



CHEMISTRY

BOOKS - CHHAYA CHEMISTRY (BENGALI ENGLISH)

MODEL QUESTION PAPER

Answer The Following Question

1. State Raoult's law regarding relative lowering of vapour pressure. Why is said to be colligative property.



Watch Video Solution

2. At 25°C temperature, vapour pressure of water is 23.55mm. What will be the vapour pressure of the solution when 6g of urea is mixed with 100g of water?



Watch Video Solution

3. State Raoult's law regarding relative lowering of vapour pressure. Why is said to be colligative property.



Watch Video Solution

4. At 25°C temperature, vapour pressure of water is 23.55mm. What will be the vapour pressure of the solution when 6g of urea is mixed with 100g of water?



Watch Video Solution

Answer The Following Question Set 1

1. Define CMC and Gold Number.



Watch Video Solution

2. Why is sparkless electricity required for the preparation of ozone? What do you mean by pseudohalogen?



Watch Video Solution

3. Why are the majority of known noble gas compounds contain xenon?



Watch Video Solution

4. Write IUPAC name of the compound $[Co(NH_3)_6][CdCl_5]$. Give an example of hexadentate ligand and draw its structure.



Watch Video Solution

5. Why is vulcanisation important for natureal rubber?



Watch Video Solution

6. An element crystallises in cubic close packed structure having edge length 200pm. Calculate radius of the element and the density if 200g of this element contains 24×10^{24} atoms.



Watch Video Solution

7. What is packing efficiency?



Watch Video Solution

8. What do you mean by vacancy defect?



Watch Video Solution

9. Why is molality preferred over molarity State Kohlrausch's law of independent migration.

 [Watch Video Solution](#)

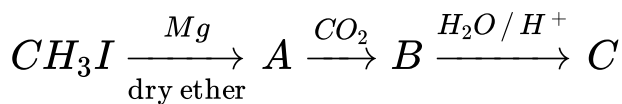
10. At 25°C , at infinite dilution, the molar conductivity of HCl , NaCl and CH_3COONa are 426.2, 126.5 and 91.0 $\text{ohm}^{-1}\text{cm}^2\text{mol}^{-1}$ respectively. Calculate molar conductivity of CH_3COOH at infinite dilution.

 [Watch Video Solution](#)

11. What is the percentage of copper in blister copper?

 [Watch Video Solution](#)

12. Identify A to C



Watch Video Solution

13. Identify A to F



View Text Solution

14. An alcohol A ($C_4H_{10}O$) on oxidation with acidified $K_2Cr_2O_7$ gives carboxylic acid B ($C_4H_8O_2$). Compound A

when dehydrated with con. H_2SO_4 at 443K forms compound C. Treatment of C with aq- H_2SO_4 gives compound D ($C_4H_{10}O$) which is an isomer of A. Compound D is resistant to oxidation. Identify A, B, C and D by giving chemical reactions.



[Watch Video Solution](#)

15. Convert: Phenol to Aspirin



[Watch Video Solution](#)

16. Why cannot aromatic amine (aniline) be prepared by Gabriel phthalimide process?



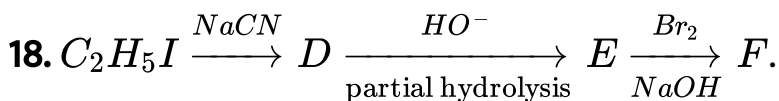
[Watch Video Solution](#)

 Watch Video Solution

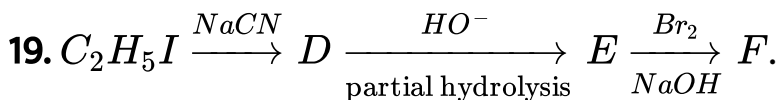
17. Convert: Methyl amine to Methyl isocyanide.



Watch Video Solution



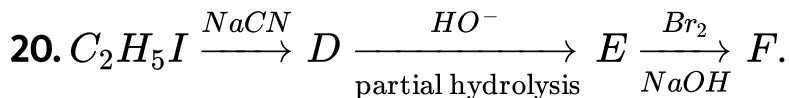
Watch Video Solution



(i) Why do glucose and fructose give same osazone product?



View Text Solution



(ii) Write down the structure of ala-gly.

 **Watch Video Solution**

21. What is meant by a first order reaction? Give an example of such a reaction.

 **Watch Video Solution**

22. Establish the integrated rate equation for a first order reaction involving a single reactant.

 **Watch Video Solution**

23. From the rate equation of first order reaction, show first order reaction cannot reach completion.



Watch Video Solution

24. What do you understand by rate of reaction?



Watch Video Solution

25. The rate of particular reaction quadruples when the temperature changes from 293K to 313K. Calculate activation energy



Watch Video Solution

[Watch Video Solution](#)

26. Write with balanced chemical equation what happens when Zn is treated with dilute HNO_3



[Watch Video Solution](#)

27. SF_6 is inert while SF_4 is highly reactive towards hydrolysis- why?



[Watch Video Solution](#)

28. How is XeF_6 prepared from XeF_4 ?



[Watch Video Solution](#)

29. With what neutral molecule, ClO^\ominus is isoelectronic?



[View Text Solution](#)

30. An organic compound A ($\text{C}_3\text{H}_6\text{O}$) is resistant to oxidation but forms a compound B ($\text{C}_3\text{H}_8\text{O}$) on reduction. B reacts with HBr to form a bromide C which on treatment with alcoholic KOH forms an alkene D (C_3H_6). Deduce the structures of A to D by giving chemical reactions.



[View Text Solution](#)

31. Write with balanced chemical equation, what happens when chloral is heated with conc NaOH solution.



Watch Video Solution

32. Distinguish between propanal and propanone.

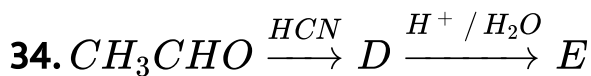


View Text Solution

33. 



View Text Solution

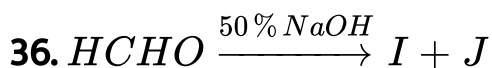


Watch Video Solution

35. 



View Text Solution



Watch Video Solution

37. The anaesthetic which is administered by injection is-

- A. diethy ether
- B. divinyl ether
- C. liquid nitrous oxide
- D. morphine

Answer: D



Watch Video Solution

38. The protein molecule present in haemoglobin is-

- A. thrombin
- B. fibrinogen
- C. globulin

D. casein

Answer: C



Watch Video Solution

39. The number of isomers of dibromobutane is-

A. 9

B. 5

C. 6

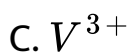
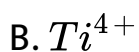
D. 8

Answer: A



View Text Solution

40. Which of the following ion is expected to be colourless



Answer: B



Watch Video Solution

41. A colloidal solution can be purified by following method of-

- A. dialysis
- B. peptisation
- C. mechanical dispersion
- D. oxidation

Answer: A



Watch Video Solution

42. The numbers of tetrahedral and Octahedral holes per atom in cubical closest packings of atoms respectively

are-

A. 1,1

B. 1,2

C. 2,1

D. 2,2

Answer: C



View Text Solution

43. Which of the following antibiotics is used to cure typhoid-

A. penicillin

B. chloramphenicol

C. tetracycline

D. streptomycin

Answer: B



Watch Video Solution

44. Which of the following polymers may be classified as step growth polymer-

A. teflon

B. PVC

C. polyethene

D. nylon 6,6

Answer: D



View Text Solution

45. Picric acid is-

A. 2-nitrophenol

B. 4-nitrophenol

C. 2,4-dinitrophenol

D. 2,4,6-trinitrophenol

Answer: D



Watch Video Solution

46. Which of the following is non-ionisable-

- A. $[Co(NH_3)_3Cl_3]$
- B. $[Co(NH_3)_4Cl_2]Cl$
- C. $[Co(NH_3)_5Cl]Cl_2$
- D. $[Co(NH_3)_6]Cl_3$

Answer: A



Watch Video Solution

47. For a dilute solution of a strong electrolyte, which of the following facts is correct

- A. the graph between Λ_m and C is linear
- B. the graph between $\log \Lambda_m$ and C is linear
- C. the graph between Λ_m and \sqrt{C} is linear
- D. the graph between $\log \Lambda_m$ and \sqrt{C} is linear

Answer: C



Watch Video Solution

48. Which of the following interhalogen is colourless

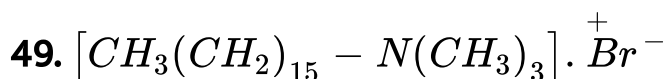
- A. ClF(g)
- B. BrF(g)
- C. BrCl(g)

D. Icl(s)

Answer: A



Watch Video Solution



Identify the type of detergent given in the above structure.



Watch Video Solution

50. What happens when NaCl solution is added to gold sol?



Watch Video Solution

 Watch Video Solution

51. Calculate spin only magnetic moment of Cu^{2+} .

 Watch Video Solution

52. Fe^{3+} is highly paramagnetic. Why?

 Watch Video Solution

53. Define CMC and Gold Number.

 Watch Video Solution

54. Why is sparkless electricity required for the preparation of ozone? What do you mean by pseudohalogen?



Watch Video Solution

55. Why are the majority of known noble gas compounds contain xenon?



Watch Video Solution

56. Write IUPAC name of the compound $[Co(NH_3)_6][CdCl_5]$. Give an example of hexadentate ligand and draw its structure.



[Watch Video Solution](#)

57. Why is vulcanisation important for natural rubber?



[Watch Video Solution](#)

58. An element crystallises in cubic close packed structure having edge length 200pm. Calculate radius of the element and the density if 200g of this element contains 24×10^{24} atoms.



[Watch Video Solution](#)

59. What is packing efficiency?



Watch Video Solution

60. Define space lattice.



Watch Video Solution

61. State Henry's law



Watch Video Solution

62. At 25°C , at infinite dilution, the molar conductivity of HCl , NaCl and CH_3COONa are 426.2, 126.5 and 91.0 $\text{ohm}^{-1}\text{cm}^2\text{mol}^{-1}$ respectively. Calculate molar conductivity of CH_3COOH at infinite dilution.



[Watch Video Solution](#)

63. How is pure alumina extracted from bauxite by Bayer process?



[Watch Video Solution](#)

64. What is the percentage of copper in blister copper?



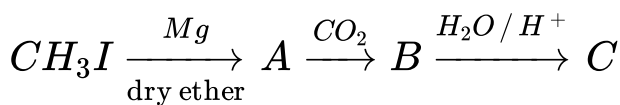
[Watch Video Solution](#)

65. Why do transition metals form coloured complexes?



[Watch Video Solution](#)

66. Identify A to F



Watch Video Solution

67. Identify A to F



View Text Solution

68. An alcohol [A] with molecules formula ($C_4H_{10}O$) on oxidation with acidified potassium dichromate gives acid [B] ($C_4H_8O_2$). Compound [A] when dehydrated with conc. H_2SO_4 at $443K$ gives compound [C]. Treatment of

[C] with aqueous H_2SO_4 gives compound [D] ($C_4H_{10}O$) which is an isomer of [A]. compound [D] is resistant to oxidation but compound [A] can be easily oxidised. Identify [A], [B], [C] and [D]. Name the type of isomerism exhibited by [A] and [D].



[Watch Video Solution](#)

69. Convert: Phenol to Aspirin



[Watch Video Solution](#)

70. Why cannot aromatic amine (aniline) be prepared by Gabriel phthalimide process?



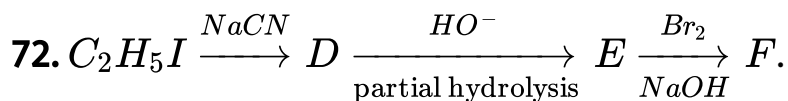
[Watch Video Solution](#)

 Watch Video Solution

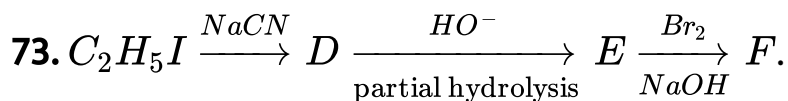
71. Convert: Methyl amine to Methyl isocyanide.



Watch Video Solution



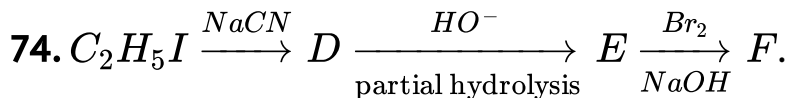
Watch Video Solution



(i) Why do glucose and fructose give same osazone product?



Watch Video Solution



(ii) Write down the structure of alagly.

 Watch Video Solution

75. What is meant by a first order reaction? Give an example of such a reaction.

 Watch Video Solution

76. Establish the integrated rate equation for a first order reaction involving a single reactant.

 Watch Video Solution

77. From the rate equation of first order reaction, show first order reaction cannot reach completion.



Watch Video Solution

78. What do you understand by rate of reaction?



Watch Video Solution

79. Write the differences between order and molecularity of reaction



Watch Video Solution

80. The rate of particular reaction quadruples when the temperature changes from 293K to 313K. Calculate activation energy



Watch Video Solution

81. Write with balanced chemical equation what happens when Zn is treated with dilute HNO_3



Watch Video Solution

82. SF_6 is inert while SF_4 is highly reactive towards hydrolysis- why?



Watch Video Solution

83. How is XeF_6 prepared from XeF_4 ?



Watch Video Solution

84. With what neutral molecule, ClO^- is isoelectronic?



Watch Video Solution

85. An organic compound A (C_3H_6O) is resistant to oxidation but forms a compound B (C_3H_8O) on reduction. B reacts with HBr to form a bromide C which on treatment with alcoholic KOH forms an alkene D

(C_3H_6). Deduce the structures of A to D by giving chemical reactions.



[View Text Solution](#)

86. Write with balanced chemical equation, what happens when chloral is heated with conc NaOH solution.



[Watch Video Solution](#)

87. Distinguish between propanal and propanone.

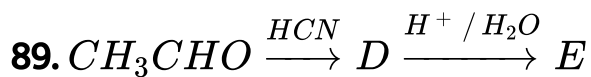


[Watch Video Solution](#)

88. 



View Text Solution

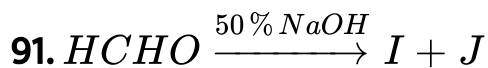


Watch Video Solution

90. 



View Text Solution





[View Text Solution](#)

92. The anaesthetic which is administered by injection is-

- A. diethy ether
- B. divinyl ether
- C. liquid nitrous oxide
- D. morphine

Answer: D



[Watch Video Solution](#)

93. The protein molecule present in haemoglobin is-

A. thrombin

B. fibrinogen

C. globulin

D. casein

Answer: C



Watch Video Solution

94. The number of isomers of dibromobutane is-

A. 9

B. 5

C. 6

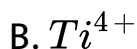
D. 8

Answer: A



Watch Video Solution

95. Which of the following ion is expected to be colourless



Answer: B



[View Text Solution](#)

96. A colloidal solution can be purified by following method of-

- A. dialysis
- B. peptisation
- C. mechanical dispersion
- D. oxidation

Answer: A



[Watch Video Solution](#)

97. The numbers of tetrahedral and Octahedral holes per atom in cubical closest packings of atoms respectively are-

A. 1,1

B. 1,2

C. 2,1

D. 2,2

Answer: C



Watch Video Solution

98. Which of the following antibiotics is used to cure typhoid-

- A. penicillin
- B. chloramphenicol
- C. tetracycline
- D. streptomycin

Answer: B



Watch Video Solution

99. Which of the following polymers may be classified as step growth polymer-

A. teflon

B. PVC

C. polyethene

D. nylon 6,6

Answer: D



Watch Video Solution

100. Picric acid is-

A. 2-nitrophenol

B. 4-nitrophenol

C. 2,4-dinitrophenol

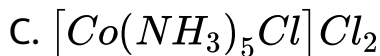
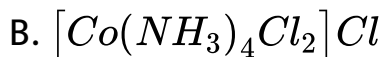
D. 2,4,6-trinitrophenol

Answer: D



View Text Solution

101. Which of the following is non-ionisable-



Answer: A



Watch Video Solution

102. For a dilute solution of a strong electrolyte, which of the following facts is correct

- A. the graph between Λ_m and C is linear
- B. the graph between $\log \Lambda_m$ and C is linear
- C. the graph between Λ_m and \sqrt{C} is linear
- D. the graph between $\log \Lambda_m$ and \sqrt{C} is linear

Answer: C



Watch Video Solution

103. Which of the following interhalogen is colourless

A. ClF(g)

B. BrF(g)

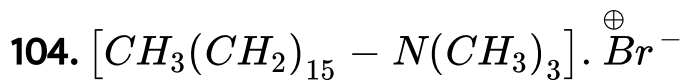
C. BrCl(g)

D. Icl(s)

Answer: A



Watch Video Solution



Identify the type of detergent given in the above structure.



Watch Video Solution

105. What happens when NaCl solution is added to gold sol?



Watch Video Solution

106. Calculate spin only magnetic moment of Cu^{2+} .



Watch Video Solution

107. Fe^{3+} is highly paramagnetic. Why?



Watch Video Solution

108. Define electrochemical equivalent.



[Watch Video Solution](#)

Answer The Following Question Set 2

1. For a dilute solution containing 2.5g of a non-volatile non-electrolyte solute in 100g of water, the elevation in boiling point at 1 atm pressure is 2°C . Assuming concentration of solute is much lower than the concentration of solvent, the vapour pressure (mm of Hg) of the solution is (take $K_b=0.76\text{ K kg mol}^{-1}$)



[Watch Video Solution](#)

2. On hydrolysis, NCl_3 gives NH_3 and $HOCl$ while PCl_3 gives H_3PO_3 and HCl - explain.



[View Text Solution](#)

3. Define the term peptisation and mention its use



[Watch Video Solution](#)

4. Explain the effect of temperature on the extent of physical and chemical adsorption.



[Watch Video Solution](#)

5. Explain the magnetic behaviour with geometrical shape of $[NiCl_4]^{2-}$ and $[Ni(CN)_4]^{2-}$



Watch Video Solution

6. What is the role of t-butyl peroxide in the polymerisation of ethene?



View Text Solution

7. What is biodegradable polymer? Give example.



Watch Video Solution

8. Calculate packing efficiency of bcc lattice



[Watch Video Solution](#)

9. How much space is empty in a hexagonal closed packed solid?



[Watch Video Solution](#)

10. Write down van't Hoff equation of osmotic pressure.



[Watch Video Solution](#)

11. The osmotic pressure of an aqueous solution of urea is 500 mm Hg at 42°C . The solution after dilution at 42°C exerts an osmotic pressure of 150mm Hg. How many times is the solution diluted?



Watch Video Solution

12. How many grams of chlorine can be produced by the electrolysis of molten NaCl with a current of 1.02A for 15 minutes?



Watch Video Solution

13. Write two differences between potential difference and EMF.



Watch Video Solution

14. In a conductive cell, at 298K, the resistance of 0.05M NaOH solution is 31.16. If the cell constant of that cell is 0.367 cm^{-1} , then calculate molar conductance of the given solution.



Watch Video Solution

15. Why is copper extracted by self reduction? Write down the chemical reaction.



Watch Video Solution

16. What is thermit mixture?



Watch Video Solution

17. With the same d-orbital configuration, Cr^{2+} is a reducing agent while Mn^{3+} is an oxidising agent. Explain.



Watch Video Solution

18. Write down disproportionation reaction of Cu^{+} ion



Watch Video Solution

19. Why do lanthanides show usually +3 oxidation state?



Watch Video Solution

20. Write the structure of chlorophenylmethane.



Watch Video Solution

21. Identify A to D



View Text Solution

22. Write IUPAC name and structure of DDT.



Watch Video Solution

23. Write a short note on Kolbe-Schmitt reaction.



Watch Video Solution

24. What is power alcohol?



Watch Video Solution

25. Identify A and B



View Text Solution

26. Convert:

Nitromethane to dimethylamine



Watch Video Solution

27. Convert:

Nitrobenzene to p-dinitrobenzene



Watch Video Solution

28. Why is Mulliken-Barker test not applicable for detection of nitro group in m-nitrobenzaldehyde?



View Text Solution

29. Give an example of achiral amino acid and its structure.



Watch Video Solution

30. How does glucose react with Tollen's reagent?



Watch Video Solution

31. How does adenine bind with uracil in RNA?



View Text Solution

32. What do you understand by order a reaction?



Watch Video Solution

33. How does rate law differ from law of mass action?



Watch Video Solution

34. Give two examples of each of reactions of zero order, first order and second order.

[Watch Video Solution](#)

35. For a first order reaction, the rate constant (k) is 1.25×10^4

represented as $\log k = 14.34 - \frac{1.25 \times 10^4}{T}$

Calculate activation energy and Arrhenius factor. At which temperature, the half life of the reaction would be 256 min.

[Watch Video Solution](#)

36. Why cannot we prepare HBr by heating KBr with H_2SO_4 ?

[Watch Video Solution](#)

37. Why does NO_2 dimerise to form N_2O_4 ?



Watch Video Solution

38. Write with balanced chemical equation what happens when

(a) Iodine is treated with conc. HNO_3



Watch Video Solution

39. Write with balanced chemical equation what happens when-

(b) Water is added slowly to the mixture of red P and iodine.



Watch Video Solution

40. Why cannot formaldehyde be prepared by Rosenmund reduction?



Watch Video Solution

41. Convert: Cyanobenzene to Cinnamaldehyde



View Text Solution

42. Convert: Benzaldehyde to Malachite green.



Watch Video Solution

43. What is Brady's reagent? Mention its use



Watch Video Solution

44. Identiy A to H:



View Text Solution

45. Which of the following is not a food preservative-

A. sodium benzoate

B. sodium Sulphite

C. Sorbic acid

D. salts of palmitic acid

Answer: D



Watch Video Solution

46. Kwashiorkor is caused by the deficiency of-

A. vitamins

B. hormones

C. amino acids

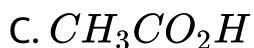
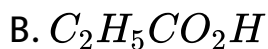
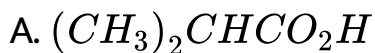
D. essential amino acids

Answer: D



View Text Solution

47. Among the following acids, which has the lowest pK_a value-



D. HCO_2H

Answer: D



View Text Solution

48. The major product formed when 1,1,1 trichloropropane is treated with aq-KOH is-

A. Propyne

B. 1-propanol

C. 2-propanol

D. propionic acid

Answer: D



[Watch Video Solution](#)

49. The coordination number of an atom in ccp lattice is-

A. 4

B. 12

C. 8

D. 12

Answer: B



[Watch Video Solution](#)

50. If E^0 of calomel electrode $(C^{o-} | Hg_2Cl_2 | Pt |)$ is 0.27V, its potential when $KCl=0.01$ M would be-

- A. 0.25V
- B. 0.26V
- C. 0.276V
- D. 0.286V

Answer: C



View Text Solution

51. Which of the following represents an associated colloids-

A. sol of gold

B. starch

C. proteins

D. soaps

Answer: D



Watch Video Solution

52. The complex $[Ni(NH_3)_6]^{2+}$ involves hybridisation of

A. sp^3

B. dsp^3

C. sp^3d^2

D. $d^2 sp^3$

Answer: C



Watch Video Solution

53. The anhydride of $HClO_4$ is-

A. ClO_4^-

B. Cl_2O_7

C. ClO_2

D. ClO_3

Answer: B



Watch Video Solution

54. The compound that gives a positive iodoform test is-

- A. 1-pentanol
- B. 2-pentanone
- C. 3-pentanone
- D. pentanal

Answer: B



Watch Video Solution

55. The complete hydrolysis of a nitrile produces-

A. acid

B. amide

C. amine

D. ester

Answer: A



Watch Video Solution

56. Which of the following polymers doesnot involve cross-linkages-

A. bakelite

B. melamine

C. polyethene

D. vulcanised rubber

Answer: C



View Text Solution

57. Aminoglycosides are usually used as-

A. antibiotic

B. analgesic

C. hypnotic

D. antifertility

Answer: A



[Watch Video Solution](#)

58. Express the relation between conductivity and molar conductivity of a solution held in a cell.



[Watch Video Solution](#)

59. Milk is an emulsion. Identify the dispersed phase and the emulsifier in milk.



[Watch Video Solution](#)

60. What do you mean by the term 'Tyndall effect'?



[Watch Video Solution](#)

 Watch Video Solution

61. How does soap differ from detergent?



Watch Video Solution

62. Write down the structure of paracetamol. Mention one use of it.



Watch Video Solution

63. Why are Zr and Hf of same size?



Watch Video Solution

64. For a dilute solution containing 2.5 g of a non-volatile non-electrolyte solute in 100 g water, the elevation of boiling point at 1 atm pressure is 2°C . Assuming concentration of solute is much lower than the concentration of solvent, determine the vapour pressure (mm Hg) of the solution. [Given: k_b for water = $0.76\text{K}\cdot\text{kg}\cdot\text{mol}^{-1}$]



[Watch Video Solution](#)

65. On hydrolysis, NCl_3 gives NH_3 and HOCl while PCl_3 gives H_3PO_3 and HCl - explain.



[Watch Video Solution](#)

66. Define the term peptisation and mention its use



Watch Video Solution

67. Explain the effect of temperature on the extent of physical and chemical adsorption.



Watch Video Solution

68. Explain the magnetic behaviour with geometrical shape of $[NiCl_4]^{2-}$ and $[Ni(CN)_4]^{2-}$



Watch Video Solution

69. What is the role of t-butyl peroxide in the polymerisation of ethene?



[Watch Video Solution](#)

70. What is biodegradable polymer? Give example.



[Watch Video Solution](#)

71. Why is Frenkel defect not found in pure alkali metal halides?



[Watch Video Solution](#)

72. Calculate packing efficiency of bcc lattice



Watch Video Solution

73. How much space is empty in a hexagonal closed packed solid?



Watch Video Solution

74. What makes the crystal of KCl sometimes appear pink and how?



Watch Video Solution

75. Write down van't Hoff equation of osmotic pressure.



Watch Video Solution

76. The osmotic pressure of an aqueous solution of urea is 500 mm Hg at 42°C. The solution after dilution at 42°C exerts an osmotic pressure of 150mm Hg. How many times is the solution diluted?



Watch Video Solution

77. How many grams of chlorine can be produced by the electrolysis of molten NaCl with a current of 1.02A for 15 minutes?



[Watch Video Solution](#)

78. Write two differences between potential difference and EMF.



[Watch Video Solution](#)

79. In a conductive cell, at 298K, the resistance of 0.05M NaOH solution is 31.16. If the cell constant of that cell is 0.367 cm^{-1} , then calculate molar conductance of the given solution.



[Watch Video Solution](#)

80. What is the use of platinum foil in the hydrogen electrode?



Watch Video Solution

81. Why is copper extracted by self reduction? Write down the chemical reaction.



Watch Video Solution

82. What is thermite mixture?



Watch Video Solution

83. With the same d-orbital configuration, Cr^{2+} is a reducing agent while Mn^{3+} is an oxidising agent. Explain.



Watch Video Solution

84. Write down disproportionation reaction of Cu^{+} ion



View Text Solution

85. Why do lanthanides show usually +3 oxidation state?



Watch Video Solution

86. Why do transition elements show coloured compounds?



Watch Video Solution

87. Why do transition metals have high enthalpy of atomisation?



Watch Video Solution

88. Write the structure of chlorophenylmethane.



Watch Video Solution

89. Identify A to D



View Text Solution

90. Why does chloroform preserve in dark coloured bottle?



Watch Video Solution

91. Write IUPAC name and structure of DDT.



Watch Video Solution

92. Write a short note on Kolbe-Schmitt reaction.



Watch Video Solution

93. What is power alcohol?



Watch Video Solution

94. Identify A and B



View Text Solution

95. Convert:

Nitromethane to dimethylamine



Watch Video Solution

96. Why is Mulliken-Barker test not applicable for detection of nitro group in m-nitrobenzaldehyde?



View Text Solution

97. Give an example of achiral amino acid and its structure.



Watch Video Solution

98. How does glucose react with Tollen's reagent?



Watch Video Solution

99. How does adenine bind with uracil in RNA?



Watch Video Solution

100. What do you understand by order a reaction?



Watch Video Solution

101. How does rate law differ from law of mass action?



[Watch Video Solution](#)

102. Give two examples of each of reactions of zero order, first order and second order.

[Watch Video Solution](#)

103. For a first order reaction, the rate constant (k) is 1.25×10^4 represented as $\log k = 14.34 - \frac{1.25 \times 10^4}{T}$

$$\log k = 14.34 - \frac{1.25 \times 10^4}{T}$$

Calculate activation energy and Arrhenius factor. At which temperature, the half life of the reaction would be 256 min.

[Watch Video Solution](#)

104. What will be the effect of temperature on rate constant?



Watch Video Solution

105. Why cannot we prepare HBr by heating KBr with H_2SO_4 ?



Watch Video Solution

106. Why does NO_2 dimerise?



Watch Video Solution

107. Why are halogens strong oxidising agents?



Watch Video Solution

108. Write with balanced chemical equation what happens when

(a) Iodine is treated with conc. HNO_3



Watch Video Solution

109. Write with balanced chemical equation what happen when-

(b) Water is added slowly to the mixture of red P and iodine.



Watch Video Solution

110. Why cannot formaldehyde be prepared by Rosenmund reduction?



Watch Video Solution

111. Convert: Cyanobenzene to Cinnamaldehyde



Watch Video Solution

112. Convert: Benzaldehyde to Malachite green.



Watch Video Solution

113. What is Brady's reagent? Mention its use



Watch Video Solution

114. Identify A to H:



View Text Solution

115. Which of the following is not a food preservative-

- A. sodium benzoate
- B. sodium Sulphite
- C. Sorbic acid
- D. salts of propanoic acid

Answer: D



View Text Solution

116. Kwashiorkor is caused by the deficiency of-

- A. vitamins

B. hormones

C. amino acids

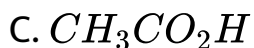
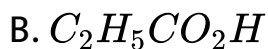
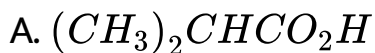
D. essential amino acids

Answer: D



View Text Solution

117. Among the following acids, which has the lowest pK_a value-



D. HCO_2H

Answer: D



Watch Video Solution

118. The major product formed when 1,1,1 trichloropropane is treated with aq-KOH is-

A. Propyne

B. 1-propanol

C. 2-propanol

D. propionic acid

Answer: B



[Watch Video Solution](#)

119. The coordination number of an atom in ccp lattice is-

A. 4

B. 12

C. 8

D. 6

Answer: B



[Watch Video Solution](#)

120. If E^0 of calomel electrode $(C^{o-} | Hg_2Cl_2 | Pt |)$ is 0.27V, its potential when $KCl=0.01\text{ M}$ would be-

- A. 0.25V
- B. 0.26V
- C. 0.276V
- D. 0.286V

Answer: C



View Text Solution

121. Which of the following represents an associated colloids-

A. sol of gold

B. starch

C. proteins

D. soaps

Answer: D

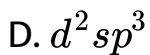
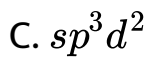


Watch Video Solution

122. The complex $[Ni(NH_3)_6]^{2+}$ involves hybridisation of

A. sp^3

B. dsp^3

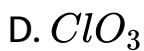
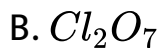


Answer: C



Watch Video Solution

123. The anhydride of $HClO_4$ is-



Answer: B



[Watch Video Solution](#)

124. The compound that gives a positive iodoform test is-

- A. 1-pentanol
- B. 2-pentanone
- C. 3-pentanone
- D. pentanal

Answer: B



[Watch Video Solution](#)

125. The complete hydrolysis of a nitrile produces-

A. acid

B. amide

C. amine

D. ester

Answer: A



Watch Video Solution

126. Which of the following polymers doesnot involve cross-linkages-

A. bakelite

B. melamine

C. polyethene

D. vulcanised rubber

Answer: C



View Text Solution

127. Aminoglycosides are usually used as-

A. antibiotic

B. analgesic

C. hypnotic

D. antifertility

Answer: A



[Watch Video Solution](#)

128. Express the relation between conductivity and molar conductivity of a solution held in a cell.



[Watch Video Solution](#)

129. How does soap differ from detergent?



[Watch Video Solution](#)

130. Why are Zr and Hf of same size?



[Watch Video Solution](#)

Answer The Following Question Set 3

1. Benzene and toluene form a nearly ideal solution. At a certain temperature, calculate the vapour pressure of solution containing equal moles of two substances (Given , $p_{\text{toluene}}^0 = 55\text{mm Hg}$, $p_{\text{benzene}}^0 = 150\text{mm Hg}$]



[Watch Video Solution](#)

2. Mention the two necessary conditions for the observation of Tyndall effect.



[Watch Video Solution](#)

3. Draw the isomeric structures of $[Pt(NH_3)_2Cl_2]$ and write down the formula of potassium trioxalatoferrate (III).



Watch Video Solution

4. Which are fluorinating agent oftenly used instead of F_2 ? Write two chemical equations showing their use as fluorinating agents.



Watch Video Solution

5. Write names and structures of monomer units of polystyrene and PAN.



[Watch Video Solution](#)

6. A metal crystallises into two cubic lattices fee and bee whose edge lengths are 3.5 \AA and 3.0 \AA respectively. Calculate the ratio of densities of fee and bee lattices.



[Watch Video Solution](#)

7. Name the type of binding forces present in dry ice.



[Watch Video Solution](#)

8. Why should a solution of a non-volatile and nonelectrolytic solute boil at a higher temperature?

Explain with the help of diagram



Watch Video Solution

9. Derive the relation between molar mass of solute and elevation of boiling point



Watch Video Solution

10. The degree of dissociation of $Ca(NO_3)_2$ in a dilute aqueous solution, containing 7.0g of salt per 100 g of water at 100°C is 70%. If the vapour pressure of water at 100°C is 760 mm Hg, calculate the vapour pressure of the solution.



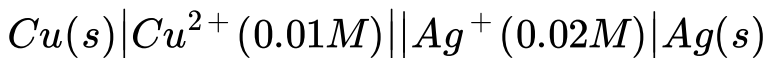
Watch Video Solution

11. Under what condition normality and molarity of a solution become identical?



Watch Video Solution

12. For a standard cell,



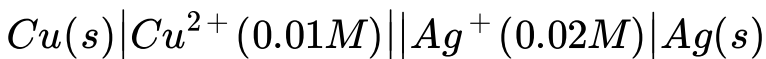
$$E_{Cu^{2+} | Cu}^0 = + 0.34V, E_{Ag^{+} / Ag}^0 = + 0.80V$$

Identify the cathode and anode as the current is drawn from the cell.



Watch Video Solution

13. For a standard cell,



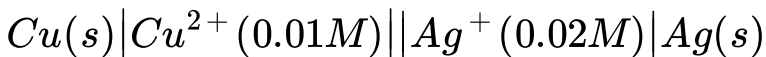
$$E_{Cu^{2+} | Cu}^0 = +0.34V, E_{Ag^{+} / Ag}^0 = +0.80V$$

Write the reactions taking place at the electrodes.



View Text Solution

14. For a standard cell,



$$E_{Cu^{2+} | Cu}^0 = +0.34V, E_{Ag^{+} / Ag}^0 = +0.80V$$

Calculate EMF of the cell at $25^{\circ}C$.



Watch Video Solution

15. Why is cryolite added with alumina during extraction of aluminium?



Watch Video Solution

16. Describe the oxidising action of potassium dichromate in H_2SO_4 solution with the following-

(i) H_2S

(ii) $Na_2S_2O_3$

(iii) $NaCl$



Watch Video Solution

17. Identify A to F:



[View Text Solution](#)

18. What is the function of anhydrous ZnCl_2 in Lucas test for distinction between 1° , 2° and 3° alcohols?



[View Text Solution](#)

19. An ether A ($\text{C}_5\text{H}_{12}\text{O}$) when heated with excess hot concentrated HI produced two alkyl halides which on hydrolysis give B and C. Oxidation of B gives an acid D whereas oxidation of C gives ketone E. Both B and C give

haloform reaction. Identify A to E along with their structures and the given reactions.



[Watch Video Solution](#)

20. An organic compound A (C_2H_3N) is used as a solvent of choice for many organic reactions because it is not reactive in mild acidic and basic conditions. Compound A on treatment with Ni/H_2 forms B. When B is treated with nitrous acid at 273K, ethanol is obtained. When B is warmed with chloroform and NaOH, a foul smelling compound C is formed. Identify A to C along with their structures and given reactions.



[View Text Solution](#)

21. Convert: Cyanobenzene to Cinnamic acid



Watch Video Solution

22. Identify A to F:



The two strands in DNA are not identical but complementary. Explain.



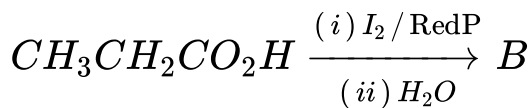
View Text Solution

23. Identify A to J:



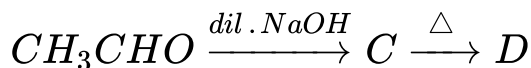
View Text Solution

24. Identify A to J:



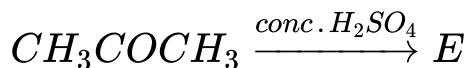
Watch Video Solution

25. Identify A to J:



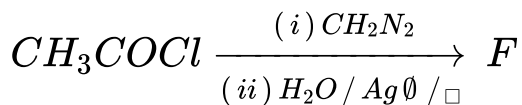
View Text Solution

26. Identify A to J:



[Watch Video Solution](#)

27. Identify A to J:

[Watch Video Solution](#)

28. Identify A to J:

[View Text Solution](#)

29. Identify A to J:



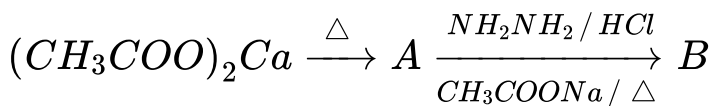
 [View Text Solution](#)

30. Identify A to J:



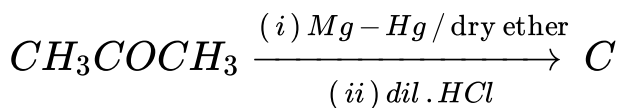
 [View Text Solution](#)

31. (i) Identify A to F:



 [View Text Solution](#)

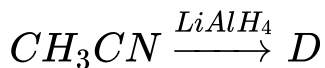
32. (i) Identify A to F:





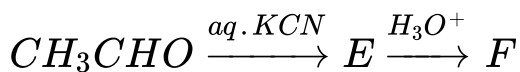
[View Text Solution](#)

33. (i) Identify A to F:



[View Text Solution](#)

34. (i) Identify A to F:



[View Text Solution](#)

35. Convert:





[View Text Solution](#)

36. $3A + 2B + C \rightarrow C \rightarrow D + E$. For the given reaction, the relative order of the reaction with respect to A, B and C are one, two and zero respectively. Write down the rate of the reaction in differential form. What would be rate of reaction if concentration of A, B and C are doubled?



[Watch Video Solution](#)

37. Why chlorine is not the most powerful oxidising agent inspite of its highest value of electron gain enthalpy?



[Watch Video Solution](#)

38. Bond angle in NH_3 is 107° while that of PH_3 is 94° .
Explain.



Watch Video Solution

39. SF_6 is chemically inactive. Explain.



Watch Video Solution

40. Draw dipolar structure of ozone.



Watch Video Solution

41. P_2O_5 can dimerise but N_2O_5 cannot. Explain with structure.



[View Text Solution](#)

42. Give an example of a compound where bismuth shows + 5 oxidation state.



[Watch Video Solution](#)

43. Write down the compound of group 18 which was first prepared.



[Watch Video Solution](#)

44. Closest packing of atoms in cubic system, the number of atoms surrounding an atom in one layer is-

A. 2

B. 4

C. 6

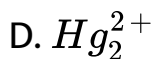
D. 8

Answer: B



Watch Video Solution

45. Which of the following ions if reduced under standard conditions, will have negative reduction potential-



Answer: B



Watch Video Solution

46. The diameters of colloidal particles may range from-

A. 1 to 1000 nm

B. 10 to 100 pm

C. 10 to 100 nm

D. 1 to 100 nm

Answer: A



View Text Solution

47. The pseudohalogen amongst the following is-

A. NO

B. CO

C. Cl_2

D. C_2N_2

Answer: D



Watch Video Solution

48. The common oxidation state of lanthanides and actinides is-

A. +1

B. +2

C. +3

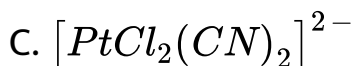
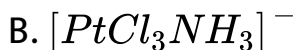
D. +4

Answer: C



Watch Video Solution

49. The following square planar complex shows cis-trans isomerism-



Answer: C



View Text Solution

50. Which of the following factor does not favour S_N1 , elimination in alkyl chloride-

A. stability of R^{\oplus}

B. steric hindrance

C. protic Solvent

D. aprotic Solvent

Answer: D



View Text Solution

51. A primary alcohol can be oxidised to an aldehyde by choosing the reagent-

A. $KMnO_4$, HO^{\oplus}

B. $K_2Cr_2O_7$, H^{\oplus}

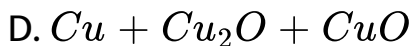


Answer: C



Watch Video Solution

52. when acetaldehyde is heated with Fehling's solution, it gives a precipitate of-



Answer: C



Watch Video Solution

53. Which of the following polymers may be classified as step growth polymer?

A. teflon

B. PVC

C. polyethene

D. nylon 6,6

Answer: D



Watch Video Solution

54. Which of the following is not the male sex hormone-

- A. testosterone
- B. dihydrotestosterone
- C. androgens
- D. estrogens

Answer: D



View Text Solution

55. Which of the following is antipyretic-

- A. aspirin

B. narcotics

C. phenol

D. chloroform

Answer: A



Watch Video Solution

56. Allergy in the body is caused by the production of-

A. vitamins

B. hormone

C. histamine

D. ezymes

Answer: C



View Text Solution

57. Write down the structure of Fe_2Cl_6 .



Watch Video Solution

58. Calculate spin only magnetic moment of Ni^{2+} ion.



Watch Video Solution

59. Name an antiseptic which is dye.



Watch Video Solution

60. Which forces are involved in holding the drugs to active sides of drugs?



View Text Solution

61. Benzene and toluene form a nearly ideal solution. At a certain temperature, calculate the vapour pressure of solution containing equal moles of two substances (Given $p_{\text{toluene}}^0 = 55\text{mm Hg}$, $p_{\text{benzene}}^0 = 150\text{mm Hg}$)



Watch Video Solution

62. Why does the mixture of acetone and chloroform show negative deviation from Raoult's law?



Watch Video Solution

63. Mention the two necessary conditions for the observation of Tyndall effect.



Watch Video Solution

64. How does EDTA help as a cure for lead poisoning?



Watch Video Solution

65. Draw the isomeric structures of $[Pt(NH_3)_2Cl_2]$ and write down the formula of potassium trioxalatoferrate (III).



Watch Video Solution

66. Which are fluorinating agent oftenly used instead of F_2 ? Write two chemical equations showing their use as fluorinating agents.



Watch Video Solution

67. Write names and structures of monomer units of polystyrene and PAN.



Watch Video Solution

 [Watch Video Solution](#)

68. A metal crystallises into two cubic lattices fee and bee whose edge lengths are 3.5 \AA and 3.0 \AA respectively. Calculate the ratio of densities of fee and bee lattices.

 [Watch Video Solution](#)

69. Name the type of binding forces present in dry ice.

 [View Text Solution](#)

70. Why should a solution of a non-volatile and nonelectrolytic solute boil at a higher temperature?

Explain with the help of diagram



Watch Video Solution

71. Derive the relation between molar mass of solute and elevation of boiling point



Watch Video Solution

72. The degree of dissociation of $Ca(NO_3)_2$ in a dilute aqueous solution, containing 7.0g of salt per 100 g of water at 100°C is 70%. If the vapour pressure of water at 100°C is 760 mm Hg, calculate the vapour pressure of the solution.



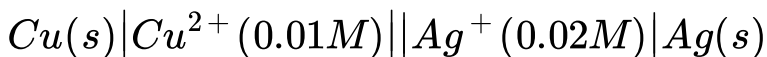
Watch Video Solution

73. Under what condition normality and molarity of a solution become identical?



Watch Video Solution

74. For a standard cell,



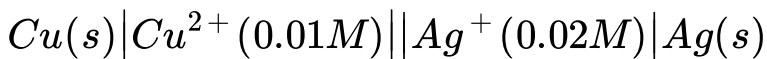
$$E^0_{Cu^{2+} | Cu} = + 0.34V, E^0_{Ag^{+} / Ag} = + 0.80V$$

Identify the cathode and anode as the current is drawn from the cell.



Watch Video Solution

75. For a standard cell,



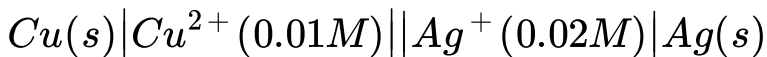
$$E_{Cu^{2+} | Cu}^0 = +0.34V, E_{Ag^{+} / Ag}^0 = +0.80V$$

Write the reactions taking place at the electrodes.



Watch Video Solution

76. For a standard cell,



$$E_{Cu^{2+} | Cu}^0 = +0.34V, E_{Ag^{+} / Ag}^0 = +0.80V$$

Calculate EMF of the cell at $25^{\circ}C$.



Watch Video Solution

77. Write anode and cathode reactions of $H_2 - O_2$ fuel cell.



Watch Video Solution

78. How do electrochemical reactions occur in dry cell?



Watch Video Solution

79. What is the use of Pt-foil in the hydrogen electrode?



Watch Video Solution

80. Why are sulphide ores concentrated by froth floatation process?



Watch Video Solution

81. What is poling?



Watch Video Solution

82. Why is cryolite added with alumina during extraction of aluminium?



Watch Video Solution

83. Describe the oxidising action of potassium dichromate in H_2SO_4 solution with the following-

(i) H_2S

(ii) $Na_2S_2O_3$

(iii) $NaCl$



View Text Solution

84. Identify A to F:



View Text Solution

85. What is the function of anhydrous $ZnCl_2$ in Lucas test for distinction between 1° , 2° and 3° alcohols?



[Watch Video Solution](#)

86. Give reason for the following: (a) p-nitrophenol is more acidic than o-nitrophenol. (b) Phenol is more reactive towards electrophilic substitution reaction than benzene.



[Watch Video Solution](#)

87. An ether A ($C_5H_{12}O$) when heated with excess hot concentrated HI produced two alkyl halides which on hydrolysis give B and C. Oxidation of B gives an acid D whereas oxidation of C gives ketone E. Both B and C give

haloform reaction. Identify A to E along with their structures and the given reactions.



Watch Video Solution

88. An organic compound A (C_2H_3N) is used as a solvent of choice for many organic reactions because it is not reactive in mild acidic and basic conditions. Compound A on treatment with Ni/H_2 forms B. When B is treated with nitrous acid at 273K, ethanol is obtained. When B is warmed with chloroform and NaOH, a foul smelling compound C is formed. Identify A to C along with their structures and given reactions.



Watch Video Solution

89. Convert: Cyanobenzene to Cinnamic acid



Watch Video Solution

90. Identify A to F:



The two strands in DNA are not identical but complementary. Explain.



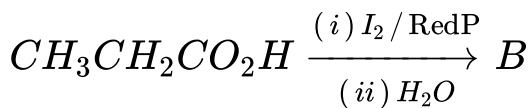
View Text Solution

91. Identify A to J:



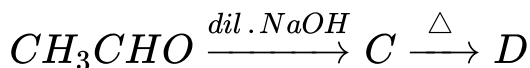
View Text Solution

92. Identify A to J:



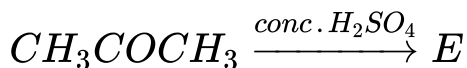
View Text Solution

93. Identify A to J:



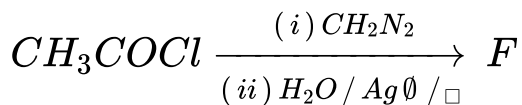
Watch Video Solution

94. Identify A to J:



[Watch Video Solution](#)

95. Identify A to J:

[Watch Video Solution](#)

96. Identify A to J:

[View Text Solution](#)

97. Identify A to J:



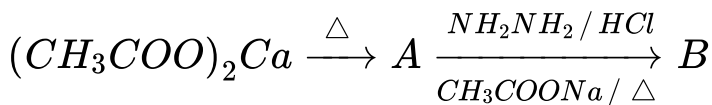
 [View Text Solution](#)

98. Identify A to J:



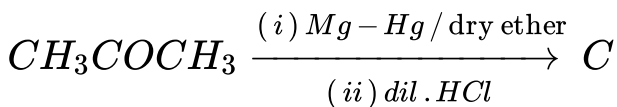
 [View Text Solution](#)

99. (i) Identify A to F:



 [Watch Video Solution](#)

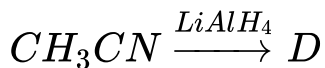
100. (i) Identify A to F:





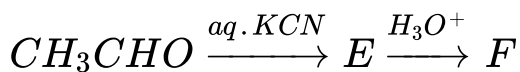
Watch Video Solution

101. (i) Identify A to F:



Watch Video Solution

102. (i) Identify A to F:



Watch Video Solution

103. Convert:





[View Text Solution](#)

104. $3A + 2B + C \rightarrow C \rightarrow D + E$. For the given reaction, the relative order of the reaction with respect to A, B and C are one, two and zero respectively. Write down the rate of the reaction in differential form. What would be rate of reaction if concentration of A, B and C are doubled?



[Watch Video Solution](#)

105. Why chlorine is not the most powerful oxidising agent inspite of its highest value of electron gain enthalpy?

 [Watch Video Solution](#)

106. Bond angle in NH_3 is 107° while that of PH_3 is 94° .
Explain.

 [Watch Video Solution](#)

107. SF_6 is chemically inactive. Explain.

 [Watch Video Solution](#)

108. Draw dipolar structure of ozone.

 [Watch Video Solution](#)

109. P_2O_5 can dimerise but N_2O_5 cannot. Explain with structure.



Watch Video Solution

110. Give an example of a compound where bismuth shows + 5 oxidation state.



Watch Video Solution

111. Write down the compound of group 18 which was first prepared.



View Text Solution

112. Closest packing of atoms in cubic system, the number of atoms surrounding an atom in one layer is-

A. 2

B. 4

C. 6

D. 8

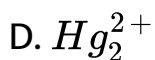
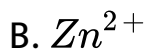
Answer: B



Watch Video Solution

113. Which of the following ions if reduced under standard conditions, will have negative reduction

potential-



Answer: B



Watch Video Solution

114. The diameters of colloidal particles may range from-

A. 1 to 1000 nm

B. 10 to 100 pm

C. 10 to 100 nm

D. 1 to 100 nm

Answer: A



Watch Video Solution

115. The pseudohalogen amongst the following is-

A. NO

B. CO

C. Cl_2

D. C_2N_2

Answer: D



[View Text Solution](#)

116. The common oxidation state of lanthanides and actinides is-

A. +1

B. +2

C. +3

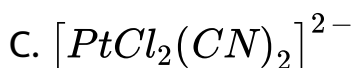
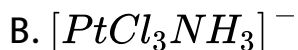
D. +4

Answer: C



[Watch Video Solution](#)

117. The following square planar complex shows cis-trans isomerism-



Answer: C



Watch Video Solution

118. Which of the following factor does not favour S_N1 , elimination in alkyl chloride-

A. stability of R^{\oplus}

B. steric hindrance

C. protic Solvent

D. aprotic Solvent

Answer: D



Watch Video Solution

119. A primary alcohol can be oxidised to an aldehyde by choosing the reagent-

A. $KMnO_4$, HO^{\oplus}

B. $K_2Cr_2O_7$, H^{\oplus}

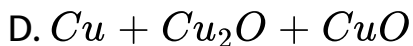


Answer: C



View Text Solution

120. when acetaldehyde is heated with Fehling's solution, it gives a precipitate of-



Answer: C



Watch Video Solution

121. Which of the following polymers may be classified as step growth polymer?

A. teflon

B. PVC

C. polyethene

D. nylon 6,6

Answer: D



View Text Solution

122. Which of the following is not the male sex hormone-

- A. testosterone
- B. dihydrotestosterone
- C. androgens
- D. estrogens

Answer: D



Watch Video Solution

123. Which of the following is antipyretic-

- A. aspirin

B. narcotics

C. phenol

D. chloroform

Answer: A



Watch Video Solution

124. Allergy in the body is caused by the production of-

A. vitamins

B. hormone

C. histamine

D. ezymes

Answer: C



Watch Video Solution

125. What do you mean by salting out?



Watch Video Solution

126. Write down the structure of Fe_2Cl_6 .



Watch Video Solution

127. Calculate spin only magnetic moment of Ni^{2+} ion.



Watch Video Solution

128. Name an antiseptic which is dye.



Watch Video Solution

129. Which forces are involved in holding the drugs to active sides of drugs?



Watch Video Solution

130. What do you mean by equivalent conductance?



Watch Video Solution