Cooking of food
4. The bond formed between two nonmetals is
  - A. Metallic
  - B. Covalent
  - C. Ionic
  - D. Hydrogen
5. The molecular formula of glucose is
  - A.  $C_6H_{12}O_6$
  - B.  $C_2H_5OH$
  - C.  $CH_4$
  - D.  $H_2O$
6. The pH of a neutral solution is
  - A. 14
  - B. 7
  - C. 1
  - D. 0
7. The chemical used to test for starch is
  - A. Benedict's solution
  - B. Lime water
  - C. Iodine
  - D. Ethanol

8. Which gas is evolved when a metal reacts with an acid?
- A. Carbon dioxide
  - B. Hydrogen
  - C. Nitrogen
  - D. Oxygen
9. Which of these is an exothermic reaction?
- A. Dissolution of  $\text{NH}_4\text{Cl}$
  - B. Combustion of fuel
  - C. Electrolysis of water
  - D. Photosynthesis
10. Which of the following compounds is a base?
- A.  $\text{HCl}$
  - B.  $\text{NaOH}$
  - C.  $\text{H}_2\text{SO}_4$
  - D.  $\text{CH}_3\text{COOH}$
11. Which of the following substances sublimates?
- A. Ice
  - B. Salt
  - C. Iodine
  - D. Sugar
12. Which particle determines the identity of an element?
- A. Neutron
  - B. Proton
  - C. Electron
  - D. Nucleon
13. The number of moles in  $22.4 \text{ dm}^3$  of gas at STP is
- A. 1
  - B. 2
  - C. 0.5
  - D. 1.5
14. An amphoteric oxide is
- A.  $\text{CO}_2$
  - B.  $\text{Na}_2\text{O}$
  - C.  $\text{ZnO}$
  - D.  $\text{SO}_2$
15. Which is used as drying agent for gases?
- A. Water

- B. NaOH
- C. H<sub>2</sub>SO<sub>4</sub>
- D. CaCl<sub>2</sub>

16. The oxidation number of sulfur in H<sub>2</sub>SO<sub>4</sub> is

- A. +6
- B. +4
- C. -2
- D. 0

17. Electrolysis is a process of

- A. Neutralization
- B. Thermal decomposition
- C. Chemical decomposition using electricity
- D. Physical separation

18. Which element is triatomic?

- A. O<sub>2</sub>
- B. O<sub>3</sub>
- C. N<sub>2</sub>
- D. H<sub>2</sub>

19. A salt that contains water of crystallization is

- A. NaCl
- B. CuSO<sub>4</sub>·5H<sub>2</sub>O
- C. KCl
- D. Na<sub>2</sub>CO<sub>3</sub>

20. The gas used in balloons is

- A. Hydrogen
- B. Oxygen
- C. Helium
- D. Nitrogen

21. The empirical formula of C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> is

- A. CH<sub>2</sub>O
- B. C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>
- C. C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>
- D. C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

22. The process of removing impurities from an ore is

- A. Roasting
- B. Concentration

- C. Electrolysis
  - D. Cracking
23. Which is the correct IUPAC name of  $\text{CH}_3\text{CH}_2\text{CH}_3$ ?
- A. Methane
  - B. Ethane
  - C. Propane
  - D. Butane
24. Which of the following is a hydrocarbon?
- A.  $\text{CH}_3\text{OH}$
  - B.  $\text{CH}_3\text{COOH}$
  - C.  $\text{C}_2\text{H}_6$
  - D.  $\text{C}_2\text{H}_5\text{OH}$
25. A molecule with a linear structure is
- A.  $\text{H}_2\text{O}$
  - B.  $\text{NH}_3$
  - C.  $\text{CO}_2$
  - D.  $\text{CH}_4$
26. Which of these metals is most reactive?
- A. Gold
  - B. Zinc
  - C. Potassium
  - D. Iron
27. A solution with pH 2 is
- A. Neutral
  - B. Alkaline
  - C. Acidic
  - D. Basic
28. What is the mass of one mole of  $\text{H}_2\text{SO}_4$ ?
- A. 49 g
  - B. 98 g
  - C. 64 g
  - D. 100 g
29. Which is not a fossil fuel?
- A. Coal
  - B. Natural gas
  - C. Crude oil
  - D. Uranium

30. The periodic table is arranged in order of
- A. Atomic weight
  - B. Atomic number
  - C. Mass number
  - D. Valency
31. The functional group of alcohol is
- A.  $-\text{COOH}$
  - B.  $-\text{OH}$
  - C.  $-\text{NH}_2$
  - D.  $-\text{CHO}$
32. Which of these is a polymer?
- A. Methane
  - B. Nylon
  - C. Ethanol
  - D. Butane
33. Which of these is an alkaline earth metal?
- A. Na
  - B. Ca
  - C. Fe
  - D. K
34. A catalyst
- A. Increases activation energy
  - B. Lowers activation energy
  - C. Reacts permanently
  - D. Is consumed in reaction
35. Water is a
- A. Mixture
  - B. Compound
  - C. Element
  - D. Solvent only
36. Which process is used in the separation of crude oil?
- A. Filtration
  - B. Chromatography
  - C. Fractional distillation
  - D. Crystallization
37. Which of these compounds is insoluble in water?
- A. NaCl

- B.  $\text{KNO}_3$
- C.  $\text{BaSO}_4$
- D.  $\text{NH}_4\text{Cl}$

38. The atomic number of an element represents the number of

- A. Neutrons
- B. Electrons
- C. Protons
- D. Nucleons

39. Which acid is used in car batteries?

- A.  $\text{HNO}_3$
- B.  $\text{HCl}$
- C.  $\text{H}_2\text{SO}_4$
- D.  $\text{CH}_3\text{COOH}$

40. Which of these is a greenhouse gas?

- A.  $\text{O}_2$
- B.  $\text{CO}_2$
- C.  $\text{H}_2$
- D.  $\text{N}_2$

41. Which of the following is a weak acid?

- A.  $\text{HCl}$
- B.  $\text{H}_2\text{SO}_4$
- C.  $\text{CH}_3\text{COOH}$
- D.  $\text{HNO}_3$

42. What is the color of phenolphthalein in acid?

- A. Pink
- B. Colorless
- C. Red
- D. Purple

43. The rate of a reaction depends on

- A. Color
- B. Volume
- C. Temperature
- D. Pressure only

44. Which gas is tested using a glowing splint?

- A. Hydrogen
- B. Oxygen

- C. Carbon dioxide
  - D. Chlorine
45. A substance that can act as both acid and base is
- A. HCl
  - B. NaOH
  - C. H<sub>2</sub>O
  - D. NH<sub>3</sub>
46. In redox reactions, reduction means
- A. Loss of electrons
  - B. Gain of electrons
  - C. Addition of oxygen
  - D. Loss of hydrogen
47. The type of bond in NaCl is
- A. Ionic
  - B. Covalent
  - C. Metallic
  - D. Hydrogen
48. Which method is used to separate sand from water?
- A. Evaporation
  - B. Filtration
  - C. Distillation
  - D. Sublimation
49. Which metal is extracted by electrolysis?
- A. Zinc
  - B. Iron
  - C. Sodium
  - D. Copper
50. A solution that resists changes in pH is a
- A. Salt
  - B. Buffer
  - C. Base
  - D. Catalyst
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