Sharath Gore

Chemistry mock test 4 2022-23

Time : 60 Min	Chem : Full Portion Paper	Marks : 200

51) An unknown compound 'D', first oxidized to aldehyde and then acetic acid by a dilute solution of $K_2Cr_2O_7$ and H_2SO_4. The unknown compound 'D' is
A) $CH_3CH_2CH_3$
B) CH_3CH_2OH
C) CH_2CH_3OH
D) CH_3CHO

52) Which of the following is the strongest conjugate base?
A) NO_2^-
B) SO_4^{--}
C) CH_3COO^-
D) Cl^-

53) Sulphur on boiling with NaOH solution gives
A) $Na_2SO_3 + SO_2$
B) $Na_2SO_3 + H_2S$
C) $Na_2S_2O_3 + Na_2S$
D) $Na_2S_2O_3 + NaHSO_3$

54) The species that does not contain peroxide ion is
A) BaO_2
B) SrO_2
C) H_2O_2
D) PbO_2

55) Heats of combustion (ΔH^o) for $C(s), H_2(g)$ and $CH_4(g)$ are $-94, -68$ and $-213\ kcal/mol$ respectively. The value of ΔH^o for the reaction, $C(s) + 2H_2(g) \rightarrow CH_4(g)$ is
A) - 170 kcal
B) - 111 kcal
C) - 85 kcal
D) - 17 kcal

56) _____ is finally produced when acetylene reacts with HCl.
A) ClCH=CHCl
B) CH_3CHCl_2
C) $CH_2 = CHCl$
D) None of these

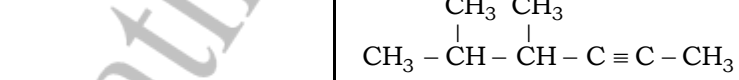
57) For gold plating, the electrolyte used is
A) $k[Au(CN)_2]$
B) $AuCl_3$
C) $HAuCl_4$
D) None of these

58) Statement 1: Mohr's salt is used as a primary standard in volumetric analysis.
Statement 2: Mohr's salt contains both Fe^{2+} and Fe^{3+} ions in the crystalline salt.
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) Both Statement 1 and Statement 2 are false

59) Which of these dose not reflect the periodicity of the elements?
A) Neutron/proton ratio
B) Ionization energy
C) Electronegativity
D) Bonding behaviour

60) The shape of d_{xy} orbital will be
A) trigonal.
B) double dumb-bell.
C) dumb-bell.
D) circular.

61) Choose the correct IUPAC name of the compound.



A) 2-propyl-3-pentyne
B) 5-propyl-2-pentyne
C) 4,5-dimethyl-2-hexyne
D) 2, 3-dimethyl-4-hexyne

62) The nucleic acid base having two possible binding sites is
A) adenine.
B) guanine.
C) cytosine.
D) thymine.

63) 16 g of oxygen and 3 g of hydrogen are mixed and kept at 760 mm pressure and 0^oC. The total volume occupied by the mixture will be nearly
A) 44800 ml
B) 22.4 litres
C) 33.6 litres
D) 448 litres

64) Which of the following compounds corresponds Van't Hoff factor 'i' to be equal to 2 for dilute

solution?
A) $MgSO_4$
B) Sugar
C) $NaHSO_4$
D) K_2SO_4

65) The helical structure of protein is stabilized by
A) hydrogen bonds.
B) dipeptide bonds.
C) peptide bonds.
D) ether bonds.

66) Cuprammonium ion $\left[Cu(NH_3)_4\right]^{2+}$ is
A) octahedral.
B) triangular bipyramid.
C) square planar.
D) tetrahedral.

67) On the addition of a solution containing CrO_4^{2-} ions to the solution of Ba^{2+}, Sr^{2+} and Ca^{2+} ions, the precipitate obtained first will be of
A) $BaCrO_4$
B) $CaCrO_4$
C) $SrCrO_4$
D) Mixture of (1), (2), (3)

68) Product obtained by nitration of propane is
A) nitroethane
B) nitropropane
C) nitromethane
D) all of these

69) In melting lattice, structure of solid
A) changes.
B) remains unchanged.
C) becomes compact.
D) none of the above.

70) What is correct sequence of bond order?
A) $O_2^- > O_2^+ > O_2$
B) $O_2 > O_2^- > O_2^+$
C) $O_2^+ > O_2 > O_2^-$
D) $O_2^+ > O_2^- > O_2$

71) In blast furnace, the highest temperature is in
A) combustion zone
B) fusion zone
C) slag zone
D) reduction zone

72) Dimerisation in carboxylic acid is due to
A) intermolecular hydrogen bond.
B) co-ordinate bond.
C) covalent bond.
D) ionic bond.

73) What is the coordination number of sodium in Na_2O?
A) 2
B) 4
C) 6
D) 8

74) Mark the incorrect statements about the molecularity of a reaction.
A) Molecularity of a reaction is the number of molecules in the slowest step.
B) Molecularity of an elementary reaction is the number of molecules of the reactants present in the balanced equation.
C) Molecularity is always a whole number.
D) There is no difference between order and molecularity of a reaction.

75) Sodium sulphate is soluble in water but barium sulphate is insoluble because
A) the lattice energy of $BaSO_4$ is more than its hydration energy.
B) the hydration energy of Na_2SO_4 is more than its lattice energy.
C) the lattice energy has no role to play in solubility.
D) both (1) and (2).

76) In the following reaction
$HC_2O_4^- + PO_4^{---} \rightleftarrows HPO_4^{--} + C_2O_4^{--}$
Which are the two Bronsted bases?
A) PO_4^{---} and $C_2O_4^{--}$
B) $HC_2O_4^-$ and HPO_4^{--}
C) HPO_4^{--} and $C_2O_4^{--}$
D) $HC_2O_4^-$ and PO_4^{---}

77) Aluminium is produced on a large scale by electrolysis of alumina, dissolved in fused cryolite and a little fluorspar. These two electrolytes, cryolite and fluorspar are respectively
A) $KCl.MgCl_2.6H_2O$ and MgF_2
B) Al_2C_6 and KCl
C) AlF_3 and KF
D) Na_3AlF_6 and CaF_2

78) The pentavalence in phosphorus is more stable as compared to that of nitrogen even though they belong to the same group. It is due to
A) dissimilar electronic configuration.
B) larger size of phosphorus atom.
C) reactivity of phosphorus.
D) inert nature of nitrogen.

79) Which of the following compounds is used in antiknock compositions to prevent the deposition of oxides of lead on spark plug, combustion chamber and exhaust pipe?
A) Benzene
B) 1, 2-dibromoethane
C) Glycol
D) Glycerol

80) Which of the following intermolecular forces are present in 'nylon - 66'?

A) Hydrogen bonding
B) Dipole-dipole interaction
C) Vander Waals
D) None of these

81) Mark the wrong statement.
A) e/m ratio of $\beta-$particles is constant.
B) e/m ratio of anode rays is not constant.
C) e/m ratio of protons is not constant.
D) Cathode rays have constant e/m ratio.

82) The volume of oxygen liberated from 0.68 gm of H_2O_2 is
A) 56 ml
B) 112 ml
C) 224 ml
D) 336 ml

83) Which of the following expression is correct?
A) $\Delta G^o = -nF \log K_C$
B) $\Delta G^o = -2.303RT\ nFE^o_{cell}$
C) $\Delta G^o = +nFE^o_{cell}$
D) $\Delta G^o = -nFE^o_{cell}$

84) What volume of 0.8 M solution contains 0.1 mole of the solute?
A) 62.5 ml
B) 100 ml
C) 125 ml
D) 500 ml

85) By which of the following process, acid rains are produced?
A) Excess NO_2 and SO_2 from burning fossil fuels
B) Excess production of NH_3 by industry and coal gas
C) Excess formation of CO_2 by combustion and animal respiration.
D) Excess release of carbon monoxide by incomplete combustion

86) Statement 1 : The second dissociation constant of maleic acid is greater than fumaric acid.
Statement 2 : Higher the dissociation constant of acid, more is acidic 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) Statement 1 is false but statement 2 is true.

87) Benzoin is
A) α-hydroxy ketone.
B) α-hydroxy aldehyde.
C) α, β-unsaturated acid.
D) Compound containing an aldehyde and a ketonic group.

88) One gram sample of NH_4NO_3 is decomposed in a bomb calorimeter. The temperature of the calorimeter increases by 6.12 K the heat capacity of the system is 1.23 kJ/g/deg. What is the molar heat of decomposition for NH_4NO_3 ?
A) - 602 kJ/mol
B) - 398.1 kJ/mol
C) - 16.1 kJ/mol
D) - 7.53 kJ/mol

89) In certain cases, the rate of reaction increases with time. This phenomenon is called as
A) catalytic inhibition
B) induced catalysis
C) autocatalysis
D) catalytic promotion

90) Fluorescein, a well known dye is obtained by the reactions of
A) phthalic anhydride and resorcinol.
B) phthalic anhydride and phenol.
C) succinic acid and resorcinol.
D) phthalic anhydride and catechol.

91) Incorrect statement regarding rusting is
A) metallic iron is reduced to Fe^{2-} ions.
B) metallic iron is oxidized to Fe^{3+} ions.
C) oxygen gas is reduced to oxide ion.
D) yellowish - brown product is formed.

92) IUPAC name of CH_3CHO is
A) ethanal.
B) ethanol.
C) methyl aldehyde.
D) acetaldehyde.

93) Find the equivalent weight of $K_2Cr_2O_7$ in standardization of $Na_2S_2O_3$ using $K_2Cr_2O_7$ by iodometry.
A) MW/1
B) MW/2
C) MW/3
D) MW/6

94) The electrolysis of a certain liquid resulted in the formation of hydrogen at the cathode and chlorine at the anode. The liquid is
A) Pure water.
B) NaCl solution in water.
C) H_2SO_4 solution.
D) $CuCl_2$ solution in water.

95) Which of the following metal carbonate is decomposed on heating?
A) Rb_2CO_3
B) K_2CO_3
C) Na_2CO_3
D) $MgCO_3$

96) An example of double salt is

A) $K_4[Fe(CN)_6]$
B) bleaching powder
C) hypo
D) potash alum

97) The compound which will give negative iodoform test is
A) benzyl alcohol
B) CH_3CHO
C) CH_3CH_2OH
D) isopropyl alcohol

98) The endothermic reaction $(M + N \rightleftarrows P)$ is allowed to attain an equilibrium at 25^o. Formation of P can be increased by
A) lowering temperature.
B) raising temperature.
C) keeping temperature constant.
D) decreasing the concentration of M and N.

99) For the preparation of p-nitroiodobenzene from p-nitroaniline, the best method is
A) $NaNO_2 / HCl$ followed by $CuCN$.
B) $NaNO_2 / HCl$ followed by KI.
C) $LiAlH_4$ followed by I_2.
D) $NaBH_4$ followed by I_2.

100) The correct order of $C-O$ bond length among CO, CO_3^{2-}, CO_2 is (2007)
A) $CO < CO_3^{2-} < CO_2$
B) $CO_3^{2-} < CO_2 < CO$
C) $CO < CO_2 < CO_3^{2-}$
D) $CO_2 < CO_3^{2-} < CO$