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Chemistry mock test 6 2022-23

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

Hints and Solutions

51) Ans: **C)** They have the same weight concentrations.

52) Ans: **A)** by adding H_2SO_4 in water.
Sol: Concentrated H_2SO_4 is diluted by adding the conc. H_2SO_4 in the water drop by drop with constant stirring as it is an exothermic reaction and by doing this, heat is generated slowly and dissipated in the atmosphere.

53) Ans: **D)** isopropyl propyl ether.

54) Ans: **B)** sp and sp^2 hybridized.
Sol: $N \equiv \overset{sp}{C} \backslash \underset{sp^2}{C} = \underset{sp^2}{C} / \overset{sp}{C} \equiv N$
$N \equiv \underset{sp}{C} / \underset{sp^2}{C} = \underset{sp^2}{C} \backslash \underset{sp}{C} \equiv N$

55) Ans: **D)** sp - hybridization.
Sol: $\underset{sp}{CH} \equiv \underset{sp}{CH}$

56) Ans: **D)** $Yb^{+3} < Pm^{+3} < Ce^{+3} < La^{+3}$
Sol: Because of lanthanide contraction, order will be $Yb^{+3} < Pm^{3+} < Ce^{+3} < La^{3+}$.

57) Ans: **A)** decreases with increase of temperature.

58) Ans: **C)** the resistance decreases with increasing temperature.
Sol: Electrolytic conduction resistance decreases when temperature increases.

59) Ans: **B)** an enzyme.
Sol: An enzyme i.e. protein is a biological catalyst.

60) Ans: **C)** steel.

61) Ans: **B)** dehydrohalogenation.
Sol: $CH_3 - CH_2 - CH_2 - Br \xrightarrow[\text{Dehydro halogenation}]{C_2H_5ONa} CH_3 - CH = CH_2 + HBr$

62) Ans: **D)** s > p > d > f
Sol: The order of screening effect in a given shell is s > p > d > f.

63) Ans: **C)** $1^0 > 2^0 > 3^0$
Sol: Electron releasing effect of + R group decreases the electrophilicity of carbonyl carbon. As a result the decreasing order of aldehyde towards nucleophilic attack is : $1^0 > 2^0 > 3^0$.

64) Ans: **C)** Ag^+
Sol: Ag^+ causes the coagulation of proteins.

65) Ans: **A)** a liquid in a liquid.

66) Ans: **A)** alcohol.

67) Ans: **A)** pseudo unimolecular reactions.
Sol: It is the feature of pseudo-unimolecular reactions.

68) Ans: **B)** vat dyes.
Sol: Vat dyes are insoluble compounds which on reduction gives soluble (leuco form) product. The product may be coloured or colourless and have affinity for specific fabrics e.g. indigo.

69) Ans: **A)** white crystalline solid.
Sol: Melamine is the phenol-urea resin which is a white crystalline solid.

70) Ans: **D)** N_2
Sol: $NH_2 - CO - NH_2 + 2HNO_2 \rightarrow CO_2 + 3H_2O + 2N_2$

71) Ans: **B)** Rutherford
Sol: Rutherford gave the theory after α – particle scattering experiment.

72) Ans: **C)** Neutron
Sol: Mass of neutron is greater than that of proton, meson and electron.
As, Mass of neutron = mass of proton + mass of electron.

73) Ans: **C)** 120^o
Sol: In ethylene, both the carbon atoms are sp^3 - hybridized therefore 120^o.

74) Ans: **C)** electronegativity.
Sol: The bond between two elements will be covalent, if they have similar electronegativities and a large difference in electronegativities leads to an ionic bond.

75) Ans: **D)** I_3^-
Sol: In this case, $3x = -1 \Rightarrow x = -1/3$.

76) Ans: **A)** increases slowly.
Sol: n osmosis reaction, the increase in volume takes place.

77) Ans: **B)** Hell-Volhard-Zelinsky reaction.
Sol: Here, α-H is replaced by chlorine.

78) Ans: **B)** a buffer.
Sol: Since, buffer solution have a constant pH.

79) Ans: **D)** different chemical and physical properties.
Sol: Si has vacant d-orbitals whereas carbon does not.
Thus, two show different physical and chemical properties.

80) Ans: **A)** Wurtz reaction.
Sol: This is a common method for the preparation of alkanes. Methane cannot be prepared by Wurtz reaction $CH_3Br + 2Na + BrCH_3 \rightarrow \underset{\text{ethane}}{C_2H_6} + 2NaBr$

81) Ans: **A)** ethyl isocyanide.
Sol: $CHCl_3 + C_2H_5NH_2 + 3KOH \rightarrow$
$\underset{\text{Ethyl isocyanide}}{C_2H_5N \equiv C} + 3KCl + 3H_2O$

82) Ans: **C)** its bond energy is high.

83) Ans: **D)** Fused potassium chloride
Sol: In general, fussed potassium chloride conducts electricity.

84) Ans: **A)** a weak acid + its salt with a strong base.
Sol: A weak acid and its salt with a strong base maintain pH 4 - 5.

85) Ans: **A)** their surface is not easily wetted by water.
Sol: As ore particles are wetted by oil, therefore float on the surface.

86) Ans: **A)** presence of free electrons.

87) Ans: **A)** energy rich state leads to instability.
Sol: Compounds with high heat of formation are less stable since energy rich state leads to instability.

88) Ans: **B)** formyl chloride.
Sol: $\underset{\text{Formic acid}}{HCOOH} + PCl_5 \rightarrow \underset{\text{Formyl chloride}}{HCOCl} + POCl_3 + HCl$

89) Ans: **A)** Dalton's law.

90) Ans: **B)** Colloidal palladium
Sol: The order of adsorption of H_2 (occlusion) is Colloidal Palladium > Palladium > Platinum > Gold > Nickel.

91) Ans: **B)** $H_2(g) + Cl_2(g) \rightleftharpoons 2HCl(g)$
Sol: $K_p = K_c(RT)^{\Delta n}$; Now, $\Delta n = 2 - 2 = 0$

92) Ans: **D)** different molecular weights
Sol: It is based on facts.

93) Ans: **A)** I

94) Ans: **B)** it melts at very high temperature.

95) Ans: **A)** 20
Sol: Here, $H_2O(H =_1 H^2)$
i.e. $16 + 2 \times 2 = 20$ amu

96) Ans: **B)** Hexa ammine cobalt (III) hexa cyano chromate (III)
Sol: Hexa ammine cobalt (III) hexa cynochromate (III)

97) Ans: **B)** I^{131}
Sol: I^{131} enter in human body through H_2O or food chain and damage WBC, can cause tumour formation, skin cancer and sterility.

98) Ans: **A)** 1×10^{-2}
Sol: As $pH = 2$, $[H^+] = 10^{-2}$ M.

99) Ans: **C)** bipolar ionic
Sol: Sulphanilic acids have bipolar structure, therefore their melting point is high and insoluble in organic solvents.

100) Ans: **A)** hydrated.