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Chemistry Mock test 3 2022-23

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

51) Which one of the following is not a bioindicator of water pollution
A) Sewage fungus
B) Stone files
C) Blood-worms
D) Sludge-worms

52) White phosphorus (P_4) has
A) PPP angle of 60^o.
B) four P - P single bonds.
C) six P - P single bonds.
D) both (1) and (3).

53) Order of reactivity of alcohols towards sodium metal is
A) Pri < Sec < Ter
B) Pri < Sec > Ter
C) Pri > Sec < Ter
D) Pri > Sec > Ter

54) The IUPAC name of acraldehyde is
A) propenal
B) propenyl aldehyde
C) but-2-ene-1-al
D) prop-2-ene-1-al

55) 16 g of methane contains _____ molecules.
A) $\frac{16}{3.0}\times10^{23}$
B) $\frac{16}{6.02}\times10^{23}$
C) 6.02×10^{23}
D) 3.0×10^{23}

56) $CH_3CH=CHCHO$ is oxidized to $CH_3CH=CHCOOH$ using
A) alkaline $KMnO_4$.
B) ammoniacal $AgNO_3$.
C) selenium dioxide.
D) all of these.

57) Which is least stable?
A) PH_3
B) AsH_3
C) SbH_3
D) BiH_3

58) The ratio of the rate of diffusion of a given element to that of helium is 1.4. The molecular weight of the element is
A) 16
B) 8
C) 4
D) 2

59) Pure ammonia is placed in a vessel at temperature where its dissociation constant (α) is appreciable. At equilibrium
A) concentration of H_2 is less than that of N_2.
B) concentration of NH_3 does not change with pressure.
C) α does not change with pressure.
D) K_p does not change significantly with pressure.

60) $CH_3-CH_2-CH_2Br+KOH\,(alc.)\rightarrow$ Product.
Product in the reaction is
A) $CH_3-CH_2-CH_3$
B) $CH_3-CH=CH_2$
C) (1) and (2) both
D) None of these

61) Statement 1: Standard molar enthalpy of formation of CO_2 is equal to zero.
Statement 2: CO_2 is the elemental state of carbon.
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) Both Statement 1 and Statement 2 are false
D) This Statement 1 is false but the Statement 2 is true

62) The maximum number of stereoisomers possible for 2-hydroxy-2-methyl butanoic acid is
A) 4
B) 3
C) 2
D) 1

63) Decay constant of a reaction is $1.1\times10^{-9}/s$, then the half life of the reaction is
A) 1.2×10^{8}
B) 2.1×10^{8}
C) 3.3×10^{8}
D) 6.3×10^{8}

64) Cylindrical shape of an alkyne is due to
A) two π and one $\sigma-$bond.
B) two σ and one $\pi-$bond.
C) three $\pi-$bonds.
D) three $\sigma-$bonds.

65) Which of the following is correct?
A) Carbonates of Na K and NH_4 are soluble in

water.
B) All carbonates are soluble in water.
C) Carbonates of Ca, Sr, Ba are soluble in water.
D) All carbonates are insoluble.

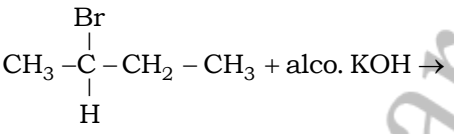
66) The acid showing salt-like character in aqueous solution is
A) formic acid.
B) $\alpha-$amino acetic acid.
C) benzoic acid.
D) acetic acid.

67) An organic compound dissolved in dry benzene evolved hydrogen on treatment with sodium. It is
A) an alcohol.
B) a tertiary amine.
C) an aldehyde.
D) a ketone.

68) When electric current is passed through a cell having an electrolyte, the positive ions move towards the cathode and the negative ions towards the anode. If the cathode is pulled out of the solution
A) the positive and negative ions will start moving randomly.
B) the negative ions will continue to move towards the anode and the positive ions will stop moving.
C) the positive ions will start moving towards the anode, the negative ions will stop moving.
D) the positive and negative ions will move towards the anode.

69) Enthalpy of formation of two compounds x and y are - 84 kJ and - 156 kJ respectively. Which of the following statements is correct?
A) x is less stable than y.
B) x is more stable than y.
C) Both x and y are unstable.
D) x and y are endothermic compounds.

70) Major product of the following reaction is



A) Butene-2
B) Butene-1
C) Butane
D) Butyne-1

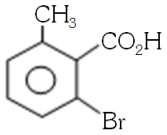
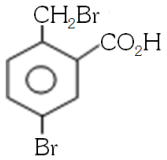
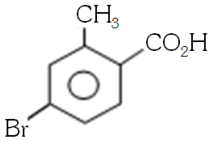
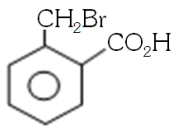
71) From elementary molecular orbital theory we can give the electronic configuration of the singly positive nitrogen molecular ion N_2^+ as
A) $\sigma(1s)^2\sigma^*(1s)^2\sigma(2s)^2\sigma^*(2s)^2\sigma(2p)^2\pi(2p)^2$
B) $\sigma(1s)^2\sigma^*(1s)^2\sigma(2s)^2\sigma^*(2p)^2\pi(2p)^4$
C) $\sigma(1s)^2\sigma^*(1s)^2\sigma(2s)^2\sigma^*(2s)^2\sigma(2p)^1\pi(2p)^3$
D) $\sigma(1s)^2\sigma^*(1s)^2\sigma(2s)^2\sigma^*(2s)^2\pi(2p)^4\sigma(2p)^1$

72) Nitrobenzene can be prepared from benzene by using a mixture of conc. HNO_3 and conc. H_2SO_4. In the nitrating mixture, HNO_3 acts as a
A) catalyst.
B) base.
C) acid.
D) reducing agent.

73) Calamine is
A) $Zn(NO_3)_2$
B) $ZnCO_3$
C) ZnO
D) $ZnSO_4$

74) The solubility product of AgI at $25^\circ C$ is $1.0\times10^{-16}\ mol^2L^{-2}$. The solubility if AgI in 10^{-4} N solution of KI at $25^\circ C$, is approximately (in mol 1^{-1})
A) 1.0×10^{-8}
B) 1.0×10^{-10}
C) 1.0×10^{-12}
D) 1.0×10^{-16}

75) Statement 1: Oxygen has two atoms as O_2.
Statement 2: According to Avogadro's law, one mole of an element contains 6.023×10^{23} atoms.
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

76) o-Toluic acid on reaction with $Br_2 + Fe$, gives
A) 
B) 
C) 
D) 

77) One mole of calcium phosphide on reaction with excess water gives
A) two moles of phosphene.
B) one mole of phosphene.
C) two moles of phosphoric acid.
D) one mole of phosphorus pentaoxide.

78) In any period the valency of an element with respect to oxygen
A) decreases one by one from IA to VIIA.
B) increases one by one from IA to VIIA.
C) increases one by one from IA to IVA and then decreases from VA to VIIA one by one.
D) decreases one by one from IA to IVA and then increases from VA to VIIA one by one.

79) Chloramphenicol is used in the treatment of which of the following?
A) Pneumonia
B) Typhoid
C) Bronchitis
D) Both (1) and (2)

80) Given that the dissociation constant for H_2O is $K_w = 1\times10^{-14}$ mole^2 / litre^2. What is the pH of a 0.001 molar KOH solution?
A) 3
B) 11
C) 10^{-3}
D) 10^{-11}

81) Copper sulphate is commercially made from copper scraps by
A) the action of dil. H_2SO_4 and air.
B) dissolving in hot conc. H_2SO_4.
C) heating with sodium sulphate.
D) heating with sulphur.

82) Statement 1 : The specific rotation of a freshly prepared solution of $\alpha-$glucose decreases from + 112° to 52.7° whereas that of β glucose increase from + 19° to 52.7°.
Statement 2 : The change in specific rotation of an optically active compound with time to an equilibrium value is known as mutarotation.
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.

83) Which sulphide ore is red in colour?
A) Galena
B) Iron pyrites
C) Cinnabar
D) Zinc blende

84) Philospher's wool when heated with BaO at 1100^oC gives a compound. Identify the compound.
A) $BaO_2 + Zn$
B) $BaCdO_2$
C) $Ba + ZnO_2$
D) $BaZnO_2$

85) Solvent molecules pass through the semipermeable membrane is called
A) osmosis.
B) cataphoresis.
C) electrophoresis.
D) electrolysis.

86) 0.1 mole of CH_3NH_2 ($K_b = 5\times10^{-4}$) is mixed with 0.08 mole of HCl and diluted to one litre. What will be the H^+ concentration in the solution?
A) 8×10^{-11} M
B) 1.6×10^{-11} M
C) 8×10^{-5} M
D) 8×10^{-2} M

87) Which of the following molecule contains one pair of non-bonding electrons?
A) HF
B) H_2O
C) NH_3
D) CH_4

88) Those elements whose two outermost orbitals are incompletely filled with electrons are
A) transitional elements.
B) p - block elements.
C) s - block elements.
D) both s and p - block elements.

89) In the equation $H_2S + 2HNO_3 \rightarrow 2H_2O + 2NO_2 + S$, the equivalent weight of hydrogen sulphide is
A) 16
B) 17
C) 34
D) 68

90) Calculate the molal depression constant of a solvent which has freezing point 16.6^oC and latent heat of fusion $180.75\ Jg^{-1}$.
A) 2.866
B) 2.68
C) 3.86
D) 4.68

91) Lyophilic sols are more stable than lyophobic sols because
A) the colloidal particles have no charge.
B) the colloidal particles have positive charge.
C) the colloidal particles are solvated.
D) there are strong electrostatic repulsions between the negatively charged colloidal particles.

92) On reaction with Mg, very dilute nitric acid produces
A) hydrogen.
B) nitric oxide.
C) nitrous oxide.
D) NH_3.

93) According to Heisenberg's uncertainty

principle, the product of uncertainties in position and velocities for an electron of mass 9.1×10^{-31}kg is

A) $6.8\times10^{-6}\ m^2s^{-1}$

B) $5.8\times10^{-5}\ m^2s^{-1}$

C) $3.8\times10^{-5}\ m^2s^{-1}$

D) $2.8\times10^{-3}\ m^2s^{-1}$

94) Which of the following electron transition in a hydrogen atom will require the largest amount of energy?

A) From $n=3$ to $n=5$

B) From $n=\infty$ to $n=1$

C) From $n=2$ to $n=3$

D) From $n=1$ to $n=2$

95) Which carbohydrates has highest abundance in human blood?

A) d-glucose

B) d-fructose

C) Sucrose

D) Lactose

96) Acetate rayon is prepared from

A) cellulose.

B) starch.

C) glycerol.

D) acetic acid.

97) For an ionic crystal of the general formula AX and coordination number 6, the value of radius ratio will be

A) less than 0.22.

B) in between 0.41 and 0.22.

C) greater than 0.73.

D) in between 0.73 and 0.41.

98) The shape of SO_4^{2-} ion is

A) hexagonal.

B) trigonal bi-pyramidal.

C) tetrahedral.

D) square planar.

99) The formula of potassium dicyano bis (oxalato) nickelate (II) is

A) $K_2\left[Ni(CN)_2(Ox)_2\right]$

B) $K_3\left[Ni_2[Ni_2(CN)_2(Ox)_2\right]$

C) $K\left[Ni(CN)(Ox)_2\right]$

D) $K_4\left[Ni(CN)_2(Ox)_2\right]$

100) Statement 1 : Copper reacts with hydrochloric acid and liberates hydrogen from the solution of dilute hydrochloric acid.

Statement 2 : In the electrochemical series, hydrogen is below copper.

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.