Quiz: Chemistry set 6

Q251: The work function of a metal is 4.0 eV. The threshold wavelength (in nm) is closest to: (h = 6.63x10^-34 J s, c = 3x108 m s-1, 1 eV = 1.6x10^-19 J)

A) 310
B) 400
C) 500
D) 620

Q252: For a first order reaction, if k = 0.693 min-1, the half-life is:

A) 0.5 min
B) 1 min
C) 2 min
D) 10 min

Q253: The number of radial nodes in a 4s orbital is:

A) 0
B) 1
C) 2
D) 3

Q254: The pH of a solution formed by mixing equal volumes of 0.1 M HCl and 0.1 M NaOH is:

A) 1
B) 7
C) 13
D) 0

Q255: Which colligative property is independent of temperature (approximately)?

A) Elevation of boiling point
B) Depression of freezing point
C) Osmotic pressure
D) Relative lowering of vapour pressure

Q256: The correct order of increasing first ionization enthalpy is:

A) Na < Mg < Al
B) Al < Mg < Na
C) Na < Al < Mg
D) Mg < Na < Al

Q257: The hybridization of the central atom in ClF3 is:

A) sp3
B) sp3d
C) sp3d2
D) sp2

Q258: Which of the following complexes is diamagnetic?

A) [Fe(H2O)6]3+
B) [CoF6]3-
C) [Ni(CN)4]2-
D) [Mn(H2O)6]2+

Q259: The unit of Gibbs free energy change is:

A) J
B) J mol-1
C) J K-1
D) J mol-1 K-1

Q260: Which reagent selectively oxidizes secondary alcohol to ketone?

A) KMnO4
B) PCC
C) NaBH4
D) Zn/Hg

Q261: The total number of sigma bonds in n-butane is:

A) 11
B) 12
C) 13
D) 14

Q262: Which compound shows maximum covalent character?

A) NaF
B) MgO
C) AlCl3
D) CaF2

Q263: The oxidation number of nitrogen in HNO3 is:

A) +3
B) +4
C) +5
D) +1

Q264: The bond angle in NH4+ ion is:

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

Q265: Which gas shows minimum deviation from ideal behavior?

A) NH3
B) CO2
C) H2
D) SO2

Q266: How many grams of NaCl are required to prepare 500 mL of 0.2 M solution? (M = 58.5 g mol-1)

A) 2.93 g
B) 5.85 g
C) 11.7 g
D) 1.17 g

Q267: Which amine is most basic in gaseous phase?

A) NH3
B) CH3NH2
C) (CH3)2NH
D) (CH3)3N

Q268: The coordination number of Fe in [Fe(CN)6]4- is:

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

Q269: Which of the following is an intensive property?

A) Mass
B) Internal energy
C) Volume
D) Density

Q270: The rate constant of a reaction is doubled when:

A) Temperature is lowered
B) Activation energy is increased
C) Temperature is increased
D) Concentration is doubled

Q271: Which substance is commonly used as antacid?

A) Na2CO3
B) Mg(OH)2
C) NH4Cl
D) HNO3

Q272: The total number of valence electrons in SO42- ion is:

A) 24
B) 30
C) 32
D) 34

Q273: Which is the strongest oxidizing agent?

A) Cl2
B) KMnO4
C) O3
D) F2

Q274: For a first order reaction, time for 75% completion is:

A) t1/2
B) 2t1/2
C) 3t1/2
D) 4t1/2

Q275: Which is an example of heterogeneous catalysis?

A) H+ in ester hydrolysis
B) I- in H2O2 decomposition
C) Ni in hydrogenation
D) NO in SO2 oxidation

Q276: The correct increasing order of bond energy is:

A) C-C < C=C < C===C
B) C===C < C=C < C-C
C) C=C < C-C < C===C
D) C-C < C===C < C=C

Q277: Which molecule has zero dipole moment?

A) NH3
B) H2O
C) BF3
D) SO2

Q278: A buffer solution has maximum buffering capacity when:

A) pH = 7
B) pH = pKa
C) Salt concentration is zero
D) Only acid is present

Q279: Which of the following is a non-electrolyte?

A) NaCl
B) HCl
C) KOH
D) Urea

Q280: The IUPAC name of CH3-CO-CH3 is:

A) Propanal
B) Propanone
C) Ethanone
D) Butanone

Q281: Which halogen has maximum bond dissociation energy?

A) F2
B) Cl2
C) Br2
D) I2

Q282: The geometry of XeF4 is:

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

Q283: Which of the following is a state function?

A) Heat
B) Work
C) Entropy
D) Path

Q284: The number of pi bonds in benzene is:

A) 2
B) 3
C) 4
D) 6

Q285: Which compound shows geometrical isomerism?

A) Ethene
B) Propene
C) But-2-ene
D) Methane

Q286: The SI unit of molar conductivity is:

A) S m-1
B) S m2 mol-1
C) Ohm m
D) Ohm-1 m

Q287: Which metal is extracted by electrolytic reduction?

A) Fe
B) Cu
C) Al
D) Zn

Q288: The rate law for a zero order reaction is:

A) Rate = k[A]
B) Rate = k[A]2
C) Rate = k
D) Rate = k/[A]

Q289: Which acid is weakest in aqueous solution?

A) HF
B) HCl
C) HBr
D) HI

Q290: The oxidation state of carbon in CO_2 is:

A) +2
B) +4
C) 0
D) -4

Q291: Which compound gives positive Tollens test?

A) Acetone
B) Formaldehyde
C) Benzophenone
D) Acetic acid

Q292: The standard enthalpy of formation of $Cl_2(g)$ is:

A) -242 kJ mol-1
B) 0
C) +242 kJ mol-1
D) -92 kJ mol-1

Q293: Which ion has the highest hydration enthalpy?

A) Li^+
B) Na^+
C) K^+
D) Cs^+

Q294: The reagent used to convert alcohol into alkene is:

A) PCC
B) $KMnO_4$
C) Conc. H_2SO_4
D) $NaBH_4$

Q295: Which of the following ions is diamagnetic?

A) Fe^{3+}
B) Mn^{2+}
C) Zn^{2+}
D) Cu^{2+}

Q296: The correct order of thermal stability of carbonates is:

A) $Li_2CO_3 < Na_2CO_3 < K_2CO_3$
B) $K_2CO_3 < Na_2CO_3 < Li_2CO_3$
C) $Na_2CO_3 < K_2CO_3 < Li_2CO_3$
D) $Li_2CO_3 < K_2CO_3 < Na_2CO_3$

Q297: Which ligand is bidentate?

A) NH_3
B) H_2O
C) en
D) Cl^-

Q298: The value of R in L atm mol-1 K-1 is:

A) 8.314
B) 1.987
C) 0.0821
D) 2.303

Q299: Which acid is strongest in aqueous solution?

A) HNO3
B) H2SO4
C) HClO4
D) CH3COOH

Q300: The enthalpy change during condensation is:

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