Quiz: Chemistry set 1

Q1: The number of photons emitted per second by a 100 W bulb operating at 500 nm is closest to:

A) 2.5 x 1020
B) 5.0 x 1020
C) 2.5 x 1021
D) 5.0 x 1021

Q2: For the reaction N2(g)+3H2(g)<=>2NH3(g), if Kp = 4.0x108 at 500 K, then Kc is:

A) 4.0x108
B) 4.0x102
C) 4.0x1014
D) 4.0x10^-2

Q3: The pH of a solution obtained by mixing 100 mL of 0.1 M HCl and 100 mL of 0.01 M NaOH is:

A) 1.0
B) 1.7
C) 2.0
D) 2.3

Q4: Which orbital has the highest penetrating power?

A) 3d
B) 3p
C) 3s
D) 4s

Q5: The total number of sigma and pi bonds in benzene molecule are respectively:

A) 6, 6
B) 12, 3
C) 12, 6
D) 9, 3

Q6: For a first order reaction, the time required for 75% completion is:

A) t1/2
B) 2t1/2
C) 3t1/2
D) 1.5t1/2

Q7: The correct order of increasing boiling points is:

A) Ne < Ar < Kr < Xe
B) Xe < Kr < Ar < Ne
C) Ar < Ne < Kr < Xe
D) Ne < Kr < Ar < Xe

Q8: The EMF of a Daniell cell at 298 K if E deg = 1.10 V and Q = 10 is:

A) 1.04 V
B) 1.10 V
C) 1.16 V
D) 0.98 V

Q9: Which compound will show maximum hydrogen bonding?

A) HF
B) H2O
C) NH3
D) CH3OH

Q10: The hybridization of carbon atoms in ethyne is:

A) sp2
B) sp
C) sp3
D) dsp2

Q11: If DeltaG deg for a reaction is -40 kJ mol-1, the equilibrium constant at 298 K is approximately:

A) 107
B) 103
C) 10^-7
D) 10^-3

Q12: Which of the following has maximum magnetic moment?

A) Fe2+
B) Mn2+
C) Co3+
D) Ni2+

Q13: The osmotic pressure of a solution increases with:

A) Decrease in temperature
B) Decrease in molarity
C) Increase in temperature
D) Increase in molecular mass

Q14: Which reagent converts alcohol to aldehyde without further oxidation?

A) KMnO4
B) K2Cr2O7
C) PCC
D) HNO3

Q15: The order of basic strength in aqueous solution is:

A) NH3 > PH3 > AsH3
B) AsH3 > PH3 > NH3
C) PH3 > NH3 > AsH3
D) NH3 > AsH3 > PH3

Q16: The van’t Hoff factor for NaCl in water is approximately:

A) 0.5
B) 1
C) 2
D) 3

Q17: Which molecule is paramagnetic?

A) O2
B) N2
C) CO
D) H2

Q18: The unit of rate constant of a zero order reaction is:

A) mol L-1 s-1
B) s-1
C) L mol-1 s-1
D) dimensionless

Q19: Which of the following is not a colligative property?

A) Osmotic pressure
B) Boiling point elevation
C) Lowering of vapour pressure
D) Viscosity

Q20: The coordination number of central metal ion in [Fe(CN)6]4- is:

A) 4
B) 6
C) 2
D) 8

Q21: Which compound will undergo SN1 reaction fastest?

A) CH3Cl
B) C2H5Cl
C) (CH3)3CCl
D) C6H5CH2Cl

Q22: The correct order of ionization enthalpy is:

A) O < N < C
B) N < O < C
C) C < O < N
D) C < N < O

Q23: The shape of SF6 molecule is:

A) Octahedral
B) Trigonal bipyramidal
C) Square planar
D) Tetrahedral

Q24: Which of the following is a reducing agent?

A) KMnO4
B) H2O2
C) O3
D) F2

Q25: The heat of neutralization of strong acid and strong base is always:

A) -13.7 kJ mol-1
B) -57.1 kJ mol-1
C) +57.1 kJ mol-1
D) Variable

Q26: Which polymer is biodegradable?

A) PVC
B) Teflon
C) Nylon-6,6
D) PHBV

Q27: The bond order of O2 molecule is:

A) 1
B) 2
C) 2.5
D) 1.5

Q28: Which salt undergoes hydrolysis in water?

A) NaCl
B) KNO3
C) NH4Cl
D) Na2SO4

Q29: The correct increasing order of acidity is:

A) Phenol < Ethanol < Acetic acid
B) Ethanol < Phenol < Acetic acid
C) Acetic acid < Phenol < Ethanol
D) Phenol < Acetic acid < Ethanol

Q30: The molarity of pure water at 25 degC is approximately:

A) 18 M
B) 55.5 M
C) 1 M
D) 100 M

Q31: Which element shows maximum catenation?

A) Carbon
B) Silicon
C) Sulphur
D) Nitrogen

Q32: The half-life of a first order reaction is independent of:

A) Temperature
B) Initial concentration
C) Rate constant
D) Nature of reaction

Q33: Which of the following is a Lewis acid?

A) NH_3
B) H_2O
C) BF_3
D) OH^-

Q34: The number of unpaired electrons in Cr atom is:

A) 4
B) 5
C) 6
D) 3

Q35: Which compound gives positive iodoform test?

A) Ethanol
B) Methanol
C) Formaldehyde
D) Formic acid

Q36: The maximum oxidation state of Mn is:

A) +5
B) +6
C) +7
D) +4

Q37: The rate of effusion of H_2 compared to O_2 is:

A) 1:4
B) 4:1
C) 1:16
D) 16:1

Q38: Which of the following is strongest electrolyte?

A) CH_3COOH
B) NH_4OH
C) HCl
D) H_2CO_3

Q39: The geometry of $[Ni(CO)_4]$ is:

A) Square planar
B) Tetrahedral
C) Octahedral
D) Linear

Q40: Which of the following is not an aromatic compound?

A) Benzene
B) Cyclopropenyl cation
C) Cyclobutadiene
D) Naphthalene

Q41: The standard electrode potential of hydrogen electrode is:

A) +1.0 V
B) 0.0 V
C) -1.0 V
D) +0.76 V

Q42: Which compound has highest lattice energy?

A) NaCl
B) MgO
C) KCl
D) CaO

Q43: The number of stereoisomers of tartaric acid is:

A) 2
B) 3
C) 4
D) 5

Q44: Which oxide is amphoteric?

A) Na2O
B) MgO
C) Al2O3
D) SO2

Q45: The bond angle in NH3 is approximately:

A) 109.5 deg
B) 120 deg
C) 107 deg
D) 104.5 deg

Q46: Which of the following shows maximum electrical conductivity?

A) Solid NaCl
B) Molten NaCl
C) NaCl in benzene
D) Dry NaCl vapour

Q47: The correct order of reducing power is:

A) Li > Na > K
B) K > Na > Li
C) Na > Li > K
D) Li > K > Na

Q48: Which of the following is a greenhouse gas?

A) N_2
B) O_2
C) CO_2
D) Ar

Q49: The order of reactivity of halogens is:

A) $F_2 > Cl_2 > Br_2 > I_2$
B) $I_2 > Br_2 > Cl_2 > F_2$
C) $Cl_2 > F_2 > Br_2 > I_2$
D) $Br_2 > Cl_2 > F_2 > I_2$

Q50: The enthalpy change for an exothermic reaction is:

A) Positive
B) Negative
C) Zero
D) Infinite