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Chemistry mock test 2 2022-23

Time : 75 Min	Chem : Full Portion Paper	Marks : 200

51) Which may be added to one litre of water to act as a buffer?
A) One mole of $HC_2H_3O_2$ and one mole of HCl.
B) One mole of NH_4OH and one mole of $NaOH$.
C) One mole of NH_4Cl and one mole of HCl.
D) One mole of $HC_2H_3O_2$ and 0.5 mole of $NaOH$.

52) During acetylation of amines, what is replaced by acetyl groups?
A) One or more hydrogen atoms attached to nitrogen atom.
B) Hydrogen atom attached to nitrogen atom.
C) One or more hydrogen atoms attached to carbon atom.
D) Hydrogen atoms attached to either carbon atom or nitrogen atom.

53) The largest bond angle is in
A) PH_3
B) H_2O
C) NH_3
D) AsH_3

54) The correct order of increasing order of oxidising power is
A) $I_2 < Br_2 < Cl_2 < F_2$
B) $Cl_2 < Br_2 < F_2 < I_2$
C) $F_2 < Br_2 < Cl_2 < I_2$
D) $F_2 < Cl_2 < Br_2 < I_2$

55) Statement 1 : By the Le-Chatelier's principle, addition of heat to an equilibrium solid $\rightleftharpoons$ liquid results in decrease in the amount of solid.
Statement 2 : Reaction is endothermic, so on heating forward reaction is favoured.
A) Both statement 1 and statement 2 are true and the statement 2 is the correct explanation of the statement 1.
B) Both statement 1 and statement 2 are true but statement 2 is not the correct explanation of the statement 1.
C) Statement 1 is true but statement 2 is false.
D) The statement 1 and statement 2 both are false.

56) A reaction occurs spontaneously if
A) $T\Delta S > \Delta H$ and both ΔH and ΔS are -ve.
B) $T\Delta S = \Delta H$ and both ΔH and ΔS are +ve.
C) $T\Delta S > \Delta H$ and both ΔH and ΔS are +ve.
D) $T\Delta S < \Delta H$ and both ΔH and ΔS are +ve.

57) Which of the following esters cannot undergo Claisen self condensation?
A) $C_6H_{11}CH_2COOC_2H_5$
B) $C_6H_5CH_2COOC_2H_5$
C) $C_6H_5COOC_2H_5$
D) $CH_3-CH_2-CH_2-CH_2-COOC_2H_5$

58) Which of the following set of quantum numbers belong to highest energy?
A) $n=3, l=2, m=1, s=+\frac{1}{2}$
B) $n=3, l=1, m=1, s=+\frac{1}{2}$
C) $n=3, l=0, m=0, s=+\frac{1}{2}$
D) $n=4, l=0, m=0, s=+\frac{1}{2}$

59) In deriving the kinetic gas equation, use is made of the root mean square velocity of the molecules because it is
A) the most accurate form in which velocity can be used in these calculations.
B) the square root of the average square velocity of the molecules.
C) the most probable velocity of the molecules.
D) the average velocity of the molecules.

60) Which of the following condition will increase the voltage of the cell, represented by the equation $Cu_{(s)} + 2Ag^+_{(aq)} \rightarrow Cu^{2+}_{(aq)} + 2Ag_{(s)}$?
A) Increase in the dimension of copper electrode.
B) Increase in the dimension of silver electrode.
C) Increase in the concentration of Cu^+ ion.
D) Increase in the concentration of Ag^+ ion.

61) Which has the strong bond?
A) Cl - B
B) F - Br
C) F - Cl
D) F - F

62) Ionic and covalent bonds are present in
A) H_2O
B) NH_4Cl
C) $CaCl_2$
D) CCl_4

63) Laboratory method for the preparation of acetyl chloride is
A) $CH_3COONa + PCl_3 \rightarrow CH_3COCl$
B) $CH_3COOH + SOCl_2 \rightarrow CH_3COCl$
C) $CH_3COOH + PCl_3 \rightarrow CH_3COCl$
D) All of these

64) The minimum real charge on any particle which can exist is
A) Zero
B) 4.8×10^{-10} Coulomb
C) 1.6×10^{-10} Coulomb
D) 1.6×10^{-19} Coulomb

65) The ratio C_p/C_v for H_2 is
A) 1.67
B) 1.40
C) 1.33
D) None of these

66) The addition of tetraethyl lead to petrol
A) raises its octane number.
B) lowers its octane number.
C) may raise or lower the octane number.
D) has no effect on octane number.

67) Which of the following reaction can be used to define the heat of formation of $CO_2(g)$?
A) $C_6H_6(l)+7\frac{1}{2}O_2(g)=6CO_2+3H_2O(l)$
B) $CO(g)+\frac{1}{2}O_2(g)=CO_2(g)$
C) $CH_4(g)+2O_2(g)=CO_2(g)+2H_2O(l)$
D) $C(\text{graphite})+O_2(g)=CO_2(g)$

68) The reaction of benzaldehyde with _____ can prepared 1-Phenylethanol.
A) ethyl iodide and magnesium
B) methyl bromide
C) methyl iodide and magnesium
D) methyl bromide and aluminium bromide

69) Zone refining is a technique used primarily for which one of the following process?
A) Purification
B) Sintering
C) Tempering
D) Alloying

70) In coming years, skin related disorders will be more common due to
A) Depletion of ozone layer
B) Water pollution
C) Use of detergents
D) Pollutants in air

71) Equivalent weight of H_2O_2 is
A) 17
B) 18
C) 34
D) 68

72) Which of the following are known as mercaptans?
A) Thio-aldehydes
B) Thio-acids
C) Thio-ethers
D) Thio-alcohols

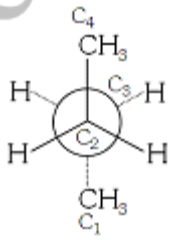
73) If the pH of a solution is 4.0 at 25^oC, its pOH would be $(K_w=10^{-14})$
A) 10.0
B) 8.0
C) 6.0
D) 4.0

74) The number of σ bonds in o-xylene is
A) 18
B) 12
C) 9
D) 6

75) Mohr's salt is
A) $[Fe(NH_4)_2](SO_4)_2.6H_2O$
B) $(NH_4)_2SO_4.FeSO_4.6H_2O$
C) $Fe(NH_4)SO_4.6H_2O$
D) $FeSO_4.7H_2O$

76) $KO_2+CO_2\rightarrow ?$ (gas)
A) CO
B) O_2
C) N_2
D) H_2

77) In the given conformation C_2 is rotated about C_2-C_3 bond anticlockwise by an angle of 120°, then the conformation obtained is



A) staggered conformation.
B) gauche conformation.
C) partially eclipsed conformation.
D) fully eclipsed conformation.

78) Which molecule has zero dipole moment?
A) HBr
B) $PbSO_4$
C) AgI
D) H_2O

79) Which one of the following is the correct statement about carbonyl group?
A) Carbon oxygen bond is non-poolar
B) Carbon atom is sp^2 hybridised
C) Oxygen has five non-bonding elements
D) It is non-planar

80) Copper sulphate solution reacts with KCN to give
A) $K_3[Cu(CN)_4]$
B) $K_2[Cu(CN)_4]$

C) CuCN
D) $Cu(CN)_2$

81) Carborundum is
A) $Al_2O_3.2H_2O$
B) $Al_2(SO_4)_3$
C) $AlCl_3$
D) SiC

82) Statement 1: Isopropyl chloride is more reactive than CH_3Br in S_N2 reaction.
Statement 2: S_N2 reactions are always accompanied by inversion of configuration.
A) Both Statement 1 and Statement 2 are true but Statement 2 is not the correct explanation of Statement 1
B) Both Statement 1 and Statement 2 are true and the Statement 2 is correct explanation of the Statement 1
C) This Statement 1 is true, but the Statement 2 is false
D) This Statement 1 is false but the Statement 2 is true

83) Statement 1 : Millon's test is a test to identify carbohydrates.
Statement 2 : Millon's reagent is solution of mercurous nitrate and mercuric nitrate in nitric acid having little nitrous acid.
A) Both statement 1 and statement 2 are true and the statement 2 is the correct explanation of the statement 1.
B) Both statement 1 and statement 2 are true but statement 2 is not the correct explanation of the statement 1.
C) Statement 1 is true but statement 2 is false.
D) Statement 1 is false but statement 2 is true.

84) The simplest formula of a compound containing 50% of element X (atomic mass 10) and 50% of element Y (atomic mass 20) is
A) X_2Y
B) XY
C) X_2Y_3
D) XY_3

85) When 96500 coulomb of electricity is passed through a copper sulphate solution, the amount of copper deposited will be
A) 2.00 mol
B) 1.00 mol
C) 0.50 mol
D) 0.25 mol

86) Detergent action of soap is due to
A) hydrolysis.
B) emulsification properties.
C) ionization.
D) high molecular weight.

87) Every inert gas atom
A) has two electrons in outermost shell.
B) has eight electrons in outermost shell.
C) has one electron in outermost shell.
D) has a saturated outermost shell.

88) For reaction $a\,A \rightarrow x\,P$, when $[A] = 2.2\,mM$, the rate was found to be $2.4\,mM\,s^{-1}$. On reducing concentration of A to half, the rate changes to $0.6\,mM\,s^{-1}$. The order of reaction with respect to A is
A) 1.5
B) 2.0
C) 2.5
D) 3.0

89) Statement 1 : Cyclopentadienyl anion is much more stable than allyl anion.
Statement 2 : Cyclopentadienyl anion is aromatic in character.
A) Both statement 1 and statement 2 are true and the statement 2 is the correct explanation of the statement 1.
B) Both statement 1 and statement 2 are true but statement 2 is not the correct explanation of the statement 1.
C) Statement 1 is true but statement 2 is false.
D) The statement 1 and statement 2 both are false.

90) Which has maximum vapour pressure?
A) HF
B) HCl
C) HBr
D) HI

91) The ligand in potassium ferricyanide is
A) $(CN)_6$
B) Fe^{3+}
C) CN^-
D) K^+

92) In the following acid, which acid has oxidation reduction and complex formation properties?
A) HNO_2
B) HCl
C) H_2SO_4
D) HNO_3

93) Which of the following will have the highest F. P. at one atmosphere?
A) $0.1M\,FeCl_3$ solution
B) $0.1M\,BaCl_2$ solution
C) 0.1M sugar solution
D) $0.1M\,NaCl$ solution

94) Which is the last product of proteins digestion?
A) DNA
B) Polypeptides
C) Amino acids
D) Peptones

95) Salt cake is

A) sodium sulphate and sodium chloride.
B) sodium bisulphite.
C) sodium chloride.
D) sodium sulphate.

96) The pK_a of a weak acid is 4.8. What should be the ratio of [Acid]/[Salt] of a buffer, if pH = 5.8 is required?
A) 0.1
B) 1
C) 2
D) 10

97) What is chloroquine?
A) An antibiotic
B) An analgesic
C) An antimalarial
D) An antipyretic

98) Mark the true statement.
A) Below $710^0C, C$ is better reducing agent than CO
B) Below $710^0C, CO$ is better reducing agent than C
C) Below $710^0C, CO_2$ is reducing agent
D) Below $710^0C, CO$ is an oxidising agent

99) Which of the following is correct? (Options are given as Crystal system - Axial distance - Axial angles - Examples)
A) Triclinic $a = b = c$ $\alpha \neq \beta = \gamma \neq 90^o$ $K_2Cr_2O_7$, $CuSO_4.5H_2O$
B) Rhombohedral $a = b = c$ $\alpha = \beta = \gamma \neq 90^o$ $CaCO_3$, HgS
C) Monoclinic $a \neq b = c$ $\alpha = \beta = \gamma = 90^o$ $PbCrO_2$, $PbCrO_4$
D) Cubic $a \neq b = c$ $\alpha = \beta \neq \gamma = 90^o$ Cu, KCl

100) Which of the following is fully fluorinated polymer?
A) Teflon
B) Neoprene
C) Thiokol
D) PVC