CHEMISTRY

BOOKS - JMD CHEMISTRY (PUNJABI ENGLISH)

CHEMICAL KINETICS

Example

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

A. Potassium sulphate

B. Sodium chloride

C. Urea

D. Glucose

Answer: A

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2. Molarity of expressed in

A. $gram / litre$

B. $litre/mol$

C. $mol/litre$

D. mol/kg

Answer: D

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3. The freezing point of equimolar aqueous solutions will be highest for

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4. Osmotic pressure of a solution is 0.0821 atm

at temperature of 300 K. The concentration of

solution in $mol/litre$ will be

A. 0.33

B. 0.066

C. 0.3×10^{-2}

D. 3

Answer: C

5. Shape of $XeOF_4$ is :

A. octahedral

B. square pyramidal

C. pyramidal

D. T-shaped.

Answer: B

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6. No. of unpaired electrons in Fe^{2+} ions is :

A. 2

B. 4

C. 6

D. 3

Answer: B

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7. Write the IUPAC name of $K_3[Fe(CN)_5NO]$.

A. potassium pentacyanonitrosylferrare(II)

B. potassium pentacyanonitrile(II)

C. potassium pentacyanonitrosylferrate(III)

D. None of these.

Answer: A

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8. The correct IUPAC name of $\left[Pt(NH_3)_2Cl_2\right]$ is:

A. diamminedichloridoplatinum(II)

B. diamminedichloridoplatinum(IV)

C. diamminedichloridoplatinum(0)

D. chloridodiammineplatinum(IV)

Answer: A

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9. The test used to distinguish alcohols from one another is known as

    A. Hinsberg's test

    B. 2,4-DNP test

    C. Iodoform test

    D. Lucas test.

Answer: D

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10. Methyl ketones are characterized through

A. Tollen's reagent

B. Iodoform test

C. Schiff's test

D. None of these.

Answer: B

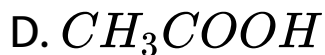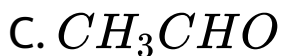**11.** IUPAC name of is

   A. Hexanal aldehyde

   B. Hexanal

   C. Cychlohexanacarbaldehyde

   D. None.

Answer: C

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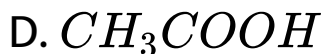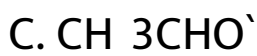**12.** Which of the following cannot reduce Tollen's reagent?

A. $HCOOH$

B. $HCHO$

C. CH_3CHO

D. CH_3COOH

Answer: D

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13. Which of the following cannot reduce Fehling solution?

A. $HCOOH$

B. $HCHO$

C. CH_3CHO`

D. CH_3COOH

Answer: D

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14. What is Hofmann bromamide degradation reaction ?

A. $Ar - NH_2$

B. $Ar - CONH_2$

C. $Ar - NO_2$
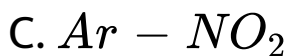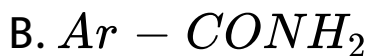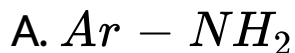
D. None of these.

Answer: B

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15. Write the chemical name of vitamin B_1 and the disease caused by its deficiency.

A. Ber-Beri

B. Ricket

C. Acaemine

D. Xerosis

Answer: A

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16. Which of the following is not an amino acid? Glycine, Aniline, Histidine, Lysine.

A. Glycine

B. Aniline

C. Histidine

D. Lysine

Answer: B

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17. The standard reduction potential of three metallic cations X, Y and Z are $+0.52, -3.03$ and -1.18 v respectively. The order of reducing power is:

   A. $Y > Z > X$

   B. $X > Y > Z$

   C. $Z > Y > X$

   D. $Z > X > Y$

Answer: A

18. Read the following passage and answer the questions.

Adsorption is surface phenomenon and its differ from absorption, Which occurs throughout the body of the substance which abosorbs. In physisorption, the attractive forces are mainly van der waals forces while in chemisorption actual bonding occuars between the particles of absorbent and absorbate. Generelly, easily liquifying gases are absorved more easily on the surface of a solid

as compared to the gases which are liquified with difficulty. Adsorption increases with the increase in pressure and decreases as the temparature is increased.

Arrange the following gases in the decreasing order of the ease with which they are adsorbed on charcoal. H_2, CH_4, CO_2 and NH_3

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What is the effect of pressure on the extent of adsorption ?

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What is the effect of temperature on the extent of adsorption ?

21. Read the following passage and answer the questions.

Adsorption is surface phenomenon and its differ from absorption, Which occurs throughout the body of the substance which absorbs. In physisorption, the attractive forces are mainly van der waals forces while in chemisorption actual bonding occurs between the particles of absorbent and absorbate. Generally, easily liquifying gases are absorbed

more easily on the surface of a solid as compared to the gases which are liquified with difficulty. Adsorption increases with the increase in pressure and decreases as the temperature is increased.

Is the process of adsorption exothermic or endothermic ?

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22. Read the following passage and answer the questions.

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Out of physisorption and chemisorption which has more enthalpy of adsorption ?

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23. Carbylamine test is positive only in case of $1°$ aliphatic amines.

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24. In the presence of air and light, chloroform is slowly oxidised to phosgene.

25. Carbonylcompounds undergonucleophilic addition reactions. Justify.

26. Lucas reagent is a mixture of conc. HCL and $ZnCl_2$.

27. Write chemical name of Vitamin B_2.

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

29. Vapour pressure of pure water at 298 k is 23.8 mm Hg. 50 g of urea (NH_2CONH_2) is dissolved in 850 g of water. Calculate the vapour pressure of water for this solution and it's relative lowering.

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30. Explain depression in freezing point. How depression in freezing point can be used to

find molar mass of a non-volatile solute?

Define molal depression constant.

31. A first order reaction takes 69.3 minutes for 50% completion. Calculate time required for 80% completion of the reaction.

32. 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?

33. Write short note on dry cell.

34. Draw structure of BrF_3.

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35. Compare the acidic strength of $HClO_4$, $HClO_3$, $HClO_2$, HClO. Give reasons.

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36. Arrange $HClO_4, HClO_3, HClO_2, HClO$ in order of

oxidising power

Give reason.

37. Give the preparation, hybridisation and structure of XeF_4 (XenonTetrafluoride)

38. Explain why copper (I) compounds are white

while copper (II) compounds are coloured ?

39. Why are Mn^{2+} compounds more stable than Fe^{2+} compounds towards oxidation to their +3 state ?

40. Discuss structure of $[Co(NH_3)_6]^{3+}$ ion the basis of V.B.T.

41. Define chelate and chelating ligand. Give one example of chelate complex.

42. Show that for a first order reaction, the time taken to complete half of the change is Independent of the initial concentration of the reactant.

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

44. Write short on victor Meyer's test to distinguish between $1°$, $2°$ and $3°$ alcohols.

45. What happens when $1°$, $2°$ and $3°$ alcohols are passed over red hot copper ? Give equations.

46. A first order reaction is 20% complete in the 10 minutes. Calculate the time period for 75% completion of the reaction.

47. The rate constant for a zero order reaction is 0.0030 mol $L^{-1}s^{-1}$. How long will it tak for the initial concentration for the reactant to fall from 0.01 M to 0.075 M?

48. Give two examples to show the anomalous behaviour of fluorine.

49. Why is chloroform stored in dark coloured bottles ?

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50. Why a small amount of ethyl alcohol is usually added to chloroform bottlkes ?

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51. Give formula and IUPAC name of DDT.

52. The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride. Explain.

53. Explain the following :

Hoffmann amonolysis

54. how ionic radius of elements of first transition series change in the period?

55. A transition metal exhibits higher oxidation states in oxides and flourides. Why?

56. Predict the magnetic moment of Cu^{2+} ion.

(For Cu, $Z = 29$).

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57. Why does Mn(II) shows maximum paramagnetic character among the divalent ions of first transition series ?

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58. Explain why Cu(I) is diamagnetic while

Cu(II) is

paramagnetic.

59. Transition elements and their compounds

are found to be good catalysts. Give examples.

60. The $E^\circ\left(M^2\,\dfrac{+}{M}\right)$ value for copper is positive (+0.34

V). What is the possible reason for this ?

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

A. Potassium sulphate

B. Sodium chloride

C. Urea

D. Glucose

Answer: A

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62. Molality of expressed in

A. $gram/litre$
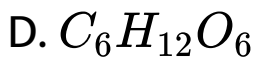
B. $litre/mol$

C. $mol/litre$

D. mol/kg

Answer: D

63. The freezing point of equimolar aqueous solutions will be highest for

A.

B. $Ca(NO_3)_2$

C. $La(NO_3)_3$

D. $C_6H_{12}O_6$

Answer: D

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64. Osmotic pressure of a solution is 0.0821 atm at temperature of 300 K. The concentration of solution in $mol/litre$ will be

A. 0.33

B. 0.066

C. 0.33×10^{-2}

D. 3

Answer: C

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65. Shape of $XeOF_4$ is :

A. octahedral

B. square pyramidal

C. pyramidal

D. T-shaped.

Answer: B

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66. No. of unpaired electrons in Fe^{2+} ions is :

A. 2

B. 4

C. 6

D. 3

Answer: B

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67. Write the IUPAC name of $K_3\left[Fe(CN)_5 NO\right]$.

A. potassium pentacyanonitrosylferrare(II)

B. potassium pentacyanonitrile(II)

C. potassium pentacyanonitrosylferrate(III)

D. None of these.

Answer: A

68. The correct IUPAC name of $\left[Pt(NH_3)_2Cl_2\right]$

is:

A. diamminedichloridoplatinum(II)

B. diamminedichloridoplatinum(IV)

C. diamminedichloridoplatinum(0)

D. chloridodiammineplatinum(IV)

Answer: A

69. The test used to distinguish alcohols from one another is known as

    A. Hinsberg's test

    B. 2,4-DNP test

    C. Iodoform test

    D. Lucas test.

Answer: D

70. Methyl ketones are characterized through

    A. Tollen's reagent

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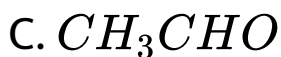   D. None of these.

Answer: B

71. IUPAC name of is

A. Hexanal aldehyde

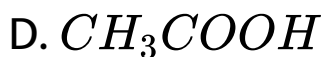B. Hexanal

C. Cychlohexanacarbaldehyde

D. None.

Answer: C

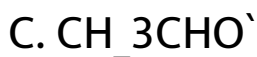**72.** Which of the following cannot reduce Tollen's reagent?

A. $H\mathbb{C}OH$

B. $HCHO$

C. CH_3CHO

D. CH_3COOH

Answer: D

73. Which of the following cannot reduce Fehling solution?

A. $HCOOH$

B. $HCHO$

C. CH_3CHO`

D. CH_3COOH

Answer: D

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74. What is Hofmann bromamide degradation reaction ?

A. $Ar - NH_2$

B. $Ar - CONH_2$

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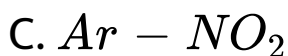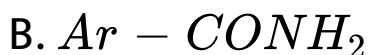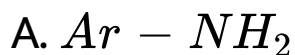
D. None of these.

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75. Write the chemical name of vitamin B_1 and the disease caused by its deficiency.

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76. Which of the following is not an amino acid? Glycine, Aniline, Histidine, Lysine.

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77. The standard reduction potential of three metallic cations X, Y and Z are $+0.52, -3.03$ and -1.18 v respectively. The order of reducing power is:

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78. Read the following passage and answer the questions.

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