MHT-CET Practice Question Paper

Subject : Chemistry

Time: 50 minutes **Test no : 01** **Marks : 100**

All the questions are compulsory and contain two marks for each

1. A solid having irregular shape is called_____.
   a) Amorphous b) Crystalline
   c) Anisotropic d) Isomorphous

2. Graphite, diam0oond and fullerene are the polymorphic forms of?
   a) Sulphur
   b) Carbon
   c) Calcium
   d) Calcium dioxide

3. Which metal crystallizes in a simple cubic structure
   a) Polonium b) Copper
   c) Nickel d) Iron

4. Which among the followings metal crystallise as a simple cube?
   a) Polonium
   b) Iron
   c) Copper
   d) Gold

5. The relation between solubility of a gas in liquid at constant temperature and external pressure is stated by which law?
   a) Raoult's law
   b) van't HoffBoyle's law
   c) van't HoffCharles' law
   d) Henry's law

6. 9 g of glucose (mol wt = 180) is dissolved in 90 g of H2O. Relative lowering of vapour pressure is _____.
   a) 0.99 b) 0.099
   c) 0.0099 d) 0.00099

7. Relative lowering of vapour pressure of a dilute solution of glucose dissolved in 1 kg of water is 0.002. The molality of the solution is ____
   a) 0.111 b) 0.021
   c) 0.004 d) 0.222

8. If molality of the dilute solution is doubled, the value of molal depression constant (Kf) will be _____.
   a) halved b) tripled
   c) unchanged d) doubled

9. Which of the following is strong electrolyte?
   A. HF C. H_2CO_3
   B. HCL D. H_2S

10. Which of the following is a weak electrolyte?
    A. CH_3COONH_4 C. CH_3COOH
    B. $CuSO_4$ D. $AgNO_3$

11. According to the Arrhenius Theory, Acid Is a Substances that_____.
    A. Gives H^+ ions in aqueous Solution
    B. Gives OH^- ions ion aqueous solution
    C. Contains OH group
    D. Accepts an electron pair

12. 4) _____present in the gastric juice is secreted by our stomach and is essential for digestion of food.
    A. H_2CO_3 C. CH_3COOH
    B. HNO_3 D. HCL

13. Identify an extensive property among the following
    a) Viscosity
    b) Heat capacity
    c) Density
    d) Surface tension

14. Calculate the work done during compression of 2 mol of an ideal gas from a volume of 1 m cube to 10 dm cube at 300 K against a pressure of 100 kPa
    a) -99 kJ b) +99kJ
    c) -22.98 kJ d) -22.98 kJ

15. How internal energy change due to removal of heat and work from the system?
    a) decrease b) increase
    c) remain same d) none
16. Heat formation of water is -272 kJ. How much water can be decomposed by 750 kJ of heat?
    a) 7.5 mol b) 2.75 mol
    c) 5.5 mol d) 0.275 mol
17. Aqueous solution of which of the following compounds is the best conductor of electric current?
    (A) Ammonia, NH_3
    (B) Fructose, $C_6H_{12}O_6$
    (C) Acetic acid, $C_2H_4O_2$
    (D) Hydrochloric acid, HCl
18. How is electrical conductance of a conductor related with length and area of cross section of the conductor?
    (A) $G = l \,.\, a.\, k^{-1}$ (B) $G = k \,.\, l.\, a^{-1}$
    (C) $G = k.\, a.\, l^{-1}$ (D) $G = k.\, l.\, a^{-2}$
19. 3. What is the SI unit of conductivity?
    (A) S m (B) $S\ m^{-1}$
    (C) $S\ m^2$ (D) $S\ m^{-2}$
20. At 25 °C, the molar conductance of 0.007 M hydrofluoric acid is 150 mho $cm^2\ mol^{-1}$ and $\wedge_0$ = 500 mho $cm^2\ mol^{-1}$. The value of the dissociation constant of the acid at the given concentration at 25 °C is _____.
    (A) 7×10^{-4} (B) 7×10^{-5}
    (C) 9×10^{-3} (D) 9×10^{-4}
21. Average rate of reaction $2SO_{2(g)} + O_{2(g)} \longrightarrow 2SO_{3(g)}$ is written as _____.
    (A) $\frac{\Delta[SO_2]}{\Delta t}$ (B) $-\frac{\Delta[O_2]}{\Delta t}$
    (C) $\frac{1}{2}\frac{\Delta[SO_2]}{\Delta t}$ (D) $\frac{\Delta[SO_3]}{\Delta t}$
22. Instantaneous rate of reaction for the reaction $3A + 2B \rightarrow 5C$ is _____.
    (A) $+\frac{1}{3}\frac{d[A]}{dt} = -\frac{1}{2}\frac{d[B]}{dt} = -\frac{1}{5}\frac{d[C]}{dt}$
    (B) $-\frac{1}{3}\frac{d[A]}{dt} = +\frac{1}{2}\frac{d[B]}{dt} = -\frac{1}{5}\frac{d[C]}{dt}$
    (C) $-\frac{1}{3}\frac{d[A]}{dt} = -\frac{1}{2}\frac{d[B]}{dt} = +\frac{1}{5}\frac{d[C]}{dt}$
    (D) $+\frac{1}{3}\frac{d[A]}{dt} = -\frac{1}{2}\frac{d[B]}{dt} = +\frac{1}{5}\frac{d[C]}{dt}$
23. Rate law for the reaction A + B → product is rate = k $[A]^2[B]$. What is the rate constant, if rate of reaction at a given temperature is 0.22 M s^{-1}, when [A] = 1 M and [B] = 0.25 M?
    (A) 3.52 $M^{-2}\ s^{-1}$ (B) 0.88 $M^{-2}\ s^{-1}$
    (C) 1.136 $M^{-2}\ s^{-1}$ (D) 0.05 $M^{-2}\ s^{-1}$
24. In a reaction A -> B, if the concentration of reactant is increased by 9 times, then rate of reaction increases 3 times. What is the order of reaction?
    a) 1/3 b) 1/2
    c) 3 d) 2
25. What is the oxidation number of gold in the complex $[AuCl_4]^-$?
    (A) +4 (B) +3
    (C) +2 (D) +1
26. The CORRECT charge on and coordination number of 'Fe' in $K_3[Fe(CN)_6]$ are _____ respectively. **[MHT CET 2017]**
    (A) +2, 4 (B) +3, 6
    (C) +2, 6 (D) +3, 3
27. The formula of pentaaquanitratochromium(III) nitrate is, _____.
    (A) $[Cr(H_2O)_5(NO_3)](NO_3)_2$
    (B) $[Cr(H_2O)_5(NO_2)]NO_3$
    (C) $[Cr(H_2O)_6](NO_3)_3$
    (D) $[Cr(H_2O)_6](NO_2)_2$
28. What is the EAN of nickel in $Ni(CO)_4$?
    (A) 34 (B) 35
    (C) 32 (D) 36
29. Which one of the following is a transition element as per the ground state electronic configuration?
    a) Au
    b) Hg
    c) Cd
    d) Zn
30. Which of the following mineral of iron is in the form of carbonate?
    a) Iron pyrites b) Magnetite
    c) Siderite d) Haematite

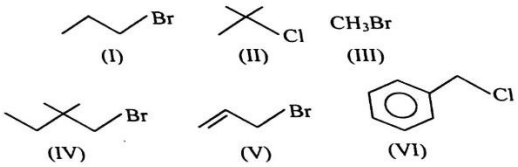
31. A compound absorbs light in the wavelength region 490-500 nm. Its complementary colour is:
    a) Red b) Blue
    c) Orange d) Blue-green

32. Potassium dichromate is a good oxidizing agent, in acidic medium the oxidation state of chromium changes by_____.
    a) 2 b) 3
    c) 4 d) 5

33. Coordination compound contain ligands attached to central metal atom/ion through _____ bonds
    a) covalent b) ionic
    c) coordinate d) metallic

34. Ammonia molecule and oxalate ion have _____ coordination sites respectively.
    a) one,two b) two,one
    c) three,two d) one,three

35. Which of the following will readily undergo S_N1 mechanism?



    a) I,III,IV b) II,V,VI
    c) V,VI d) I,III

36. (+) 2-Methylbutan-1-ol and (-) 2-methylbutan-1-ol have different values for which property?
    a) Boiling point b) Relative density
    c) Refractive index d) Specific rotation

37. This is our territory alcohol:
    a) 3-Methylbutan-2-ol
    b) Butan-2-ol
    c) 2-Methylpropan-2-ol
    d) Pentan-2-ol

38. Which of the following alcohol has the highest boiling point?
    a) Butan-1-ol
    b) Propan-2-ol
    c) 2-Methylpropan-2-ol
    d) Butan-2-ol

39. Name the catalyst used in commercial method of preparation of phenol
    a) Silica
    b) Calcium phosphate
    c) Anhydrous aluminium chloride
    d) Cobalt naphthenate

40. Which among the following phenolic compounds is most acidic in nature
    a) p-Aminophenol b) Phenol
    c) m-Nitrophenol d) p-Nitrophenol

41. When acetaldehyde is reacted with very dilute sodium hydroxide ____is obtained.
    a) aldol b) alcohol
    c) ketol d) diol

42. When formic acid reacts with PCL5 it forms _____.
    a) Formyl chloride
    b) Acetyl chloride
    c) Methyl chloride
    d) Propionyl chloride

43. IUPAC name of n-propylamine is_____.
    a) propan-1-amine
    b) butan-1-amine
    c) butan-2-amine
    d) propan-2-amine

44. Amines are considered as the organic derivatives of_____.
    a) urea
    b) ammonia
    c) alkane
    d) amino acids

45. Which of the following can be categorised as principal bio molecule?
    a) Carbohydrates b) Proteins
    c) Nucleic acids d) All of these

46. Carbohydrates are _____.
    a) Polyhydroxy aldehydes or ketones
    b) Polyhalogenated compounds
    c) Polyesters
    d) Polyamides

47. PVC is prepared by the polymerisation of _____.
    a) Ethylene b) 1- chloropropane
    c) Propene d) 1-Chloroethane

48. Which is not an elastomer?

a) Neoprene b) Polyisoprene
c) Buna-S d) Dacron

49. The role of chemistry has been
    a) to improve the quality of life
    b) to provide shelter, food and clothing
    c) to provide medicine
    d) all of these
50. The characteristic of an ideal drug is
    a) to attack on the system
    b) to have some side effects
    c) its action should be localized to a site of requirement only
    d) it may damage the cells of the body