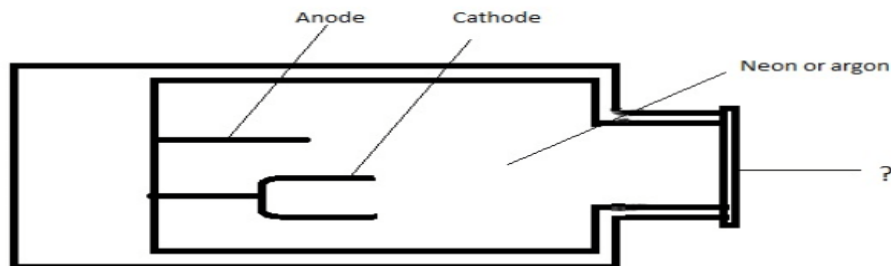


1. A/An _____ is that electrode whose potential is known and remains constant.
(A) indicator electrode (B) reference electrode (C) glass electrode (D) platinum electrode
2. The dissociation constant of a weak acid is 10^{-5} . Then what is the pH of 0.001 N solution of that acid?
(A) 9 (B) 6 (C) 4 (D) 3
3. Which of the following is relation between hydrogen and hydroxyl ion concentration in pure water?
(A) value of hydrogen ion concentration is greater (B) value of hydroxyl ion concentration is greater
(C) They are both always the same (D) the concentrations keep changing
4. Which of the following statement is in correct regarding potentiometric titrations?
(A) They are suitable for colored or turbid reactions.
(B) The emf of the cell is zero at the equivalence point.
(C) These are not suitable for analysis of dilute solutions less than 0.001M.
(D) Liquid junction potentials will not influence the study.
5. The errors in measurement of pH are significant when the ionic strength is greater than
(A) 0 (B) 0.5 (C) 0.1 (D) 1
6. Which of the following ion is expected to have least value of molar conductivity at infinite dilution in an aqueous solution?
(A) K^{+} (B) Cs^{+} (C) Na^{+} (D) Rb^{+}
7. The conductance of an NaCl solution is due to
(A) flow of free mobile electrons. (B) movement of ions.
(C) either movement of electrons or ions. (D) water molecules.
8. On dilution, the specific conductance of the KCl solution
(A) increases (B) decreases. (C) slightly increases. (D) remains constant.
9. Which of the following salt bridge solutions must be used for $Ag/AgNO_3$ in $KCl // AgNO_3/Ag$?
(A) Saturated KCl (B) Saturated LiCl (C) Saturated K_2SO_4 (D) Saturated KNO_3
10. What is the shape for the plot of conductance versus volume of 0.1M NaOH added in conductometric titration of 0.1M HCl?
(A) V-shape (B) L-shape (C) S-shape (D) reverse "S" shape
11. Which of the following compound's 0.1M aqueous solution has the greatest conductance?
(A) Fructose (B) Acetic acid (C) Ammonia (D) Hydrochloric acid
12. Which of the following weak acid dissociation constants would result in the smallest degree of dissociation?
(A) $K_a = 1.0 \times 10^{-2}$ (B) $K_a = 1.0 \times 10^{-3}$ (C) $K_a = 1.0 \times 10^{-4}$ (D) $K_a = 1.0 \times 10^{-5}$
13. Which of the following is expected at the beginning when 'no HCl added' during pH-metric titration of 0.001M NaOH aqueous solution?
(A) 2 (B) 3 (C) 7 (D) 11
14. Which expression is useful for calculation of cell potential?
(A) Nernst equation. (B) Tafel equation. (C) Ilkovic equation. (D) Gibb's equation.
15. The quinone-hydroquinone electrode is generally used as a/an electrode.
(A) reference (B) standard (C) indicator (D) inert
16. What is the pH of the 0.0001M NaOH aqueous solution?
(A) 3 (B) 4 (C) 8 (D) 10
17. Which electrode used as a reference to determine standard reduction potential of an electrode?
(A) Silver (B) Platinum (C) Calomel (D) Hydrogen
18. The sodium gives yellow color in flame. The wavelength of radiation for the atomic absorption of sodium will be
(A) 767.3 nm (B) 629.3 nm (C) 549.3 nm (D) 589.3 nm
19. In atomic emission spectroscopy the emission due to the electronic transition of
(A) Singlet ground state to singlet excited state (B) singlet excited state to singlet ground state.
(C) Singlet ground state to triplet excited state (D) Triplet excited state to singlet ground state.
20. In atomic absorption spectroscopy the most strongly absorbed light is called as
(A) resonance line (B) base line (C) Stokes line (D) anti-Stokes line
21. In atomic emission spectroscopy the flame acts as
(A) Source of excitation & Source of light. (B) Source of light & source of ionization.
(C) source of ionization & Source of vaporization. (D) Source of vaporization & Source of excitation.

22. Which of the following is an example of anionic interference in atomic emission spectroscopy?
 (A) Interference of high concentration of sodium ions in assay calcium ions.
 (B) Interference by formation of less volatile salt with sulphates by calcium.
 (C) Increased viscosity of the analyte solution by sugars.
 (D) Decreased drop size of the analyte solution by alcohols.
23. In atomic emission spectroscopy the graph drawn between
 (A) Emission versus Concentration (B) Absorbance versus Concentration
 (C) Absorbance versus wave length (D) Emission versus wave length
24. What is the main advantage of atomic emission spectroscopy over atomic absorption spectroscopy?
 (A) Analysis of metal elements in at very low concentrations.
 (B) Analysis of multiple elements simultaneously.
 (C) Analysis of both metals and metalloids. (D) Usage of high energy of excitation.
25. Atomic absorption spectra produce narrow band with peaks generally called as lines because it involves
 (A) electronic transition only. (B) vibrational transitions only.
 (C) rotational transitions only. (D) All of the above three transitions.
26. What is the maximum temperature (in degree C) attained, when acetylene- N_2O gas is used in atomic emission spectroscopy?
 (A) 2200 (B) 2800 (C) 3100 (D) 3700
27. Which of the following is the principle of Atomic Absorption Spectroscopy?
 (A) Radiation is absorbed by non-excited atoms in vapor state and are excited to higher states.
 (B) Medium absorbs radiation and transmitted radiation is measured.
 (C) Colour is measured. (D) Colour is simply observed.
28. In Atomic Absorption Spectroscopy, which of the following is the generally used radiation source?
 (A) Tungsten lamp (B) Xenon mercury arc lamp
 (C) Hollow cathode lamp (D) Hydrogen or deuterium discharge lamp
29. A Grotrian diagram can be used for
 (A) one-electron atom. (B) multi-electron atom.
 (C) both one-electron and multi-electron atoms. (D) ions.
30. What is the detection limit of flame atomic absorption spectrometry?
 (A) mg/L (B) $\mu\text{g/L}$ (C) ng/L (D) g/L
31. The diagram show below is picture of Hollow cathode lamp. The unmarked component is



- (A) glass tube (B) mica shield (C) non-conducting glass (D) quartz window
32. Which of the following is not a component in the instrument of emission flame photometry?
 (A) Burner (B) Atomizer (C) Fuel gases (D) Chopper
33. Which of the following is not a fuel used in flame photometry?
 (A) Acetylene (B) Hydrogen (C) Camphor oil (D) Propane
34. Which of the following is the function of atomiser in the emission system of Atomic Absorption Spectroscopy?
 (A) To split the beam into two.
 (B) To break the steady light into pulsating light.
 (C) To reduce the sample into atomic state.
 (D) To break large mass of liquid into small drops.
35. Atomic Absorption Spectroscopy is used for the analysis of
 (A) ionic compounds (B) covalent compounds
 (C) metals (D) proteins