MHT-CET Practice Question Paper

Subject : Chemistry

Time: 45 minutes **Test no : 05** **Marks : 100**

All the questions are compulsory and contain two marks for each

1. Identify the correct statement.
   a) The conductivity of metal decreases with increase in temperature
   b) Metallic sodium is an example of conductor with overlapping bands.
   c) The process of addition of minute quantity of impurities to a semiconductor to decreases its conductivity is called doping
   d) The valence band and conduction band in metals are separated by a large energy gap called forbidden zone.

2. Which of the following is an example of covalent network solid?
   a) Calcium b) Boron nitride
   c) Ice d) Argon

3. The edge length of unit cell of ccp Al crystal is 353.6 pm. The radius of Al atom is?
   a) 152 pm b) 145 pm
   c) 153 pm d) 225 pm

4. In two dimensional AAAA type square close packed structure, the coordination number of each sphere is _____.
   a) 2 b) 4
   c) 6 d) 12

5. Identify the compound amongst the following of which 0.1 M aqueous solution has highest boiling point.
   a) Glucose
   b) Sodium chloride
   c) Calcium chloride
   d) Ferric chloride

6. The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is _____.
   a) 3 b) 0
   c) 1 d) 2

7. In water saturated air, the mole fraction of water vapour is 0.02. If the total pressure of the saturated air is 1.2 atm, the partial pressure of dry air is _____.
   a) 0.98 atm b) 1.18 atm
   c) 1.76 atm d) 1.76 atm

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

9. The number of moles of a compound that dissolve to give one litre of saturated solution is called its___
   a) Molar solubility
   b) Solubility product
   c) Ionic product
   d) Effective concentration

10. The pH of 1 mill molar HCL: solution is ____.
    a) 1 b) 3
    c) 2 d) 4

11. Which of the following forms a basic buffer solution?
    a) Acetic acid and sodium acetate.
    b) Sodium hydroxide and ammonium chloride.
    c) Ammonium hydroxide and ammonium chloride
    d) Ammonium hydroxide and sodium sulphate

12. How many grams of NaOH must be dissolved in 1 L of solution of give it a pH value of 11?
    a) 0.04 g b) 0.1 g
    c) 0.4 g d) 0.01 g

13. Theoretical basis of Hess's law is ____.
    a) Kirchhoff's law

b) law of conservation of energy
c) heat of ionization of strong acids and strong bases
d) variation in heat of reaction

14. The correct thermodynamic conditions for spontaneous reaction at all temperatures is:
a) $\Delta H < 0$ and $\Delta S > 0$
b) $\Delta H < 0$ and $\Delta S < 0$
c) $\Delta H < 0$ and $\Delta S = 0$
d) $\Delta H > 0$ and $\Delta S < 0$

15. If $K < 1.0$, then the value of ΔG will be ___.
a) 1.0 b) zero
c) negative d) positive

16. Identify an extensive property amongst the following.
a) Viscosity b) Heat Capacity
c) Density d) Surface tension

17. The resulting solution obtained at the end of electrolysis of concentrated aqueous solution of NaCl _____.
a) turns red litmus into blue
b) turns blue litmus into red
c) remains colourless with phenolphthalein
d) the colour of blue or red litmus will not change

18. Which of the following is not a secondary volatile cell?
a) Lead storage battery
b) Nickel-cadmium cell
c) Mercury cell
d) Dry cell

19. The charge of one mole electrons are is _____.
a) 96500 C b) 1 C
c) 9650 C d) 96500 F

20. The conduction of electricity through metallic conductor is due to the movement of _____.
a) metal atoms b) electrons
c) cations d) anions

21. The study of the rate of reactions and factors affecting its rate is known as _____.
a) thermodynamics b) electrochemistry
c) chemical kinetics d) ionic equilibrium

22. When a reaction progresses, _____.
a) the rate of reaction goes on increasing
b) the concentration of the products goes on decreasing
c) the concentration of the reactants goes on decreasing
d) the reaction rate always remains constant

23. Order of a reaction _____.
a) cannot be zero
b) will always be one
c) can be integer but cannot be fractional
d) can be integer or fractional

24. Which of the following group 16 element is present in galena and zinc blende?
a) Oxygen b) Sulphur
c) Selenium d) Tellurium

25. Which of the following will have lowest ionization enthalpy?
a) Oxygen b) Sulphur
c) Tellurium d) Polonium

26. Oxygen will not exhibit _____ oxidation state.
a) -2 b) +2
c) +4 d) -1

27. The number of unpaired electrons in Ni (atomic number = 28) are:
a) 0 b) 2
c) 4 d) 8

28. Which metal is used a prat of catalyst in Fischer-Tropsch method?
a) Mn b) Co
c) Fe d) Pt

29. The purest form of commercial iron is ____.
a) wrought iron
b) pig iron
c) scrap iron and pig iron
d) cast iron

30. The dispositive ion of following metals form most stable coordinate complex with ammonia?
a) Co(Z = 27) b) Fe(Z = 26)
c) Cu(Z = 29) d) Mn(Z = 25)

31. The chelating ligand, which is used in the treatment of lead poisoning is_____.
a) ethane-1,2-diamine

b) EDTA
c) dimethylglyoxime
d) none of these

32. Haemoglobin is a complex of _____.
a) Mg b) Co
c) Fe d) Mn

33. Which of the following cannot be prepared by direct halogenation of benzene?
a) Iodobenzene b) Chlorobenzene
c) Bromobenzene d) Fluorobenzene

34. An alkane that gives only one type of monohalogen derivative on halogenation is _____.
a) neopentane
b) neohexane
c) isobutane
d) isopentane

35. 1,2-Dichloroethane is which type of halide?
a) Allylic halide
b) Alkylidene halide
c) Vicinal halide
d) Geminal halide

36. Which of the following compounds has lowest boiling point?
a) n-butyl alcohol
b) isobutyl alcohol
c) tert-butyl alcohol
d) sec-butyl alcohol

37. When vapours of secondary alcohol are passed over heated copper at 573 K, the product formed is _____.
a) an alkene b) a carboxylic acid
c) an aldehyde d) a ketone

38. Diethyl ether when heated with excess HI produces _____.
a) ethanol b) iodoform
c) ethyl iodide d) methyl iodide

39. Carboxylic acid reacts with ammonia resulting in the formation of _____.
a) amine b) imine
c) oxime d) amide

40. In the formation of ester from carboxylic acid, the bond broken is _____
a) C - OH b) C = O
c) O - H d) R - C

41. Which of the following is a mixed ketone
a) Acetone
b) Benzophenone
c) Diethyl ketone
d) Ethyl n-propyl ketone

42. Which of the following will have lowest boiling point?
a) Buatn-1-ol b) 2-Methylbutane
c) Trimethylamine d) Ethanoic acid

43. The basic character of amines is due to the _____.
a) presence of nitrogen atom
b) presence of alkyl groups
c) lone pair of electrons on nitrogen atom
d) high electronegativity of nitrogen

44. Which of the following reaction takes place during the orange dye test?
a) Rearrangement b) Diazotization
c) Hydrogenation d) Decarboxylation

45. Which of the following does not yield to monosaccharide units on hydrolysis?
a) Lactose b) Ribose
c) Maltose d) Sucrose

46. The compound which does not have amino acid group _____.
a) glycine b) valine
c) aniline d) alanine

47. Which of the following is fibrous protein?
a) insulin b) Legumelin
c) Myosin d) Albumin

48. Regenerated fibres are _____ polymers
a) synthetic b) plant
c) semisynthetic d) animal

49. The compound(s) that undergoes ring opening polymerization is/are _____.
a) lactams b) cyclic ethers
c) lactones d) All of these

50. Polyacrylonitrile is used as a substitute for _____.
a) silk b) cotton
c) wool d) jute