Quiz: Chemistry set 4

Q151: The uncertainty in position of an electron is 1x10^-10 m. The minimum uncertainty in its velocity is closest to: (h = 6.63x10^-34 J s, me = 9.1x10^-31 kg)

A) 5.8x105 m s-1
B) 3.6x106 m s-1
C) 7.3x104 m s-1
D) 1.2x105 m s-1

Q152: For a reaction A -> B, the plot of ln[A] versus time is linear. The reaction is:

A) Zero order
B) First order
C) Second order
D) Third order

Q153: The number of orbitals in the shell with n = 4 is:

A) 8
B) 16
C) 32
D) 4

Q154: The pH of a buffer solution remains nearly constant because:

A) It is diluted
B) It contains salt only
C) It resists change in [H+]
D) It is neutral

Q155: Elevation in boiling point depends on:

A) Nature of solute
B) Nature of solvent
C) Number of solute particles
D) Size of solute

Q156: The correct order of atomic size is:

A) Cl > S > P
B) P > S > Cl
C) S > Cl > P
D) Cl > P > S

Q157: The hybridization of phosphorus in PCl5 (gas phase) is:

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

Q158: Which complex is expected to be low spin?

A) [FeF6]3-
B) [Fe(CN)6]3-
C) [Fe(H2O)6]3+
D) [MnF6]3-

Q159: The unit of Helmholtz free energy is:

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

Q160: Which reagent oxidizes primary alcohol to aldehyde without further oxidation?

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

Q161: The total number of sigma bonds in ethene is:

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

Q162: Which halide has maximum covalent character?

A) NaCl
B) MgCl2
C) AlCl3
D) KCl

Q163: The oxidation state of sulphur in H2SO4 is:

A) +4
B) +5
C) +6
D) +2

Q164: The bond angle in SO2 is approximately:

A) 109.5 deg
B) 120 deg
C) 119 deg
D) 180 deg

Q165: Which gas shows maximum deviation from ideal behavior at high pressure?

A) H2
B) He
C) CO2
D) N2

Q166: The molarity of a solution containing 4 g NaOH in 500 mL is:

A) 0.1 M
B) 0.2 M
C) 0.5 M
D) 1.0 M

Q167: Which amine is most basic in aqueous solution?

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

Q168: The coordination number of Co in [Co(NH3)6]3+ is:

A) 3
B) 4
C) 6
D) 8

Q169: Which of the following is an intensive property?

A) Mass
B) Volume
C) Enthalpy
D) Temperature

Q170: The rate constant of a reaction decreases when:

A) Temperature increases
B) Activation energy decreases
C) Temperature decreases
D) Catalyst is added

Q171: Which compound acts as antacid?

A) Mg(OH)2
B) NaCl
C) HCl
D) NH4Cl

Q172: The total number of valence electrons in CO32- ion is:

A) 22
B) 24
C) 32
D) 30

Q173: Which of the following is the strongest oxidizing agent?

A) KMnO4
B) K2Cr2O7
C) O3
D) F2

Q174: The half-life of a first order reaction is 10 min. Time for 90% completion is approximately:

A) 20 min
B) 30 min
C) 33 min
D) 40 min

Q175: Which is an example of heterogeneous catalysis?

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

Q176: The correct increasing order of bond length 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

Q177: Which molecule has zero dipole moment?

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

Q178: A buffer solution is most effective when:

A) pH = 1
B) pH = pKa
C) Salt concentration is zero
D) Only acid is present

Q179: Which of the following is a non-electrolyte?

A) NaOH
B) HCl
C) KCl
D) Urea

Q180: The IUPAC name of (CH3)3C-OH is:

A) 2-methylpropan-2-ol
B) 2-methylpropan-1-ol
C) Propan-2-ol
D) Butan-2-ol

Q181: Which halogen has the highest electron affinity?

A) F
B) Cl
C) Br
D) I

Q182: The geometry of XeF2 is:

A) Bent
B) Linear
C) Trigonal planar
D) Tetrahedral

Q183: Which of the following is a state function?

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

Q184: The number of pi bonds in ethyne is:

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

Q185: Which alkene shows geometrical isomerism?

A) Ethene
B) Propene
C) But-2-ene
D) But-1-ene

Q186: The unit of molar conductivity is:

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

Q187: Which metal is extracted by electrolytic reduction?

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

Q188: The rate law for zero order reaction is:

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

Q189: Which acid is weakest in aqueous solution?

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

Q190: The oxidation state of nitrogen in NH_4^+ is:

A) -3
B) +3
C) +5
D) 0

Q191: Which compound gives Tollens test?

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

Q192: The standard enthalpy of formation of $O_2(g)$ is:

A) -286 kJ mol-1
B) 0
C) +286 kJ mol-1
D) -393 kJ mol-1

Q193: Which ion has highest hydration enthalpy?

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

Q194: The reagent used to convert alcohol to alkene is:

A) H_2SO_4 (conc.)
B) $KMnO_4$
C) PCC
D) $NaBH_4$

Q195: Which ion is paramagnetic?

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

Q196: The correct order of thermal stability of hydroxides is:

A) LiOH < NaOH < KOH
B) KOH < NaOH < LiOH
C) NaOH < LiOH < KOH
D) LiOH < KOH < NaOH

Q197: Which ligand forms chelate complexes?

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

Q198: The value of gas constant R in J mol-1 K-1 is:

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

Q199: Which acid is strongest in aqueous solution?

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

Q200: The enthalpy change of fusion is always:

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