CHEMISTRY

BOOKS - JMD CHEMISTRY (PUNJABI ENGLISH)

SOLUTIONS

Example

1. Which of the following 0.1M aqueous solution will have lowest freezing point?

A. Potassium sulphate

B. Sodium chloride

C. Urea

D. Glucose

Answer: A

View Text Solution

2. Molarity is expressed in gram/litre

A. litre/mol

B. litre/mol

C. mol/litre

D. mol/kg.

Answer: D

View Text Solution

3. Isotonic solutions are the solutions having the same

A. surface tension

B. vapour pressure

C. osmotic pressure

D. viscosity

Answer: C

View Text Solution

4. At high altitude ,the boiling point of water decreases because

A. the atmospheric pressure is high

B. the temparature is low

C. the atmospheric pressure is low

D. the temparature is high

Answer: C

Watch Video Solution

5. Which is not a colligative property?

A. ΔT_b

B. ΔT_f

C. K_b

D. π

Answer: C

Watch Video Solution

6. Collegative property among the following is

A. Osmotic pressure

B. Boiling point

C. Vapour pressure

D. Viscosity

Answer: A

Watch Video Solution

7. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

8. In countries nearer to polar region , the roads are sprinkled with $CaCl_2$. This is

A. To minimum the effect of snow on roads

B. To minimise pollution

C. To minimise the accumulation of dust on the road

D. To minimise the wear and tear of the roads.

Answer: A

Watch Video Solution

9. The molarity of pure water (density of water=$1gml^{-1}$)

A. 55.55M

B. 50M

C. 60M

D. 5M

Answer: A

Watch Video Solution

10. Which of the following is a colligative property?

A. Molar mass

B. Osmotic pressure

C. Viscosity

D. Optical activity

Answer: B

Watch Video Solution

11. Blood cells do not shrink in blood because blood is :

A. Hypotonic

B. Isotonic

C. Equimolar

D. Hypertonic.

Answer: B

Watch Video Solution

12. A pressure cooker reduces cooking time because :

A. heat is more evenly distributed

B. the high pressure tenderises the food

C. the boiling point of water inside the cooker is elevated

D. the boiling point of water inside the cooker is depressed.

Answer: C

Watch Video Solution

13. which of the following mode of expressing the concentration is independent of temperature? Molality, Normality, Formality, Molarity

A. Molarity

B. Molality

C. Formality

D. Normality

Answer: B

Watch Video Solution

14. Which of the following is not a colligative property? Elevation in Boiling point Depression in freezing point Optical activity Relative lowering of vapour pressure

A. Depressing in freezing point

B. Elevation in boiling point

C. Optical activity

D. Relative lowering in vapour pressure.

Answer: C

Watch Video Solution

15. Colligative property of dilute solutions depends on :

A. the nature of solute

B. the nature of solvent

C. the number of particles of solute

D. the number of particles of solvent.

Answer: C

Watch Video Solution

16. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

17. Freezing point of a solvent containing a non volatile solute

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: A

Watch Video Solution

18. Which of the following is a colligative property?

A. Elevation in freezing point

B. Elevation in boiling point

C. Depression in boiling point

D. All of the above.

Answer: B

Watch Video Solution

19. Isotonic solutions have

A. same boiling point

B. same vapour pressure

C. same melting point

D. same osmotic pressure.

Answer: D

Watch Video Solution

20. Collegative property among the following is

A. Osmotic pressure

B. same vapour pressure

C. same melting point

D. viscosity

Answer: A

Watch Video Solution

21. The non ideal solution showing positive deviation :

A. haveΔV(mixing)=+ve

B. haveΔH(mixing)=-ve

C. from minimum boiling azeotropes

D. haveΔV(mixing)=-ve

Answer: A

Watch Video Solution

22. When a sugar solution is slowly frozen, the first solid which separate out is:

A. 1.ice

B. 2.sugar

C. 3.solid solution of sugar and ice

D. 4.a compound formed from sugar and water (hydrated sugar)

Answer: A

Watch Video Solution

23. The two solutions A and B are separated by semipermeable membrane. If the solvent flows from A to B :

A. A is more concentrated than B

B. A is less concentrated than B

C. Both A and B are of same concentration

D. Both A and B get diluted.

Answer: B

Watch Video Solution

24. Which of the following solution has highest boiling point ?

A. 0.01 m glucose

B. 0.01 m K_2SO_4

C. 0.01 m KNO_3

D. 0.01 m urea

Answer: B

Watch Video Solution

25. 0.01 M aqueous glucose solution is more concentrated than 0.01 M aqueous glucose solution.

View Text Solution

26. At the same constant temparature ,more the external pressure ,more is the solubility of a gas in water.

Watch Video Solution

27. At the same external pressure , more the temperature lesser is the solubility of a gas in water.

Watch Video Solution

28. Molarity of a solution does not change with temparature .

Watch Video Solution

29. There is no effect of temparature on the mole fraction of a solution .

Watch Video Solution

30. Lowering of vapour pressure on dissolving a non-volatile solute in a liquid is a colligative property.

Watch Video Solution

31. Rate of osmosis increases with increase in temparature.

Watch Video Solution

32. How will you show that depression in freezing point is a colligative property?

Watch Video Solution

33. Units of ebullioscopic constant are $Kkgmol^{-1}$.

Watch Video Solution

34. for an aqueous solution of `K^4[Fe(CN)_6], the value of van't Hoff factor , I is 5(approx).

Watch Video Solution

35. Define molality and molarity . Why is molality preffered over molarity?

Watch Video Solution

36. Define

Mole fraction

Watch Video Solution

37. Define

Mass percentage

Watch Video Solution

38. Define

Parts per million

Watch Video Solution

39. State Henry's law and mention its some important applications.

Watch Video Solution

40. State and explain :

Raoult's law for volatile solute.

Watch Video Solution

41. State and explain :

Raoult's law for non-volatile solute.

Watch Video Solution

42. Mixture of chloroform and acetone shown a negative deviation from Raoult's Law. Explain.

Watch Video Solution

43. What are Azeotropes ?

Watch Video Solution

44. Write differences between ideal and non-ideal solutions.

Watch Video Solution

45. What are colligative properties ? Name four such properties.

Watch Video Solution

46. Show that relative lowering in vapour pressure is a colligative property.

Watch Video Solution

47. How will you calculate the molecular mass of a solute with the help of relative lowering in vapour pressure of a solution of a non volatile solute?

Watch Video Solution

48. Define boiling point and find out expression for the molecular mass of non -volatile solute from the elevation of boiling point.

Watch Video Solution

49. Define molar elevation constant.

Watch Video Solution

50. How will you show that elevation in boiling point is a colligative property?

Watch Video Solution

51. How will you show that depression in freezing point is a colligative property?

Watch Video Solution

52. How will you show that depression in freezing point is a colligative property?

Watch Video Solution

53. Why is it advised to add ethylene glycol to water in a car radiator while driving in a hill station.

Watch Video Solution

54. Sodium chloride solution freezes at lower temparature than water but boils at higher temparature than water . Explain.

Watch Video Solution

55. What is Osmotic pressure?

Watch Video Solution

56. Show that osmotic pressure is a colligative property?

Watch Video Solution

57. Why determination of osmotic pressure is preffered for finding molecular mass of macro-molecules?

Watch Video Solution

58. Differentiate between diffusion and osmosis.

Watch Video Solution

59. What are isotonic,hypertonic and hypotonic solutions.

Watch Video Solution

60. Derive the relationship to find the condition for isotonic solutions.

Watch Video Solution

61. Why do you get sometimes abnormal molecular mass of substances by using colligative properties of the solution? State the factors with examples which produces abnormality in the result.

Watch Video Solution

62. Define van't Hoff factor . What is its importance? How does it account for abnormal molecular masses?

Watch Video Solution

63. calculate the mass of urea (NH_2CONH_2) required in making 2.5kg of 0.25 mole aqueous solution.

Watch Video Solution

64. Mole fraction of the solute in 1 molal aqueous solution is

Watch Video Solution

65. Concentrated nitric acid used in the laboratory is 68% nitric acid by mass in aqueous solution . What should be the molarity of such a sample of the acid if the density of the solution is 1.504g mL^{-1} ?

Watch Video Solution

66. A solution of glucose in water is labelled as 10 percent w/w . What would be the molality and mole fraction of each component in the solution? If the density of the solution is 1.2g mL^{-1} , then what shall be the molarity of the solution?

Watch Video Solution

67. An antifreeze solution is prepared fro, 222.6g of ethylene glycol, $C_2H_4(OH)_2$ and 200g of water. Calculate the molality of the solution . If the density of the solution is 1.072g mL^{-1} , then what shall be the molarity of the solution?

Watch Video Solution

68. Calculate the molarity of a solution containing 5g of NaOH in 450mL solution.

Watch Video Solution

69. A solution is 25% water, 25% ethanol and 50% acetic acid by mass. Calculate the mole farction of each component.

Watch Video Solution

70. A sugar syrup of weight 214.2g contains 34.2g of sugar $(C_{12}H_{22}O_{11})$. Calculate (i) Molality and (ii) Mole

fraction of sugar in syrup.

Watch Video Solution

71. Calculate mole fraction of ethanol and water in a sample of rectified spirit which contains 92% ethanol by mass.

Watch Video Solution

72. 2.82g of glucose (Molar mass: 180g mol^{-1}) are dissolved in 30g of water . Calculate mole fraction of glucose and water.

Watch Video Solution

73. Commercially available HCl contains 38% HCl by mass. Calculate molarity of solution if the density is 1.19 g/ml.

Watch Video Solution

74. Commercially available sample of sulphuric acid is 15% H_2SO_4 by weight (density=1.10g mL^{-1}) . Calculate the molarity of the solution.

Watch Video Solution

75. 2.82g of glucose are dissolved in 30g of water. Calculate the molality of the solution.

Watch Video Solution

76. Heptane and octane form ideal solution . At 373K , the vapour pressure of the two liquid components are 105.2k Pa and 46.8k Pa respectively. What will be th vapour pressure of a mixture of 26.0g of heptane and 35.0g of octane?

Watch Video Solution

77. Calculate the mass of a non-volatile solute (molar mass 40g mol^{-1}) which should be dissolved in 114g octane to reduce its vapour pressure to 80%.

Watch Video Solution

78. The vapour pressure of pure bronze at a certain temparature is 262atm. At the same temparature the V.P. of a solution containing 2.0g of non-volatile solid in 100g bronze is 256atm . What is the molecular mass of the solid?

Watch Video Solution

79. 18g of glucose , $C_6H_{12}O_6$ (Molar mass=180g mol^{-1}) is dissolved in 1000g (1kg) of water in a sauce pan . At what temparature will water boil at 1.013 bar? K_b for water is 0.52K kg mol^{-1} . Water boils at 373.15K at 1.013bar pressure.

Watch Video Solution

80. 10g of non-volatile solute when dissolved in 100g of benzene raises its boiling point by 1° C. What is the molecular mass of the solute. (k_b for benzene=2.53 K kg mol^{-1})

Watch Video Solution

81. Molal elevation constant for benzene is 2.53K/m. A solution of some organic substance in benzene boils at 0.126° C higher than benzene. What is the molality of the solution?

Watch Video Solution

82. in a cold climate water gets frozen causing damage to the radiator of a car . Ethylene glycol is used as an antifreezing agent . Calculate the amount of ethylene glycol to be added to 4kg of water to prevent it from freezing at -6°C . (K_f for water 1.85Km^{-1}).

Watch Video Solution

83. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

84. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

85. 1.00g of a non-electrolyte solute dissolved in 50g of benzene lowered the freezing point of benzene by 0.40K. The freezing point depression constant of benzene is 5.12K mol^{-1} . Find the molar mass of the solute.

Watch Video Solution

86. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

A.

B.

C.

D.

Answer:

Watch Video Solution

87. Addition of 0.643g of a compound to 43.95g of benzene lowers the freezing point from 5.51°C to 5.03° C. If K_f for benzene is 5.12K kg mol^{-1} , calculate the molar mass of the compound.

Watch Video Solution

88. 200 cm^3 of an aqueous solution of a protein contains 1.26g of the protein . The osmotic pressure of such a solution at 300K is found to be 2.7×10^{-3} bar. Calculate the molar mass of the protein (R=0.083 L bar $mol^{-1}K^{-1}$)

Watch Video Solution

89. Calculate the molar concentration of urea solution if it exerts an osmotic pressure of 2.45 atmosphere at 300K . (R=0.0821L atm $mol^{-1}K^{-1}$)

Watch Video Solution

90. Out of 1 M urea and 1M KCl solution, which has higher freezing point?

Watch Video Solution

91. 2g of benzoic acid (C_6H_5COOH) is dissolved in 25g of benzene show depression in freezing point equal to 1.62K. Molar depression constant for benzene, K_f=4.9K

$kgmol^{-1}$. What is percentage association of acid if it forms a dimer in solution?

Watch Video Solution

92. Collegative property among the following is

A. Osmotic pressure

B. Boiling point

C. Vapour pressure

D. Viscosity

Answer: A

Watch Video Solution

93. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

94. In countries nearer to polar region , the roads are sprinkled with $CaCl_2$. This is

A. TO MENIMISE THE EFFECT OF SNOW ON ROADS

B. To minimise the pollution

C. To minimise the accumulation of dust on the road

D. To minimise the wear and tear of the road

Answer: A

Watch Video Solution

95. The molarity of pure water (density of water=$1gml^{-1}$)

A. 18

B. 5.56

C. 55.6

D. 100

Answer: C

Watch Video Solution

96. Which of the following bonds is the strongest? $F-F, Cl-Cl, I-I, Br-Br.$

A. $F-F$

B. $Cl-Cl$

C. $I-I$

D. $Br-Br$

Answer: B

Watch Video Solution

97. Which metal has lowest melting point? Cs Hg Mn Cu

A. Cs

B. Hg

C. Mn

D. Cu

Answer: B

Watch Video Solution

98. The oxidation number of cobalt in $K\left[Co(CO)_4\right]$ is

A. 1

B. -1

C. 3

D. -3

Answer: B

Watch Video Solution

99. Vitamine B_{12} contains

A. Fe

B. Co

C. Zn

D. Ca

Answer: B

Watch Video Solution

100. Commercial alcohol is made unfit for drinking by adding

A. Methyl alcohol

B. Antimony oxide and acetic acid

C. Morphine and adipic acid

D. Snake poison and malonic acid

Answer: A

Watch Video Solution

101. Write HVZ reaction.

A. α-halo acid

B. β-halo acid

C. α, β - unsaturated acid

D. None of the above

Answer: A

Watch Video Solution

102. $C-6H_5CH=CH-CHO$ is

A. Benzaldehyde

B. Salicyldehyde

C. Cinnamaldehyde

D. None of the above

Answer: C

Watch Video Solution

103. Which is most acidic?

A. ICH_2COOH

B. $BrCH_2COOH$

C. $ClCH_2COOH$

D. FCH_2COOH

Answer: D

Watch Video Solution

104. What is the nature of hybridisation of N in the compound in NH3

A. sp^2

B. sp^3

C. sp^3d

D. dsp^2

Answer: B

Watch Video Solution

105. Which is most basic? Benzylamine, aniline, Acetanilide, p-Nitroaniline.

A. Benzylamine

B. aniline

C. Acetanilide

D. p-Nitroaniline

Answer: A

Watch Video Solution

106. Vitamin B_1 is callled

A. Ascorbic acid

B. Thiamine

C. Pyridoxine

D. Riboflavin

Answer: B

Watch Video Solution

107. which metal is present in vitamin B_{12} or cyanocobalamin?

A. fe

B. Co

C. Mg

D. Pt

Answer: B

Watch Video Solution

108. The amount of silver (at. mass=108) deposited from a solution of silver nitrate, when a current of 9650 coulombs was passed is:

A. 10.8gm

B. 0.108gm

C. 1.08gm

D. 1.08×10^3 gm

Answer: A

Watch Video Solution

109. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British

botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is Brownian movement ?

 Watch Video Solution

110. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian

movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the effect of viscosity of dispersion medium on Brownian movement ?

Watch Video Solution

111. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian

movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the effect of particle size on Brownian movement ?

 Watch Video Solution

112. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian

movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the cause of Brownian movement ?

Watch Video Solution

113. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the role of Brownian movement in the stability of sols ?

 Watch Video Solution

114. Nitration of aniline gives a mixture of o- and p-nitroanilines.

Watch Video Solution

115. Dichloromethane is also known as methylene chloride.

Watch Video Solution

116. Benzaldehyde can be prepared by the hydrolysis of benzal chloride.

Watch Video Solution

117. Pyridinium chlorochromate (PCC) is a selective oxidising agent to oxidise a 1° alcohol to corresponding aldehyde.

Watch Video Solution

118. Write chemical name of Vitamin C.

Watch Video Solution

119. Commercially available sample of sulphuric acid is 15% H_2SO_4 by weight (density=1.10g mL^{-1}) . Calculate the molarity of the solution.

Watch Video Solution

Watch Video Solution

120. Calculate the osmotic pressure in pascals exerted by a solution prepared by dissolving 1.0 g of polymer of molar mass 1,85,000 in 450 mL of water at 37° C.

Watch Video Solution

121. Define molality and molarity . Why is molality preffered over molarity?

Watch Video Solution

122. Calculate the half life period of a first order reaction whose specific rate constant is 5.5×10^{-14}s

Watch Video Solution

123. A first order reaction takes 40 min for 30% completion. Calculate $t_{\frac{1}{2}}$.

Watch Video Solution

124. Write two differences between a primary cell and a secondary cell.

Watch Video Solution

125. H_2S is a gas but H_2O is liquid at room temperature. Explain.

Watch Video Solution

126. Why is H_2S less acidic than H_2 Te ?

Watch Video Solution

127. SF_6 is known but SCl_6 is not known. Explain.

Watch Video Solution

128. Why do transition metals form complexes ?

Watch Video Solution

129. Explain :Transition elements exhibit variable oxidation states.

Watch Video Solution

130. Explain the bonding in co-ordination compounds in terms of Werner's theory.

Watch Video Solution

131. Write down the formulae of

hexaammineplatinum(IV) chloride

Watch Video Solution

132. Write down the formulae of

potassium hexacyanoferrate(III).

Watch Video Solution

133. What is the difference between rate of a reaction and rate constant?

Watch Video Solution

134. Calculate the emf of the following cell at 298k :

$Fe\left|Fe^{2+}(0.001M)\right|\left|H^{+}(1M)\right|H_2(g)(1bar), Pt(s)$

(given $E^{\circ}{}_{,cell} = +0.44V$)

Watch Video Solution

135. Why do alcohols have higher boiling points than halo-alkanes of the same molecular mass ?

Watch Video Solution

136. Discuss the reaction and mechanism of acidic dehydration of ethyl alcohol to prepare ethene.

Watch Video Solution

137. The rate constant for a first order reaction becomes six times when the temperature is raised from 350 K to 400 K. Calculate activation energy for the reaction.

Watch Video Solution

138. Calculate two third life of a first order reaction having $k = 5.48 \times 10^{-14} s^{-1}$.

Watch Video Solution

139. Explain that SO_2 can act as an oxidising agent as well as a reducing agent, but SO_3 can act as an oxidising

agent only.

Watch Video Solution

140. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

141. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

142. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

143. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

144. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

145. Write Fittig reaction.

Watch Video Solution

146. Write the following reactions :

Friedel Craft alkylation.

Watch Video Solution

147. Haloarene is ortho and para directing Explain.

Watch Video Solution

148. What are d-Block elements ? Write their general electronic configuration.

Watch Video Solution

149. What are transition elements ? Which of the d block elements are not regarded as transition elements and why ?

Watch Video Solution

150. Give general characteristics of transition elements and why are they called transition elements ?

Watch Video Solution

151. Transition metals form number of interstitial compounds. Explain.

Watch Video Solution

152. Ionisation energy of 5d-elements is more than 3d- and 4d-elements. Why ?

Watch Video Solution

153. Out of Fe^{2+} and `Fe^(3+) which is more paramagnetic and why ?

Watch Video Solution

154. Give the general electronic configuration of d-block elements.

Watch Video Solution

155. Colligative property of dilute solutions depends on :

A. The nature of solute

B. The nature of solvent

C. the number of particle of solute

D. the number of particle of solvent

Answer: C

Watch Video Solution

156. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

157. Freezing point of a solvent containing a non volatile solute

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: A

Watch Video Solution

158. The vapour pressure of an aqueous solution of glucose is 750 mm of mercury at $100^{\circ} C$. Mole fraction of solute will be

A. 0.103

B. 0.013

C. 0.025

D. 0.45

Answer: A

Watch Video Solution

159. Sea divers go deep in the sea water with a mixture of which of the following gases?

A. O_2 and He

B. O_2 and Ar

C. O_2 and CO_2

D. CO_2 and Ar

Answer: A

Watch Video Solution

160. Which of the following is not a d-block element?

A. Hg

B. Po

C. Ni

D. W

Answer: B

Watch Video Solution

161. Write the IUPAC name of $K_2\left[Ni(CN)_4\right]$.

A. potassium tetracyanonickelate(II)

B. potassium tetracyanonickelate(III)

C. potassium tetracyanonickelate(0)

D. None of the above

Answer: A

Watch Video Solution

162. Reaction used for the preparation of ethers is

A. Reimer-Tieman reaction

B. Williamson's synthesis

C. Wurtz reaction

D. Cannizzaro reaction.

Answer: B

Watch Video Solution

163. Iodoform test is not given by :

A. 2-Pentanone

B. 3-Pentanone

C. ethanol

D. Ethanal

Answer: B

Watch Video Solution

164. In the following, strongest acid is

A. CH_3CH_2COOH

B. CH_3COOH

C. C_6H_5COOH

D. $C_6H_5CH_2COOH$

Answer: C

Watch Video Solution

165. Write Gatterman Koch reaction

A. Aliphatic aldehyde

B. Aromatic ketone

C. Aliphatic ketone

D. Aromatic aldehyde

Answer: D

Watch Video Solution

166. Which of the following is most acidic?

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

167. Which among the following compound will give offensive compound when heated with chloroform and alcoholic potassium hydroxide ?

A. CH_3CN

B. $(CH_3)_3N$

C. $C_2H_5NH_2$

D. $C_6H_5CONH_2$

Answer: C

Watch Video Solution

168. The pk_b value of NH3 as compared to CH_3NH_2 Is

A. more

B. less

C. equal

D. None of the above

Answer: A

Watch Video Solution

169. Write one disease caused by deficiency of vitamin-D and one source of vitamin-D.

A. Beri-Beri

B. Rickets

C. Scurvy

D. None of the above

Answer: C

Watch Video Solution

170. Starch is a mixture of amylopectin and

A. pyran

B. amylase

C. lactose

D. D-ribose

Answer: B

Watch Video Solution

171. Numbers of coulombs required to deposit 90 gm of aluminium, when the electrode fraction is,

$Al^3 + 3e^- \rightarrow Al$..... 9.65×10^4, 8.68×10^5, 9.65×10^5, 6.95.

A. 9.65×10^4

B. 8.68×10^5

C. 9.65×10^5

D. $6. .95$

Answer: C

Watch Video Solution

172. Write the I.U.P.A.C. name of the $\left[Co(NH_3)_3Cl_2(NO_2)\right]$.

A. triamminedichloridonitrito-N-cobalt(III)

B. dichlorotriamminenitrito-N-cobalt(III)

C. dichlorotriamminenitrito-N-cobalt(II)

D. None of these.

Answer: A

Watch Video Solution

173. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and

then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

What is ultrafiltration ?

Watch Video Solution

174. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in

the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred

with fresh dispersion medium (solvent) to get a pure colloidal solution.

Why ordinary filter paper can not be used for ultrafiltration ?

Watch Video Solution

175. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the

pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

What is collodion ?

176. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and

then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

How can you speed up the process of ultrafiltration ?

Watch Video Solution

177. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in

the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred

with fresh dispersion medium (solvent) to get a pure colloidal solution.

How can you convert an ordinary filter paper into an ultrafilter paper ?

Watch Video Solution

178. Aniline is less basic than ammonia

Watch Video Solution

179. T/F Carbonyl chloride is also known as phosphine

Watch Video Solution

180. Aldehydes are more reactive than Ketones. Explain.

Watch Video Solution

181. Dehydration of ethanol with conc. H_2SO_4 at 413 K gives ethane

Watch Video Solution

182. Vitamin C is soluble in water

Watch Video Solution

183. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

184. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

185. 18g of glucose , $C_6H_{12}O_6$ (Molar mass=180g mol^{-1}) is dissolved in 1000g (1kg) of water in a sauce pan . At

what temparature will water boil at 1.013 bar? K_b for water is 0.52K kg mol^{-1} . Water boils at 373.15K at 1.013bar pressure.

Watch Video Solution

186. Define

Mole fraction

Watch Video Solution

187. Define

Mass percentage

Watch Video Solution

188. A first order reaction has a rate constant $1.15 \times 10^{-3} s^{-1}$. How long will 5g of this reactant take to reduce to 3 g?

Watch Video Solution

189. Time required to decompose SO_2Cl_2 to half of its initial amount Is 60 minutes. If the decomposition is a first order reaction, calculate the rate constant of the reaction.

Watch Video Solution

190. Can we store copper sulphate solution in iron vessel? Give suitable explanation in support of your answer

$\left[E^{\circ}\left(Cu^{2+}/Cu\right) = +0.34V, E^{\circ}\left(Fe^{2+}/Fe\right) = -0.44V\right]$

Watch Video Solution

191. Why SF_6 is known but OF_6 is not known

Watch Video Solution

192. SO_3 has zero dipole moment. Why ?

Watch Video Solution

193. What are the interhalogen compounds ? Why are these more reactive than halogens ?

Watch Video Solution

194. Explain why Cu(I) is diamagnetic while Cu(II) is paramagnetic.

Watch Video Solution

195. Transition elements and their compounds are found to be good catalysts. Give examples.

Watch Video Solution

196. explain with two examples each of the following coordination entity, central atom or ion ligands, coordination numbers, coordination sphere, coordination polyhedron, oxidation number of central atom, homoleptic and heteroleptic.

Watch Video Solution

197. State and explain with two examples

Central metal atom or ion.

Watch Video Solution

198. Write IUPAC name of : $\left[Cu(H_2O)_2(NH_3)_4\right]SO_4$.

Watch Video Solution

199. Give IUPAC name of

$[Co(NH_3)_5NO_2]Br_2$

Watch Video Solution

200. What is difference between order of reaction and molecularity of reaction ?

Watch Video Solution

201. The resistance of a conductivity cell containing 10^{-3} M KCI solution at 25°C is 1500 Ω. What is the cell

constant If conductivity of 10° M KCl solution at 25°C is $1.5 \times 10^{-4} Scm^{-1}$?

Watch Video Solution

202. Write short note on :

Schotten Baumann reaction

Watch Video Solution

203. Write esterification reaction.

Watch Video Solution

204. What is Coupling reaction ?

Watch Video Solution

205. Discuss the acidic dehydration of alcohols at different temperatures.

Watch Video Solution

206. Boiling point of ethanol (C_2H_5OH) is higher than dimethyl ether $(CH_3— O— CH_3)$. Explain.

Watch Video Solution

207. The rate of the chemical reaction doubles for an increase of 10 K In absolute temperature from 298 K. Calculate E_a .

Watch Video Solution

208. Calculate the time required for the completion of 90% of a reaction of first order kinetics, $t_{\frac{1}{2}} = 44.1$ minutes.

Watch Video Solution

209. Fluorine exhibits only - 1 oxidation state whereas other halogens exhibit positive oxidation states such as

+1, +3, +5, +7.

Watch Video Solution

210. Write short notes on

Finkelstein reaction

Watch Video Solution

211. Write down following name reaction :

Hunsdiecker reaction

Watch Video Solution

212. Explain the following reaction reaction :

Sandmeyer's reaction.

Watch Video Solution

213. Write the following reactions :

Gattermann reaction

Watch Video Solution

214. Write short notes on

Swarts reaction

Watch Video Solution

215. How will you differentiate between S_{N^1} and S_{N^2} reaction mechanism ?

Watch Video Solution

216. Why the treatment of alkyl chloride with silver nitrite forms nitroalkane and with potassium nitrite forms Alkyl nitrite ?

Watch Video Solution

217. Transition metals form number of interstitial compounds. Explain.

Watch Video Solution

Watch Video Solution

218. Why do transition metals have high enthalpies of atomization ?

Watch Video Solution

219. In the series Sc(Z = 21) to Zn(Z =30), the enthalpy of atomisation of zinc is lowest i.e., $126kJmol^{-1}$.. Why ?

Watch Video Solution

220. A transition metal easily form alloys with other transition metals. Explain why ?

Watch Video Solution

221. The transition metals and many of their compounds show paramagnetic behaviour. Explain why ?

Watch Video Solution

222. Why Zn, Cd, Hg are soft and have low m.pt.

Watch Video Solution

223. A pressure cooker reduces cooking time because :

A. heat is more evenly distributed

B. the high pressure tenderises the food

C. the boiling point of water inside the cooker is elevated

D. the boiling point of water inside the cooker is depressed

Answer: C

Watch Video Solution

224. which of the following mode of expressing the concentration is independent of temperature?

A. Molarity

B. molality

C. formality

D. Normality

Answer: B

Watch Video Solution

225. Which of the following is not a colligative property?

A. Depression in freezing point

B. Elevation in boiling point

C. Optical activity

D. Relative lowering in vapour pressure

Answer: C

Watch Video Solution

226. An aqueous solution of 0.5 g of NaOH is dissolved in 500 cm^3 of the solution. The molarity of the solution will be :

A. 0.025M

B. 0.25M

C. 2.5M

D. None of the above

Answer: A

Watch Video Solution

227. Which is the least polarisable among all the noble gases?

A. He

B. Xe

C. Ar

D. Ne

Answer: A

Watch Video Solution

228. The number of unpaired electrons in Ni^{2+} is :

A. 0

B. 2

C. 4

D. 8

Answer: B

Watch Video Solution

229. In which of the following complexes, the metal ion is in zero oxidation state ?

A. $Mn(CO)_4$

B. $Zn_2\left[Fe(CN)_6\right]$

C. $\left[Cu(NH_3)_4\right]Cl_2$

D. $\left[Ag(NH_3)_2\right]Cl$

Answer: A

Watch Video Solution

230. The oxidation number of iron in $K_4\left[Fe(CN)_6\right]$ is :

A. $+1$

B. 2

C. 3

D. zero

Answer: B

Watch Video Solution

231. Write the following reactions :

Phenol with zinc dust.

A. Benzene

B. Benzaldehyde

C. Benzoic acid

D. Benzophenone.

Answer: A

Watch Video Solution

232. When $CH_3CH_2CH_2COONa$ is heated with sodalime $(NaOH + CaO)$, the hydrocarbon formed is

A. Butan

B. Propane

C. Hexane

D. Ethane

Answer: B

Watch Video Solution

233. P in the following reaction is

A. RCH_2OH

B. RCH_3

C. $RCHO$

D. ROR

Answer: A

Watch Video Solution

234. Strongest acid is

A. $p - ClC_6H_4COOH$

B. $p - HO - C_6H_5COOH$

C. C_6H_5COOH

D. $p - NO_2C_6H_5COOH$

Answer: D

Watch Video Solution

235. A strong base can extract an α-hydrogen from

A. ketone

B. alkane

C. alkene

D. amine

Answer: A

Watch Video Solution

236. Which of the following is a 3° amine ?

A. Triethylamine

B. t-butylamine

C. N-Methylaniline

D. Ethylamine

Answer: A

Watch Video Solution

237. Acid anhydride on reaction with 1° amine gives

A. amide

B. imide

C. imine

D. None of the above

Answer: A

Watch Video Solution

238. Glycogen is an example of :

A. Polysaccharide

B. Disaccharide

C. Monosaccharide

D. Protein

Answer: A

Watch Video Solution

239. Which of the following amino acids is not optically active?

A. Alanine

B. Glycine

C. Valine

D. Leucine

Answer: B

Watch Video Solution

240. The oxidation potential of two metals X and Y are $+2.37$ and $+1.66V$ respectively. In a chemical reaction:

A. X will be replaced by Y

B. X will replace Y

C. X will not replace Y

D. X and Y will not replace each other

Answer: B

Watch Video Solution

241. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a

characteristic temperature called Kraft temperature.

In case of colloids, what does CMC stand for ?

Watch Video Solution

242. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called

critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

Give an example of associated colloid used in our daily life ?

Watch Video Solution

243. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the

examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

In case of colloids, what does CMC stand for ?

Watch Video Solution

244. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles

are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

What is the role of CMC in micelle formation ?

Watch Video Solution

245. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are

called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

What is the role of Kraft temperature in micelle formation ?

Watch Video Solution

246. Acylation of $-NH_2$ group in aniline reduces its reactivity in electrophilic substitution reactions.

Watch Video Solution

247. Dichloromethane is also known as chloroform.

Watch Video Solution

248. oxidation of toluene with chromyl chloride followed by hydrolysis gives benzaldehyde.

Watch Video Solution

249. T/F Acidic character of alcohols follows the order , $3^{\circ} > 2^{\circ} > 1^{\circ}$.

Watch Video Solution

250. T/F Chemical name of Vitamin B_6 is thiamine.

Watch Video Solution

251. The boiling point of benzene is 353.23 K. When 1.80g of a non-volatile solute was dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of the solute.

Watch Video Solution

252. Calculate (a) molality (b) molarity and © mole fraction KI if the density of 20% (mass/mass) aqueous KI is 1.202g mL^{-1} .

Watch Video Solution

253. Calculate (a) molality (b) molarity and © mole fraction KI if the density of 20% (mass/mass) aqueous KI is 1.202g mL^{-1} .

Watch Video Solution

254. Mixture of chloroform and acetone shown a negative deviation from Raoult's Law. Explain.

Watch Video Solution

255. The rate constant for a first order reaction is $3.0 \times 10^{-4} \text{ min}^{-1}$. How long will It take for $\frac{1}{5^{th}}$ of the reactants to be left behind ?

Watch Video Solution

256. 60% of a first order reaction was completed in 60 minutes. When was it half completed?

Watch Video Solution

257. What do you understand by normal hydrogen reduction potential of electrode? give it structure and working.

Watch Video Solution

258. What are pseudohalogens ? Give example.

Watch Video Solution

259. Explain: Electron gain enthalpy of chlorine is more negative than fluorine.

Watch Video Solution

260. Why are halogens coloured ?

Watch Video Solution

261. Why Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidising ?

Watch Video Solution

262. Scandium (z = 21) is a transition element but zinc (z = 30) is not. Explain.

Watch Video Solution

263. Write the IUPAC name of $K_3\left[Fe(CN)_5NO\right]$.

Watch Video Solution

264. Write IUPAC name of $Na_3\left[Co(NO_2)_6\right]$.

Watch Video Solution

265. Write a short note on linkage isomerism.

Watch Video Solution

266. Define zero order reaction. Derive integrated rate equation for rate constant of a zero order reaction.

Watch Video Solution

267. Calculate emf and ∂G for the following cell at 298 K :

$Mg(s)\left|Mg^{+2}\left(10^{-3}M\right)\right|\left|Cu^{+2}\left(10^{-4}M\right)\right|Cu(s)$

given $E^{\circ}_{(Mg^{+2})/(Mg)} = -2.36V$ and $E^{\circ}_{(Cu^{+2})/(Cu)} = +0.34V$

(1F=96500 C mol^{-1})

Watch Video Solution

268. Ethers possess a dipole moment even if the alkyl groups in the molecule are identical. Explain.

Watch Video Solution

269. Dimethyl ether is completely soluble in water but diethyl ether is soluble in water to a small extent. Explain.

Watch Video Solution

270. Explain Williamson'ssynthesis.

Watch Video Solution

271. Discuss oxidation of primary,secondary and tertiary alcohols.

Watch Video Solution

272. Calculate two third life of a first order reaction having $k = 5.48 \times 10^{-14} s^{-1}$.

Watch Video Solution

273. Thermal decomposition of dinitrogen penta oxide takes place by the following mechanism:

Write the rate expression and order of reaction. What is the unit of rate constant ?

$$N_2O_5 \xrightarrow{Slow} NO_2 + NO_3$$

$$N_2O_5 + NO_3 \xrightarrow{Fast} 3\,NO_2 + O_2$$

$$2\,N_2O_5 \longrightarrow 4\,NO_2 + O_2$$

Watch Video Solution

274. Draw structure of SF_6

Watch Video Solution

275. Write the following reactions :

Carbylamine reaction.

Watch Video Solution

276. Explain the following reactions:

Balz Schiemann reaction.

Watch Video Solution

277. Write short notes on

Markownikoff's rule.

Watch Video Solution

278. Why is sulphuric acid not used during the reaction of

alcohols with KI ?

Watch Video Solution

279. Write equations for the preparation of 1-iodobutane

from

Butan-1-ol

Watch Video Solution

Watch Video Solution

280. Write equations for the preparation of 1-iodobutane from

1-Chlorobutane

Watch Video Solution

281. Write equations for the preparation of 1-iodobutane from

But-1-ene

Watch Video Solution

282. A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro compound C_5H_9CI in bright sunlight. Identify the hydrocarbon.

Watch Video Solution

283. Sliver atom has completely filled d-orbitals $\left(4d^{10}\right)$ in its ground state. How can you say that it is a transition element ?

Watch Video Solution

284. Zn^{2+} salts are white while Cu^{2+} salts are blue, explain why ?

Watch Video Solution

285. Which of the two is paramagnetic V(IV) or V(V) and why ?

Watch Video Solution

286. Explain :Transition elements exhibit variable oxidation states.

Watch Video Solution

287. Sc^{3+} ion is colourless while Cr^{3+} Ion is coloured. Explain.

Watch Video Solution

288. Transition metals form alloys with other transition metals. Explain.

Watch Video Solution

289. Which is stronger reducing agent Cr^{2+} or Fe^{2+} and why ?

Watch Video Solution

290. Which metal in the first transition series exhibits +1 oxidation state most frequently and why ?

Watch Video Solution

291. Collegative property among the following is

A. Osmotic pressure

B. Boiling point

C. Vapour pressure

D. Viscosity

Answer: A

Watch Video Solution

292. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

293. In countries nearer to polar region , the roads are sprinkled with $CaCl_2$. This is

A. TO MENIMISE THE EFFECT OF SNOW ON ROADS

B. To minimise the pollution

C. To minimise the accumulation of dust on the road

D. To minimise the wear and tear of the road

Answer: A

Watch Video Solution

294. The molarity of pure water (density of water= $1gml^{-1}$)

A. 18

B. 5.56

C. 55.6

D. 100

Answer: C

Watch Video Solution

295. Which of the following bonds is the strongest? $F-F, Cl-Cl, I-I, Br-Br.$

A. $F-F$

B. $Cl-Cl$

C. $I-I$

D. $Br-Br$

Answer: B

Watch Video Solution

296. Which metal has lowest melting point? Cs Hg Mn Cu

A. Cs

B. Hg

C. Mn

D. Cu

Answer: B

Watch Video Solution

297. The oxidation number of cobalt in $K\left[Co(CO)_4\right]$ is

A. 1

B. -1

C. 3

D. -3

Answer: B

Watch Video Solution

298. Vitamine B_{12} contains

A. Fe

B. Co

C. Zn

D. Ca

Answer: B

Watch Video Solution

299. Commercial alcohol is made unfit for drinking by adding

A. Methyl alcohol

B. Antimony oxide and acetic acid

C. Morphine and adipic acid

D. Snake poison and malonic acid

Answer: A

Watch Video Solution

300. Write HVZ reaction.

A. α-halo acid

B. β-halo acid

C. α, β - unsaturated acid

D. None of the above

Answer: A

Watch Video Solution

301. $C-6H_5CH=CH-CHO$ is

A. Benzaldehyde

B. Salicyldehyde

C. Cinnamaldehyde

D. None of the above

Answer: C

Watch Video Solution

302. Which is most acidic?

A. ICH_2COOH

B. $BrCH_2COOH$

C. $CICH_2COOH$

D. FCH_2COOH

Answer: D

Watch Video Solution

303. Which is most basic? Benzylamine, aniline, Acetanilide, p-Nitroaniline.

A. Benzaldehyde

B. aniline

C. Acetamide

D. p-Nitroaniline

Answer: A

Watch Video Solution

304. Vitamin B_1 is callled

A. Ascorbic acid

B. Thiamine

C. Pyridoxine

D. Riboflavin

Answer: B

Watch Video Solution

305. which metal is present in vitamin B_{12} or cyanocobalamin?

A. fe

B. Co

C. Mg

D. Pt

Answer: B

Watch Video Solution

306. The amount of silver (at. mass=108) deposited from a solution of silver nitrate, when a current of 9650 coulombs was passed is:

A. 10.8gm

B. 0.108gm

C. 1.08gm

D. 1.08×10^3 gm

Answer: A

Watch Video Solution

307. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian

movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is Brownian movement ?

Watch Video Solution

308. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the effect of viscosity of dispersion medium on Brownian movement ?

 Watch Video Solution

309. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian

movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the effect of particle size on Brownian movement ?

Watch Video Solution

310. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian

movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the cause of Brownian movement ?

 Watch Video Solution

311. Read the following passage and answer the questions.

When colloidal solutions are viewed under a powerful ultramicroscope, the colloidal particles appear to be in a state of continuous zig-zag motion all over the field of view. This motion was first observed by the British botanist, Robert Brown, and is known as Brownian movement.

This motion is independent of the nature of the colloid but depends on the size of the particles and viscosity of the solution. Smaller the size and lesser the viscosity, faster is the motion.

The Brownian movement has been explained to be clue to the unbalanced bombardment of the particles by the molecules of the dispersion medium. The Brownian

movement has a stirring effect which does not permit the particles to settle and thus, is responsible for the stability of sots.

What is the role of Brownian movement in the stability of sols ?

Watch Video Solution

312. Nitration of aniline gives a mixture of o- and p-nitroanilines.

Watch Video Solution

313. Dichloromethane is also known as methylene chloride.

Watch Video Solution

314. Benzaldehyde can be prepared by the hydrolysis of benzal chloride.

Watch Video Solution

315. Pyridinium chlorochromate (PCC) is a selective oxidising agent to oxidise a 1° alcohol to corresponding aldehyde.

Watch Video Solution

316. Write chemical name of Vitamin C.

Watch Video Solution

317. Commercially available sample of sulphuric acid is 15% H_2SO_4 by weight (density=1.10g mL^{-1}) . Calculate the molarity of the solution.

Watch Video Solution

318. Calculate the osmotic pressure in pascals exerted by a solution prepared by dissolving 1.0 g of polymer of molar mass 1,85,000 in 450 mL of water at 37° C.

Watch Video Solution

319. Define molality and molarity . Why is molality preffered over molarity?

Watch Video Solution

320. Calculate the half life period of a first order reaction whose specific rate constant is 5.5×10^{-14}s

Watch Video Solution

321. A first order reaction takes 40 min for 30% completion. Calculate $t_{\frac{1}{2}}$.

Watch Video Solution

322. Write two differences between a primary cell and a secondary cell.

Watch Video Solution

323. H_2S is a gas but H_2O is liquid at room temperature. Explain.

Watch Video Solution

324. Why is H_2S less acidic than H_2 Te ?

Watch Video Solution

325. SF_6 is known but SCl_6 is not known. Explain.

Watch Video Solution

326. Transition metals formlarge number of complex compounds.Explain.

Watch Video Solution

327. Explain :Transition elements exhibit variable oxidation states.

Watch Video Solution

328. Explain the bonding in co-ordination compounds in terms of Werner's theory.

Watch Video Solution

329. Write down the formulae of hexaammineplatinum(IV) chloride

Watch Video Solution

330. Write down the formulae of potassium hexacyanoferrate(III).

Watch Video Solution

331. What is the difference between instantaneous rate of a reaction and avg rate of reaction?

Watch Video Solution

332. Calculate the emf of the following cell at 298k :

$Fe\left|Fe^{2+}(0.001M)\right|\left|H^{+}(1M)\right|H_2(g)(1bar), Pt(s)$

(given $E^{\circ}{}_{,cell} = +0.44V$)

Watch Video Solution

333. Why do alcohols have higher boiling points than halo-alkanes of the same molecular mass ?

Watch Video Solution

Watch Video Solution

334. Discuss the reaction and mechanism of acidic dehydration of ethyl alcohol to prepare ethene.

Watch Video Solution

335. The rate constant for a first order reaction becomes six times when the temperature is raised from 350 K to 400 K. Calculate activation energy for the reaction.

Watch Video Solution

336. Calculate two third life of a first order reaction having $k = 5.48 \times 10^{-14} s^{-1}$.

Watch Video Solution

337. Explain that SO_2 can act as an oxidising agent as well as a reducing agent, but SO_3 can act as an oxidising agent only.

Watch Video Solution

338. Draw the stracture of major monohaloproducts of the reaction:

Watch Video Solution

339. Draw the stracture of major monohaloproducts of the reaction: when bromo propane react with NaI

Watch Video Solution

340. Draw the stracture of major monohaloproducts of the reaction: when cyclo hexene reacts with bromine molecule

Watch Video Solution

341. Draw the stracture of major monohaloproducts of the reaction: when 1-methyl cyclohexene reacts with HI

Watch Video Solution

342. Draw the stracture of major monohaloproducts of the reaction: when 1 bromo-3- chloro cyclo butane reacts with Mg in dry ether and acetone /H3O+

Watch Video Solution

343. Write Fittig reaction.

Watch Video Solution

344. Write the following reactions :

Friedel Craft alkylation.

Watch Video Solution

345. Halogen group is ortho, pare directing. Explain.

Watch Video Solution

346. What are d-Block elements ? Write their general electronic configuration.

Watch Video Solution

347. What are transition elements ? Which of the d block elements are not regarded as transition elements and why ?

Watch Video Solution

348. Give general characteristics of transition elements and why are they called transition elements ?

Watch Video Solution

349. Transition metals form number of interstitial compounds. Explain.

Watch Video Solution

350. Ionisation energy of 5d-elements is more than 3d- and 4d-elements. Why ?

Watch Video Solution

351. Out of Fe^{2+} and `Fe^(3+) which is more paramagnetic and why ?

Watch Video Solution

352. Give the general electronic configuration of d-block elements.

Watch Video Solution

353. Colligative property of dilute solutions depends on :

A. The nature of solute

B. The nature of solvent

C. the number of particle of solute

D. the number of particle of solvent

Answer: C

Watch Video Solution

354. The boiling point of a solvent containing non volatile solute :

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: B

Watch Video Solution

355. Freezing point of a solvent containing a non volatile solute

A. is depressed

B. is elevated

C. does not change

D. None of the above

Answer: A

356. The vapour pressure of an aqueous solution of glucose is 750 mm of mercury at $100^{\circ}C$. Mole fraction of solute will be

A. 0.103

B. 0.013

C. 0.025

D. 0.45

Answer: A

Watch Video Solution

357. Sea divers go deep in the sea water with a mixture of which of the following gases?

A. O_2 and He

B. O_2 and Ar

C. O_2 and CO_2

D. CO_2 and Ar

Answer: A

Watch Video Solution

358. Which of the following is not a d-block element?

A. Hg

B. Po

C. Ni

D. W

Answer: B

Watch Video Solution

359. Write the IUPAC name of $K_2\left[Ni(CN)_4\right]$.

A. potassium tetracyanonickelate(II)

B. potassium tetracyanonickelate(III)

C. potassium tetracyanonickelate(0)

D. None of the above

Answer: A

360. Reaction used for the preparation of ethers is

A. Reimer-Tieman reaction

B. Williamson's synthesis

C. Wurtz reaction

D. Cannizzaro reaction.

Answer: B

Watch Video Solution

361. Iodoform test is not given by :

A. 2-Pentanone

B. 3-Pentanone

C. ethanol

D. Ethanal

Answer: B

Watch Video Solution

362. In the following, strongest acid is

A. CH_3CH_2COOH

B. CH_3COOH

C. C_6H_5COOH

D. $C_6H_5CH_2COOH$

Answer: C

Watch Video Solution

363. What type of organic compounds are prepared by Gatterman-Koch reaction ?

A. Aliphatic aldehyde

B. Aromatic ketone

C. Aliphatic ketone

D. Aromatic aldehyde

Answer: D

Watch Video Solution

364. Which of the following is most acidic?

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

365. Which among the following compound will give offensive compound when heated with chloroform and alcoholic potassium hydroxide ?

A. CH_3CN

B. $(CH_3)_3N$

C. $C_2H_5NH_2$

D. $C_6H_5CONH_2$

Answer: C

Watch Video Solution

366. The pk_b value of NH3 as compared to CH_3NH_2 Is

A. more

B. less

C. equal

D. None of the above

Answer: A

Watch Video Solution

367. Write two sources of vitamin C and disease caused by its deficiency.

A. Beri-Beri

B. Rickets

C. Scurvy

D. None of the above

Answer: C

Watch Video Solution

368. Starch is a mixture of amylopectin and

A. pyran

B. amylose

C. lactose

D. D-ribose

Answer: B

Watch Video Solution

369. Numbers of coulombs required to deposit 90 gm of aluminium, when the electrode fraction is,

$Al^3 + 3e^- \rightarrow Al$..... 9.65×10^4, 8.68×10^5, 9.65×10^5, 6.95.

A. 9.65×10^4

B. 8.68×10^5

C. 9.65×10^5

D. 6. .95

Answer: C

Watch Video Solution

370. Write the I.U.P.A.C. name of the $\left[Co(NH_3)_3Cl_2(NO_2)\right]$.

A. triamminedichloridonitrito-N-cobalt(III)

B. dichlorotriamminenitrito-N-cobalt(III)

C. dichlorotriamminenitrito-N-cobalt(II)

D. None of these.

Answer: A

Watch Video Solution

371. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of

nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

What is ultrafiltration ?

Watch Video Solution

372. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the

colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

Why ordinary filter paper can not be used for ultrafiltration ?

Watch Video Solution

373. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in

the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred

with fresh dispersion medium (solvent) to get a pure colloidal solution.

What is collodion ?

Watch Video Solution

374. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by

impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

How can you speed up the process of ultrafiltration ?

Watch Video Solution

375. Read the following passage and answer the questions.

Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles. Colloidal particles can pass through ordinary filter paper because the pores are too large. However, the pores of filter paper can be reduced in size by impregnating with collodion solution to stop the flow of colloidal particles. The usual collodion is a 4% solution of nitrocellulose in a mixture of alcohol and ether. An ultra-filter paper may be prepared by soaking the filter paper in a collodion solution, hardening by formaldehyde and then finally drying it. Thus, by using ultra-filter paper, the

colloidal particles are separated from rest of the materials. Ultrafiltration is a slow process. To speed up the process, pressure or suction is applied. The colloidal particles left on the ultra-filter paper are then stirred with fresh dispersion medium (solvent) to get a pure colloidal solution.

How can you convert an ordinary filter paper into an ultrafilter paper ?

Watch Video Solution

376. Aniline is less basic than ammonia

Watch Video Solution

377. T/F Carbonyl chloride is also known as phosphine

Watch Video Solution

378. Aldehydes are more reactive than Ketones. Explain.

Watch Video Solution

379. Dehydration of ethanol with conc. H_2SO_4 at 413 K gives ethane

Watch Video Solution

380. Vitamin C is soluble in water

Watch Video Solution

381. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

382. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600g of water. Calculate

The freezing point depression

Watch Video Solution

Watch Video Solution

383. 18g of glucose , $C_6H_{12}O_6$ (Molar mass=180g mol^{-1}) is dissolved in 1000g (1kg) of water in a sauce pan . At what temparature will water boil at 1.013 bar? K_b for water is 0.52K kg mol^{-1} . Water boils at 373.15K at 1.013bar pressure.

Watch Video Solution

384. Define

Mole fraction

Watch Video Solution

385. Define

Mass percentage

Watch Video Solution

386. A first order reaction has a rate constant $1.15 \times 10^{-3} s^{-1}$. How long will 5g of this reactant take to reduce to 3 g?

Watch Video Solution

387. Time required to decompose SO_2Cl_2 to half of its initial amount Is 60 minutes. If the decomposition is a

first order reaction, calculate the rate constant of the reaction.

Watch Video Solution

388. Can we store copper sulphate solution in iron vessel? Give suitable explanation in support of your answer

$[E^{\circ}(Cu^{2+}/Cu) = +0.34V, E^{\circ}(Fe^{2+}/Fe) = -0.44V]$

Watch Video Solution

389. OF_6 does not exist but SF_6, exists. Why ?

Watch Video Solution

390. SO_3 has zero dipole moment. Why ?

Watch Video Solution

391. What are the interhalogen compounds ? Why are these more reactive than halogens ?

Watch Video Solution

392. Explain why Cu(I) is diamagnetic while Cu(II) is paramagnetic.

Watch Video Solution

393. Transition elements and their compounds are found to be good catalysts. Give examples.

Watch Video Solution

394. State and explain with two examples

Co-ordination entity

Watch Video Solution

395. State and explain with two examples

Central metal atom or ion.

Watch Video Solution

396. Write IUPAC name of : $\left[Cu(H_2O)_2(NH_3)_4\right]SO_4$.

Watch Video Solution

397. Give IUPAC name of

$\left[Co(NH_3)_5ONO\right]Cl2$

Watch Video Solution

398. What is difference between order of reaction and molecularity of reaction ?

Watch Video Solution

399. The resistance of a conductivity cell containing 10^{-3} M KCI solution at 25°C is 1500 Ω. What is the cell constant If conductivity of 10° M KCl solution at 25°C is $1.5 \times 10^{-4} Scm^{-1}$?

Watch Video Solution

400. Write short note on :

Schotten Baumann reaction

Watch Video Solution

401. Write esterification reaction.

Watch Video Solution

402. What is Coupling reaction ?

Watch Video Solution

403. Discuss the acidic dehydration of alcohols at different temperatures.

Watch Video Solution

404. The Boiling Point of ethers are lower than isomeric alcohols why ?

Watch Video Solution

405. The rate of the chemical reaction doubles for an increase of 10 K In absolute temperature from 298 K. Calculate E_a .

Watch Video Solution

406. Calculate the time required for the completion of 90% of a reaction of first order kinetics, $t_{\frac{1}{2}} = 44.1$ minutes.

Watch Video Solution

407. Fluorine exhibits only - 1 oxidation state whereas other halogens exhibit positive oxidation states such as

+1, +3, +5, +7.

Watch Video Solution

408. Write short notes on

Finkelstein reaction

Watch Video Solution

409. Write down following name reaction :

Hunsdiecker reaction

Watch Video Solution

410. Explain the following reaction reaction :

Sandmeyer's reaction.

Watch Video Solution

411. Write the following reactions :

Gattermann reaction

Watch Video Solution

412. Write short notes on

Swarts reaction

Watch Video Solution

413. How will you differentiate between S_{N^1} and S_{N^2} reaction mechanism ?

Watch Video Solution

414. Why the treatment of alkyl chloride with silver nitrite forms nitroalkane and with potassium nitrite forms Alkyl nitrite ?

Watch Video Solution

415. Transition metals form number of interstitial compounds. Explain.

Watch Video Solution

Watch Video Solution

416. Why do transition metals have high enthalpies of atomization ?

Watch Video Solution

417. In the series Sc(Z = 21) to Zn(Z =30), the enthalpy of atomisation of zinc is lowest i.e., $126kJmol^{-1}$.. Why ?

Watch Video Solution

418. Why transition elements form a number of alloys ?

Watch Video Solution

419. The transition metals and many of their compounds show paramagnetic behaviour. Explain why ?

Watch Video Solution

420. Why Zn, Cd, Hg are soft and have low m.pt.

Watch Video Solution

421. A pressure cooker reduces cooking time because :

A. heat is more evenly distributed

B. the high pressure tenderises the food

C. the boiling point of water inside the cooker is elevated

D. the boiling point of water inside the cooker is depressed

Answer: C

Watch Video Solution

422. which of the following mode of expressing the concentration is independent of temperature?

A. Molarity

B. molality

C. formality

D. Normality

Answer: B

Watch Video Solution

423. Which is not a colligative property?

A. Depression in freezing point

B. Elevation in boiling point

C. Optical activity

D. Relative lowering in vapour pressure

Answer: C

Watch Video Solution

424. An aqueous solution of 0.5 g of NaOH is dissolved in 500 cm^3 of the solution. The molarity of the solution will be :

A. 0.025M

B. 0.25M

C. 2.5M

D. None of the above

Answer: A

Watch Video Solution

425. Which is the least polarisable among all the noble gases?

A. He

B. Xe

C. Ar

D. Ne

Answer: A

Watch Video Solution

426. The number of unpaired electrons in Ni^{3+}. is

A. 3

B. 2

C. 4

D. 8

Answer: B

Watch Video Solution

427. In which of the following complexes, the metal ion is in zero oxidation state ?

A. $Mn(CO)_4$

B. $Zn_2\left[Fe(CN)_6\right]$

C. $\left[Cu(NH_3)_4\right]Cl_2$

D. $\left[Ag(NH_3)_2\right]Cl$

Answer: A

Watch Video Solution

428. The oxidation number of iron in $K_4\left[Fe(CN)_6\right]$ is :

A. $+1$

B. 2

C. 3

D. zero

Answer: B

Watch Video Solution

429. Phenol upon distiliation with zinc dust gives :

A. Benzene

B. Benzaldehyde

C. Benzoic acid

D. Benzophenone.

Answer: A

Watch Video Solution

430. When $CH_3CH_2CH_2COONa$ is heated with sodalime $(NaOH + CaO)$, the hydrocarbon formed is

A. Butan

B. Propane

C. Hexane

D. Ethane

Answer: B

Watch Video Solution

431. P is Molecular formula of aldehyde is

A. RCH_2OH

B. RCH_3

C. $RCHO$

D. ROR

Answer: A

Watch Video Solution

432. Strongest acid is

A. $p - ClC_6H_4COOH$

B. $p - HO - C_6H_5COOH$

C. C_6H_5COOH

D. $p - NO_2C_6H_5COOH$

Answer: D

Watch Video Solution

433. A strong base can extract an α-hydrogen from

A. ketone

B. alkane

C. alkene

D. amine

Answer: A

Watch Video Solution

434. Which of the following is a 3° amine ?

A. Triethylamine

B. t-butylamine

C. N-Methylaniline

D. Ethylamine

Answer: A

Watch Video Solution

435. Acid anhydride on reaction with 1° amine gives

A. amide

B. imide

C. imine

D. None of the above

Answer: A

Watch Video Solution

436. Glycogen is an example of :

A. Polysaccharide

B. Disaccharide

C. Monosaccharide

D. Protein

Answer: A

Watch Video Solution

437. Which of the following amino acids is not optically active?

A. Alanine

B. Glycine

C. Valine

D. Leucine

Answer: B

Watch Video Solution

438. The oxidation potential of two metals X and Y are $+2.37$ and $+1.66V$ respectively. In a chemical reaction:

A. X will be replaced by Y

B. X will replace Y

C. X will not replace Y

D. X and Y will not replace each other

Answer: B

Watch Video Solution

439. Read the given passage and answer the following questions

There are certain substances which behave m normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellization concentration (CMC) and a characteristic temperature called Kraft temperature.

Which type of coloids form micelles?

 Watch Video Solution

440. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

Give an example of associated colloid used in our daily life ?

Watch Video Solution

441. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called critical micellisation concentration (CMC) and a

characteristic temperature called Kraft temperature.

In case of colloids, what does CMC stand for ?

Watch Video Solution

442. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of micelles takes place above certain concentration called

critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

What is the role of CMC in micelle formation ?

Watch Video Solution

443. Read the following passage and answer the questions.

There are certain substances which behave as normal strong electrolytes at low concentration but at higher concentration they behave as colloidal solutions due to the formation of aggregated particles. Such colloids are called associated colloids and the aggregated particles are called micelles. Soaps and detergents are the examples of associated colloids. The formation of

micelles takes place above certain concentration called critical micellisation concentration (CMC) and a characteristic temperature called Kraft temperature.

What is the role of Kraft temperature in micelle formation ?

Watch Video Solution

444. Acylation of $-NH_2$ group in aniline reduces its reactivity in electrophilic substitution reactions.

Watch Video Solution

445. Dichloromethane is also known as chloroform.

Watch Video Solution

446. oxidation of toluene with chromyl chloride followed by hydrolysis gives benzaldehyde.

Watch Video Solution

447. T/F Acidic character of alcohols follows the order , $3^{\circ} > 2^{\circ} > 1^{\circ}$.

Watch Video Solution

448. T/F Chemical name of Vitamin B_6 is thiamine.

Watch Video Solution

449. The boiling point of benzene is 353.23 K. When 1.80g of a non-volatile solute was dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of the solute.

Watch Video Solution

450. Calculate (a) molality (b) molarity and © mole fraction KI if the density of 20% (mass/mass) aqueous KI is 1.202g mL^{-1} .

Watch Video Solution

451. Calculate (a) molality (b) molarity and © mole fraction KI if the density of 20% (mass/mass) aqueous KI is 1.202g mL^{-1} .

Watch Video Solution

452. Mixture of chloroform and acetone shown a negative deviation from Raoult's Law. Explain.

Watch Video Solution

453. The rate constant for a first order reaction is 3.0×10^{-4} $\min^{-1}$. How long will It take for $\frac{1}{5^{th}}$ of the reactants to be left behind ?

Watch Video Solution

454. 60% of a first order reaction was completed in 60 minutes. When was it half completed?

Watch Video Solution

455. What do you mean by normal hydrogen electrode ? Give its structure and working ?

Watch Video Solution

456. What are pseudohalogens ? Give example.

Watch Video Solution

457. Explain: Electron gain enthalpy of chlorine is more negative than fluorine.

Watch Video Solution

458. Why are halogens coloured ?

Watch Video Solution

459. Why Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidising ?

Watch Video Solution

460. Scandium (z = 21) is a transition element but zinc (z = 30) is not. Explain.

Watch Video Solution

461. Write the IUPAC name of $K_3\left[Fe(CN)_5NO\right]$.

Watch Video Solution

462. Write IUPAC name of $Na_3\left[Co(NO_2)_6\right]$.

Watch Video Solution

463. Write a short note on linkage isomerism.

Watch Video Solution

464. Define zero order reaction. Derive integrated rate equation for rate constant of a zero order reaction.

Watch Video Solution

465. Calculate emf and ∂G for the following cell at 298 K :

$Mg(s)\left|Mg^{+2}\left(10^{-3}M\right)\right|\left|Cu^{+2}\left(10^{-4}M\right)\right|Cu(s)$

given $E^{\circ}_{(Mg^{+2})/(Mg)} = -2.36V$ and $E^{\circ}_{(Cu^{+2})/(Cu)} = +0.34V$

(1F=96500 C mol^{-1})

Watch Video Solution

466. Ethers possess a dipole moment even if the alkyl groups in the molecule are identical. Explain.

Watch Video Solution

467. Explain why lower ethers are highly soluble in water?

Watch Video Solution

468. Explain Williamson'ssynthesis.

Watch Video Solution

469. Discuss oxidation of primary,secondary and tertiary alcohols.

Watch Video Solution

470. Calculate two third life of a first order reaction having $k = 5.48 \times 10^{-14} s^{-1}$.

Watch Video Solution

471. Thermal decomposition of dinitrogen penta oxide takes place by the following mechanism:

Write the rate expression and order of reaction. What is

the unit of rate constant ?

$$N_2O_5 \xrightarrow{Slow} NO_2 + NO_3$$

$$N_2O_5 + NO_3 \xrightarrow{Fast} 3\,NO_2 + O_2$$

$$2\,N_2O_5 \longrightarrow 4\,NO_2 + O_2$$

Watch Video Solution

472. Discuss the structure of SF_6, on the basis of hybridisation.

Watch Video Solution

473. Write the following reactions :

Carbylamine reaction.

Watch Video Solution

474. Explain the following reaction reaction :

Schiemann reaction.

Watch Video Solution

475. Write short notes on

Markownikoff's rule.

Watch Video Solution

476. Why is sulphuric acid not used during the reaction of alcohols with KI ?

Watch Video Solution

477. Write equations for the preparation of 1-iodobutane from

Butan-1-ol

Watch Video Solution

478. Write equations for the preparation of 1-iodobutane from

1-Chlorobutane

Watch Video Solution

479. Write equations for the preparation of 1-iodobutane from

But-1-ene

Watch Video Solution

480. A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro compound C_5H_9CI in bright sunlight. Identify the hydrocarbon.

Watch Video Solution

481. Sliver atom has completely filled d-orbitals $\left(4d^{10}\right)$ in its ground state. How can you say that it is a transition

element ?

Watch Video Solution

482. Zn salts are white, Ni^{++} salts are blue explain

Watch Video Solution

483. Which of the two is paramagnetic V(IV) or V(V)

and why ?

Watch Video Solution

484. Explain :Transition elements exhibit variable oxidation states.

Watch Video Solution

485. Sc^{3+} ion is colourless while Cr^{3+} Ion is coloured. Explain.

Watch Video Solution

486. Transition metals form alloys with other transition metals. Explain.

Watch Video Solution

487. Which is stronger reducing agent Cr^{2+} or Fe^{2+} and why ?

Watch Video Solution

488. Which metal in the first transition series exhibits +1 oxidation state most frequently and why ?

Watch Video Solution