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Previous Year Paper

Chemistry - 2006

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Multiple Choice Questions

1. If an organic compound has C = 40%, H = 13.3% and N = 46.67%, then the empirical formula of this compound is
- A. CH_4N
 - B. $\text{C}_2\text{H}_8\text{N}_2$
 - C. CH_3N
 - D. None of these

[Answer](#)

2. The values for all the quantum numbers for 15th electron of chlorine are
- A. $n = 3; l = 1; m = 0; s = -1/2$
 - B. $n = 4; l = 2; m = 0; s = +1/2$
 - C. $n = 3; l = 1; m = +1; s = +1/2$
 - D. $n = 2; l = 0; m = 0; s = +1/2$

[Answer](#)

3. Outermost configuration for $Z = 25$, is
- A. $4s^2, 3d^5$
 - B. $5s^2, 4d^5$
 - C. $4s^2, 3d^3$
 - D. $4s^2, 3d^1$

[Answer](#)

4. The type of hybridisation present in each carbon of benzene is
- A. sp^3
 - B. sp^2
 - C. sp
 - D. None of these

[Answer](#)

5. Which of the following is incorrect for radial distribution curve?
- A. $n = 2; l = 0; \text{Node} = 1$
 - B. $n = 3; l = 0; \text{Node} = 2$
 - C. $n = 2; l = 1; \text{Node} = 0$
 - D. $n = 3; l = 2; \text{Node} = 1$

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6. If H^+ concentration of fruit juice is 3.3×10^{-4} , then its pH will be

- A. 4.8 basic
- B. 4.8 neutral

C. 4.8 acidic

D. 1.6 acidic

Answer

7. If the value of bond order is zero, then

- A. molecule will be stable
- B. molecule will be unstable
- C. molecule will be in ionic state
- D. None of the above

Answer

8. Which is responsible for the diagonal relation of lithium with magnesium?

- A. Less ionic radii
- B. High polarising power
- C. Approximately equal electronegativity and affinity
- D. All of the above

Answer

9. Bond order of N_2 molecule is

- A. 3
- B. 2
- C. 1
- D. 0

Answer

10. Which of the following is a proper match?

$r+r^-$	Shape
A. 0.115 - 0.225	i. Triangular
B. 0.225 - 0.414	ii. Tetrahedral
C. 0.414 - 0.732	iii. Cubic
D. 0.732 - 1	iv. Octahedral

- A. A - i; B - ii; C - iv; D - iii
- B. A - iii; B - ii; C - iv; D - i
- C. A - i; B - iii; C - ii; D - iv
- D. A - ii; B - iv; C - i; D - iii

Answer

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11. The correct order of the acidity of following acids is-

CH_3COOH , HCOOH , $\text{Cl-CH}_2\text{COOH}$, $\text{F-CH}_2\text{COOH}$, $(\text{Cl}_2)\text{CHCOOH}$

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A. $\text{Cl}_2\text{CHCOOH} > \text{F-CH}_2\text{COOH} > \text{Cl-CH}_2\text{COOH} > \text{HCOOH} > \text{CH}_3\text{COOH}$

B. $\text{F-CH}_2\text{COOH} > \text{Cl-CH}_2\text{COOH} > \text{Cl}_2\text{CHCOOH} > \text{HCOOH} > \text{CH}_3\text{COOH}$

C. $\text{HCOOH} > \text{CH}_3\text{COOH} > \text{Cl-CH}_2\text{COOH} > \text{Cl}_2\text{CHCOOH} > \text{F-CH}_2\text{COOH}$

D. None of the above

Answer

12. In an adiabatic process which of the following is true?

A. $q = +W$

B. $q = 0$

C. $\Delta E = q$

D. $p\Delta V = 0$

Answer

13. Zwitter ion is

A. a dipolar ion

B. ion formed from amino acid

C. internal salt

D. All of the above

Answer

14. Equation $\log K_2/K_1 = \Delta H/2.303 R (1/T_2 - 1/T_1)$, n is

A. van der Waals' equation

B. Kirchoffs equation

C. Gas equation

D. van't Hoff equation

Answer

15. Number of α and β emitted in the reaction, ${}_{92}\text{U}^{238} \rightarrow {}_{82}\text{Pb}^{206}$ are

A. 6α and 8β

B. 8α and 6β

C. 6α and 4β

D. 4α and 6β

Answer

16. According to MOT which of the following is correct for potassium hexa cyano ferrate (III)?

A. It is octahedral complex.

B. t_{2g} orbital contains the e^- of metal.

C. For iron, overlapping between empty orbitals and ligand orbitals takes place.

D. All of the above

Answer

17. Solubility product of pure PbCl_2 will be

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C. $K_{sp} = 108 S^5$

D. $K_{sp} = S$

Answer

18. Which of the following statement is correct?

A. Basic nature increases on increasing pH

B. Basic nature decreases on increasing pH

C. Acidic nature increases on increasing pH

D. None of the above

Answer

19. The required condition for an ideal solution is

A. $\Delta H_{mix} = 0$

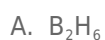
B. $\Delta V_{mix} \neq 0$

C. $p_A \neq p_A^\circ X_A$

D. $\Delta H_{mix} > 1$

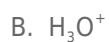
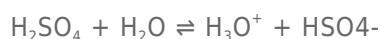
Answer

20. Which of the following is an electron deficient compound?



Answer

21. Which one of the following is conjugate acid of water in the reaction?



Answer

22. The product of H^+ and OH^- of water will be

A. $K_w = 10^{-12}$

B. $K_w = 10^{-14}$

C. $K_w = 10^{-11}$

Answer

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23. For NaCl , the $K_{sp} = 36 \text{ mol}^2 \text{ L}^{-2}$, the molar concentration of it will be

- A. 136M
- B. 116 M
- C. 36 M
- D. 6 M

Answer

24. Which of the following can be used to convert N714 into O817?

- A. Deuteron
- B. Proton
- C. α -particle
- D. Neutron

Answer

25. First ionisation potential is highest for

- A. Na
- B. Mg
- C. Al
- D. None of these

Answer

26. In the equilibrium reaction $2\text{HI}(\text{g}) \rightleftharpoons \text{H}_2 + \text{I}_2$ which of the following expressions is true?

- A. $K_p = K_c$
- B. $K_c = 2K_p$
- C. $K_p > K_c$
- D. $K_c = K_p (RT)^2$

Answer

27. In the following, the element with the highest electropositivity is

- A. copper
- B. cesium
- C. barium
- D. chromium

Answer

28. Which of the following describes the shape of orbital?

- A. Principal quantum number
- B. Azimuthal quantum number
- C. Magnetic quantum number
- D. Spin quantum number

Answer

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A. ClO^-

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B. ClO_2^- C. ClO_3^- D. ClO_4^-

Answer

30. Which of the following has zero dipole moment?

A. ClF B. PCl_3 C. SiF_4 D. CFCl_3

Answer

31. TEL is

A. a petrol fuel

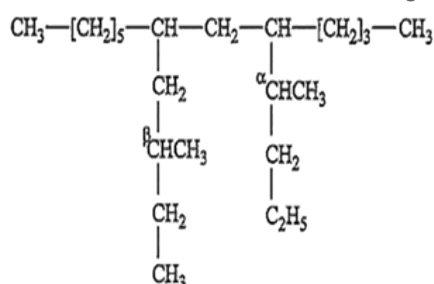
B. anti-knocking compound

C. Gasoline

D. insecticide

Answer

32. The IUPAC name of the following compound is:



A. 7 [β-methyl butyl]; 9 butyl tridecane

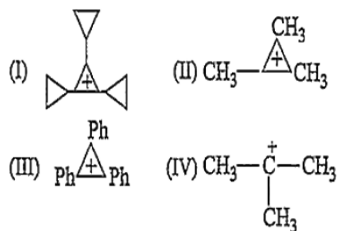
B. 3 [β-ethyl butyl]; 9 ethyl tridecane

C. 2 [β-ethyl ethenyl]; 8 propyl decane

D. None of the above

Answer

33. The correct order of stability of following carbocation is



A. (III) > (II) > (I) > (IV)

B. (II) > (III) > (I) > (IV)

Answer

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34. The colour of $K_2Cr_2O_7$ in acidic medium is

- A. red
- B. green
- C. yellow
- D. pink

Answer

35. Baeyer's reagent decolourises which of the following?

- A. Alkane
- B. Alkene
- C. Alkene and alkyne both
- D. None of the above

Answer

36. When MnO_2 is fused with KOH , a coloured compound is formed. The product and its colour is

- A. K_2MnO_4 , purple green
- B. $KMnO_4$, purple
- C. Mn_2O_3 , brown
- D. Mn_2O_4 , black

Answer

37. Total number of isomers of $C_4H_{10}O$ is

- A. 7
- B. 4
- C. 3
- D. 8

Answer

38. Formula of washing soda is

- A. $Na_2CO_3 \cdot 10H_2O$
- B. Na_2CO_3
- C. $Na_2SO_4 \cdot 10H_2O$
- D. None of the above

Answer

39. CO_2 gas obtained by the combustion of 12 mL butane gas is

- A. 3 mL
- B. 12 mL
- C. 24 mL
- D. 48 mL

Answer

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A. diamine dichloro platinum (II)

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B. amine, chloro platinum (II)

C. chloro diamine platinum (II)

D. None of the above

Answer

41. Radioactive hydrogen is

A. tritium

B. deuterium

C. *ortho* hydrogenD. *para* hydrogen

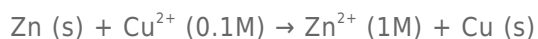
Answer

42. Which of the following does not show optical isomerisation?

A. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ B. $[\text{Co}(\text{ox})_3]^{3-}$ C. $[\text{Co}(\text{en})_3]^{3+}$ D. $[\text{Cr}(\text{diph})_3]^{3+}$

Answer

43. For the redox reaction,

taking place in a cell, E_{cell}° is 1.10 V. E_{cell} for the cell will be $2.303RT/F = 0.0591$

A. 2.14 V

B. 1.80 V

C. 0.82 V

D. 1.07 V

Answer

44. Which of the following occurs at anode?

A. Reduction

B. Oxidation

C. Both (a) and (b)

D. None of these

Answer

45. $\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$ - QThe unit of K_p for the given reaction is

A. atmosphere

B. atmosphere^2 Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

D. None of these

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[Answer](#)

46. The reaction



- A. Wurtz reaction
- B. Kolbe's reaction
- C. Sabatier-Senderens reaction
- D. Carbylamine reaction

[Answer](#)

47. Which one of the following is a good conductor of electricity?

- A. Diamond
- B. Graphite
- C. Silicon
- D. Amorphous carbon

[Answer](#)

48. Coordination number 8 : 8 is of

- A. CsCl
- B. KCl
- C. NaCl
- D. ZnS

[Answer](#)

49. Which of the following inert gas is soluble in water?

- A. He
- B. Ne
- C. Ar
- D. Xe

[Answer](#)

50. Cupellation method is used for the extraction of

- A. Cu
- B. Ag
- C. Na
- D. Al

[Answer](#)

51. AgNO₃ gives red colour with

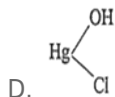
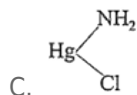
- A. NaCl
- B. NaBr
- C. NaI

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Answer

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52. Calomel is



Answer

53. The number of paired electrons in Xe atom of XeF_2 is

A. 3

B. 5

C. 4

D. 2

Answer

54. Hydrolysis of XeF_6 gives

Answer

55. Which of the following is a colligative property?

A. Surface tension

B. Viscosity

C. Osmotic pressure

D. Vapour pressure

Answer

56. A chemical reaction is catalysed by 'X', therefore, 'X'

A. increases the activation energy.

B. does not affect the equilibrium constant of the reaction.

C. decreases the enthalpy of the reaction.

D. decreases the velocity constant of the reaction.

Answer

57. The half-life of a radioactive isotope is 3 h. If the initial mass of the isotope were 256 g, the mass of it remaining undecayed after 18 h would be

A. 8.0 gm

B. 4.0 gm

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D. 16.0 gm

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58. Which of the following differs in EAN?

- A. $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
- B. $\text{K}_4[\text{Fe}(\text{CN})_6]$
- C. $\text{K}_2[\text{ZnCl}_4]$
- D. $\text{K}_2[\text{HgI}_4]$

Answer

59. Which of the following complex neutralises three molecules of AgNO_3 ?

- A. $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
- B. $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$
- C. $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$
- D. $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$

Answer

60. $\text{Zn} | \text{Zn}^{2+} || \text{Cu}^{2+} | \text{Cu}$

If the standard reduction potential of zinc electrode and copper half cell is -0.76 V and 0.34 V respectively then the emf will be

- A. 1.1 V
- B. 1.4 V
- C. 1.34 V
- D. None of these

Answer

61. The expression for velocity constant for the second order reaction is

- A. $k = 2.303t \log_{10} \frac{a}{a-x}$
- B. $k = \frac{1}{t} \frac{x}{a(a-x)}$
- C. $k = \frac{1}{t} \frac{x^2}{a^2(a-x)^2}$
- D. None of the above

Answer

62. The unit of rate constant for second order reaction is

- A. s^{-1}
- B. $\text{mol} / \text{L}^{-1}$
- C. $\text{L mol}^{-1} \text{s}^{-1}$
- D. $\text{L}^2 \text{mol}^{-2} \text{s}$

Answer

63. Which of the following, on heating with ammonia gives urotropin?

- A. Formaldehyde

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C. Acetone

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D. Benzaldehyde

Answer

64. Interionic distance for CsCl crystal is

- A. a
- B. a^2
- C. $34a$
- D. $2a^3$

Answer

65. How many space lattices are obtained from the different crystal systems?

- A. 7
- B. 14
- C. 32
- D. 230

Answer

66. Parke's process is used for the extraction of

- A. iron
- B. sodium
- C. silver
- D. zinc

Answer

67. The common method of extraction of metals from oxide ores is

- A. reduction with carbon
- B. reduction with hydrogen
- C. reduction with aluminium
- D. electrolytic method

Answer

68. The transition metals mostly are

- A. diamagnetic
- B. paramagnetic
- C. neither diamagnetic nor paramagnetic
- D. both diamagnetic and paramagnetic

Answer

69. Four solutions A, B, C, D has glucose 0.5 M, NaCl 0.1 M, BaCl_2 0.5 M and MgCl_2 0.1 M, then which of the following will have highest osmotic pressure?

- A. Glucose
- B. BaCl_2
- C. MgCl_2

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Answer

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70. The highest boiling point is of

- A. FeCl_2
- B. FeCl_3
- C. $\text{Al}_2(\text{SO}_4)_3$
- D. AlCl_3

Answer

71. For an ionic crystal of the general formula AX and coordination number is 6, the value of radius ratio will be

- A. greater than 0.73
- B. in between 0.73 and 0.41
- C. in between 0.41 and 0.22
- D. less than 0.22

Answer

72. Number of ions for the complex $[\text{Co}(\text{NH}_3)_4\text{Cl}]\text{Cl}_2$ shown by the conductivity measurement, is

- A. 2
- B. 4
- C. 3
- D. 1

Answer

73. Rusting on iron needs

- A. dry air
- B. air and water
- C. distilled water and carbon dioxide
- D. oxygen and carbon dioxide

Answer

74. For a reaction of the type $\text{A} + \text{B} \rightarrow \text{products}$, it is observed that doubling the concentration of A causes the reaction rate to be four times as great, but doubling the amount of B does not affect the rate. The rate equation is

- A. $\text{Rate} = k[\text{A}][\text{B}]$
- B. $\text{Rate} = k[\text{A}]^2$
- C. $\text{Rate} = k[\text{A}]^2[\text{B}]$
- D. $\text{Rate} = k[\text{A}]^2[\text{B}]^2$

Answer

75. Unit of first order rate constant is

- A. mol L s

B. $\text{mol}^{-1} \text{L}^{-1} \text{s}^{-1}$ Like. Share. Bookmark. Download. Make Notes. Print - Your Favourite Questions. Join www.zigya.com

D, s^{-1} , min^{-1} , etc

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Answer

76. The formula of a phosphate of a metal M, is MPO_4 . The formula of its nitrate will be

- A. MNO_3
- B. $M(NO_3)_2$
- C. $M(NO_3)_3$
- D. $M_2(NO_3)_3$

Answer

77. The d-block elements consists mostly of

- A. mono-valent metals
- B. all non-metals
- C. elements which generally form stoichiometric metal oxide
- D. many metals with catalytic properties

Answer

78. A mixture containing Cu^{2+} and Ni^{2+} can be separated for identification by

- A. passing H_2S in acid medium
- B. passing H_2S in alkaline medium
- C. passing H_2S in neutral medium
- D. passing H_2S in dry mixture

Answer

79. Which one of the following is an example of non-typical transition elements?

- A. Li, K, Na
- B. Be, Al, Pb
- C. Zn, Cd, Hg
- D. Ba, Ca, Sr

Answer

80. In galvanic cell, the salt bridge is used to

- A. complete the circuit
- B. reduce the electric resistance in the cell
- C. separate cathode from anode
- D. carry salts for the chemical reaction

Answer

81. DDT is related to

- A. insecticide
- B. fungicide
- C. chlorination
- D. fluorination

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82. Number of peptide bonds in dipeptide is

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- A. 2
- B. 1
- C. 3
- D. 4

Answer

83. Blood sugar is

- A. fructose
- B. maltose
- C. haemoglobin
- D. glucose

Answer

84. Lactose sugar is formed from

- A. *d*-galactose
- B. *d*-glucose
- C. *d*-galactose and *d*-glucose
- D. *d*-glucose and *d*-fructose

Answer

85. Vitamin-B₁₂ contains

- A. CO
- B. Fe
- C. Zn
- D. Ca

Answer

86. Night blindness is caused due to the deficiency of

- A. B₁₂
- B. A
- C. C
- D. D

Answer

87. RNA does not contain

- A. thymine
- B. adenine
- C. guanine
- D. uracil

Answer

88. Reaction of dry HCl with acetone gives

- A. aldol

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C. isopropyl alcohol

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D. None of the above

Answer

89. $C_2H_5OH \xrightarrow{NaOH} A \xrightarrow{KOH} B$ Aqueous B

In equation given above A and B respectively are:

- A. CH_3I and $HCOOK$
- B. CH_3I and CH_3COOK
- C. CH_4 and $HCOOK$
- D. CH_3I and H_2

Answer

90. Trioxane has the formula  , it is prepared from

- A. formaldehyde
- B. methanol
- C. dichloromethane
- D. vinyl alcohol

Answer

91. Natural rubber is

- A. butadiene
- B. isoprene
- C. neoprene
- D. None of the above

Answer

92. Monomer of polythene is

- A. ethylene
- B. propylene
- C. vinyl chloride
- D. None of the above

Answer

93. Nylon obtained by the condensation of adipic acid with hexamethylene diamine

- A. nylon 6, 6
- B. nylon 7, 6
- C. nylon 6, 5
- D. nylon 9, 7

Answer

94. Percentage of oxygen in phenol is

- A. 17.02

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C. 16

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Answer

95. $C_6H_6 + Cl_2 \rightarrow$ Sunlight Product

- A. BHC
- B. Chloro benzene
- C. Dichloro benzene
- D. None of the above

Answer

96. Aniline reacts with chloroform in the presence of KOH to give

- A. phenol
- B. chlorobenzene
- C. phenyl cyanide
- D. phenyl isocyanide

Answer

97. When methyl cyanide is hydrolysed in presence of alkali, the product is

- A. acetamide
- B. methane
- C. $CO_2 + H_2O$
- D. acetic acid

Answer

98. Which compound is not a lipid?

- A. Lecithin
- B. Lysine
- C. Cerebroside
- D. Cephalin

Answer

99. Which one of the following notations shows product incorrectly?

- A. Cm96242 (α , 2n) Bk97243
- B. B510 (α , n) N713
- C. N714 (n, p) C614
- D. Si1428 (d, n) P1529

Answer

100. Reduction of methyl isocyanide gives

- A. ethylamine
- B. methylamine
- C. dimethylamine
- D. trimethylamine

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