

1. Which of the following has minimum energy ?

(a) σ bond

(b) π bond

(c) ionic bond

(d) hydrogen bond

2. The addition of a reagent to an unsymmetric alkene take place in such a way that the negative part of the reagent will be attached to

the carbon atom which containing lesser number of H-atom. This statement belongs to

(a) Markownikoff's rule

(b) Peroxide effect

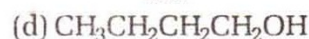
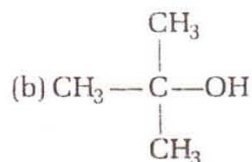
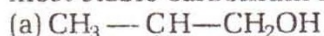
(c) Saytzeff's rule

(d) Le-Chatelier's principle

3. The atomic mass of two elements is same. There are 27 protons in first element and 30 protons in second element. If 30 neutrons are present in first element then neutron in second element will be

- (a) 27 (b) 30
(c) 29 (d) 28

4. Which of the following alcohol will form the most stable carbonium ion on dehydration ?



5. Which of the following is strong reducing agent ?

- (a) Li (b) Na
(c) Al (d) Zn

6. On moving top to bottom in a group

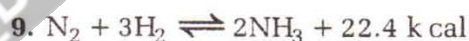
- (a) ionisation potential increases
(b) electronegativity increases
(c) oxidising strength increases
(d) reducing strength increases

7. Power alcohol is

- (a) absolute alcohol + CH_3OH
(b) absolute alcohol + $\text{C}_6\text{H}_5\text{OH}$
(c) absolute alcohol + petrol + benzene
(d) absolute alcohol + CH_3COOH

8. Which of the following is the most stable ion ?

- (a) $\text{CH}_3\text{CH}_2\text{CH}_2^+$ (b) $\text{CH}_3 - \overset{+}{\text{C}}\text{H} - \text{CH}_3$
(c) $(\text{CH}_3)_3\text{C}^+$ (d) $\overset{+}{\text{C}}\text{H}_3$



What are the favourable condition for the formation of ammonia in the above reaction?

- (a) High temperature and low pressure
(b) Low temperature and high pressure
(c) High temperature and high pressure
(d) Low temperature and low pressure

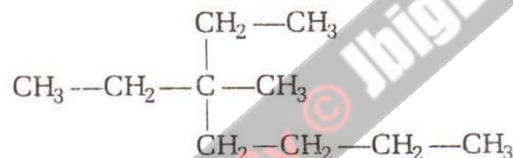
10. Homolytic fission produces

- (a) free radical (b) carbocation
(c) carbonion (d) carbene

11. $\text{CH}_3\text{CH}_2\text{OH}$ and $\text{CH}_3 - \text{O} - \text{CH}_3$ is

- (a) position isomers
(b) functional isomers
(c) chain isomers
(d) geometrical isomers

12. The IUPAC name of



- (a) 3-ethyl-4-methyl hexane
(b) 3-ethyl-3-methyl heptane
(c) 5-methyl-5-ethyl heptane
(d) 2-butyl-2-ethyl butane

13. Alkaline KMnO_4 is called

- (a) Tollen's reagent (b) Baeyer's reagent
(c) Benedict solution (d) None of these

14. Acidic hydrogen is present in :

- (a) $\text{CH}_3 - \text{CH}_3$
(b) $\text{CH}_3\text{CH} = \text{CH}_2$
(c) $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$
(d) $\text{CH}_3 - \text{C} \equiv \text{CH}$

15. The dipole moment of CCl_4 is zero. It is due to :

- (a) planar structure
(b) tetrahedral structure
(c) same size of C and Cl atoms
(d) same electron affinity of C and Cl atoms

16. What will obtain on adding 50% NaOH in bauxite ?

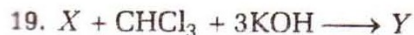
- (a) Al (b) $\text{Al}(\text{OH})_3$
(c) NaAlO_2 (d) Fe

17. Which is deviated from Aufbau's principle?

- (a) $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$
(b) \uparrow $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$
(c) $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$
(d) $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$

18. $\text{CH}_3 - \text{C} \equiv \text{CH} + \text{H}_2\text{O} \xrightarrow{\text{H}^+ / \text{Hg}^{2+}} \text{X}$, Compound X, is

- (a) $\text{CH}_3\text{CH}_2\text{CHO}$ (b) $\text{CH}_3\text{CH}_2\text{COOH}$
(c) CH_3COCH_3 (d) $\text{CH}_3 - \text{CH} = \text{CH}_2$



Y is a abnoxious odour compound. The compound X, is

- (a) CH_3CONH_2 (b) CH_3NH_2
 (c) CH_3OH (d) CH_3Cl

20. The pH of solution which obtains on adding 10 mL 0.2 M NaOH solution with 10 mL 0.1 M H_2SO_4 will be

- (a) zero (b) 2.0
 (c) 4.0 (d) 7.0

21. The shape of electron cloud is determined by

- (a) principal quantum number
 (b) azimuthal quantum number
 (c) spin quantum number
 (d) All of the above

22. The oxidation number of Cr in K_2CrO_4 is

- (a) +3 (b) -3
 (c) +6 (d) -6

23. Which of the following compound contains both ionic and covalent bond ?

- (a) H_2O (b) SO_2
 (c) NH_4Cl (d) NH_3

24. On moving left to right in a period, the electropositive character

- (a) increases
 (b) decreases
 (c) first increases then decreases
 (d) first decreases then increases

25. Bond angle and bond length in benzene are

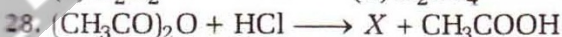
- (a) 120° and 1.34 \AA (b) 120° and 1.39 \AA
 (c) 180° and 1.33 \AA (d) 120° and 1.54 \AA

26. The atomic number of a element is 33. It belongs to

- (a) third period and IVA group
 (b) fourth period and IIIA group
 (c) fourth period and VA group
 (d) third period and VA group

27. Which of the following compound is used as both oxidant and reductant?

- (a) NaOH (b) $\text{K}_2\text{Cr}_2\text{O}_7$
 (c) H_2O_2 (d) H_2SO_4



Compound X, will be

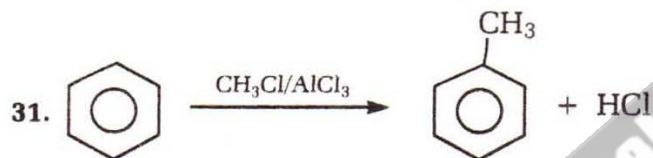
- (a) CH_3Cl (b) CH_3COCl
 (c) CH_3COCH_3 (d) None of these

29. Which of the following is diamagnetic ?

- (a) O_2 (b) NO
 (c) O_2^- (d) F_2

30. Lewis acid is

- (a) Cl^- (b) BF_3
 (c) NH_3 (d) NO_2^-



The above reaction is called

- (a) Gattermann reaction
 (b) Schmidt reaction
 (c) Schotten-Baumann reaction
 (d) Friedel-Craft's reaction

32. Malachite is the ore of which metal?

- (a) Fe (b) Cu
 (c) Al (d) Ag

33. Alkyl halide reacts with alcoholic KOH to give

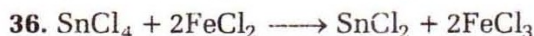
- (a) alcohol (b) alkene
 (c) alkane (d) aldehyde

34. The concentration of pyrite ore is done by which method

- (a) calcination (b) roasting
 (c) froth floatation (d) gravity separation

35. Which of the following reaction will not happen ?

- (a) $\text{Fe} + \text{H}_2\text{SO}_4 \longrightarrow \text{FeSO}_4 + \text{H}_2$
 (b) $\text{Cu} + 2\text{AgNO}_3 \longrightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$
 (c) $2\text{KBr} + \text{I}_2 \longrightarrow 2\text{KI} + \text{Br}_2$
 (d) $\text{CuO} + \text{H}_2 \longrightarrow \text{Cu} + \text{H}_2\text{O}$



In this reaction, oxidising agent and reducing agent are respectively

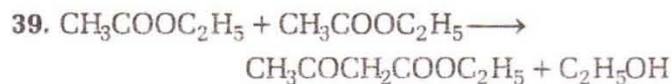
- (a) SnCl_2 and FeCl_3 (b) FeCl_3 and SnCl_4
 (c) FeCl_2 and SnCl_4 (d) SnCl_4 and FeCl_2

37. The molecular weight of ethyl alcohol and dimethyl ether are equal but the boiling point of ethyl alcohol is greater than dimethyl ether. It is due to

- (a) ether is insoluble in water
 (b) methyl group is attached to oxygen in ether
 (c) the dipole moment of ethanol is greater
 (d) ethanol has H-bond

38. Which of the following gives iodoform test and Fehling test ?

- (a) HCHO (b) CH_3COCH_3
 (c) CH_3CHO (d) $\text{CH}_3\text{CH}_2\text{OH}$



This reaction is called

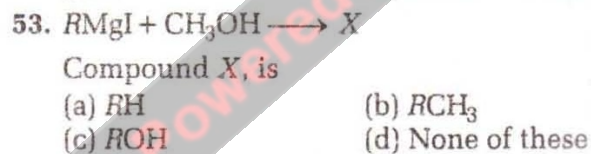
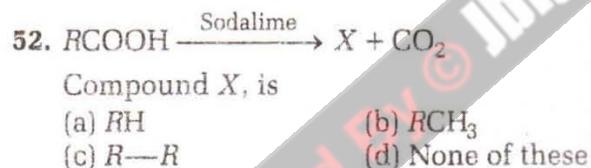
- (a) Esterification
 (b) Claisen condensation
 (c) Williamson's synthesis
 (d) *Trans*-esterification
40. Which is correct for 2p-orbital ?
 (a) $n = 1, l = 2$ (b) $n = 2, l = 1$
 (c) $n = 1, l = 0$ (d) $n = 2, l = 0$
41. Mostly alloys are made by which block of elements
 (a) s-block (b) p-block
 (c) d-block (d) f-block
42. $\text{CH}_3\text{MgI} + \text{CO}_2 \longrightarrow X \xrightarrow{\text{H}_2\text{O}} Y$
 Compound Y, is
 (a) CH_3OH (b) CH_3COOH
 (c) $\text{CH}_3\text{CH}_2\text{OH}$ (d) CH_3CHO
43. Which of the following compound obtains on the reaction of formaldehyde with CH_3MgX ?
 (a) CH_3CHO (b) $\text{CH}_3\text{CH}_2\text{OH}$
 (c) HCOOH (d) CH_3COOH
44. Which of the following is not soluble in conc. H_2SO_4 ?
 (a) n-hexane (b) hexene
 (c) benzene (d) ethanol
45. Conjugated base of HCO_3^- is
 (a) CO_2 (b) H_2CO_3
 (c) H_2O (d) CO_3^{2-}
46. Ethylene can be obtained by the electrolysis of
 (a) potassium fumarate
 (b) potassium succinate
 (c) potassium maleate
 (d) potassium formate
47. The electronic configuration of alkaline earth metal is
 (a) ns^1 (b) ns^2
 (c) np^6 (d) $ns^2(n-1)d^{10}$
48. The oxidation number of C-atom in CH_2Cl_2 and CCl_4 is respectively
 (a) zero and 4 (b) zero and -4
 (c) 2 and 4 (d) -2 and -4
49. $\text{CH}_3\text{—O—C}_3\text{H}_7$ and $\text{C}_2\text{H}_5\text{—O—C}_2\text{H}_5$ show the following isomerism
 (a) position (b) functional
 (c) metamerism (d) tautomerism



Compound A, is

- (a) a primary alcohol (b) a secondary alcohol
 (c) a tertiary alcohol (d) $\text{CH}_3\text{—}\overset{\text{O}}{\parallel}{\text{C}}\text{—CH}_3$

51. The electronic configuration of dication of an element is 2, 8, 14. The atomic number of the element will be
 (a) 26 (b) 24
 (c) 25 (d) 28



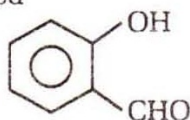
54. On moving left to right in period, the ionization potential
 (a) increases
 (b) decreases
 (c) first increases then decreases
 (d) first decreases then increases

55. Lithium and magnesium show the similarity in characteristics because
 (a) both find in nature along
 (b) both have approximately same size
 (c) both have same electronic configuration
 (d) their ratio of charge and size are approximately same

56. Which of the following character always increases on moving top to bottom in group ?
 (a) ionization potential (b) electron affinity
 (c) electronegativity (d) atomic radius

57. In the extraction of copper, its ore is heated at high temperature, in the presence of air. This process is called
 (a) smelting (b) calcination
 (c) roasting (d) distillation

58. A white precipitate of silver chloride is obtained on adding silver nitrate in sodium chloride solution because
 (a) NaCl is insoluble in water
 (b) Cl^- ion is present in NaCl
 (c) AgNO_3 is insoluble in NaCl solution
 (d) NaCl is an inorganic compound

59. Aromatic compounds give mainly following reaction
 (a) electrophilic addition
 (b) nucleophilic addition
 (c) nucleophilic substitution
 (d) electrophilic substitution
60. The $[H^+]$ of a solution is 1 mol/L. Its pH will be
 (a) 1.0 (b) 10.0
 (c) 0.1 (d) zero
61. On ozonolysis of an alkene, only single organic compound obtains. Alkene is
 (a) $CH_3-CH=CH_2$
 (b) $CH_3CH=CH-CH_3$
 (c) $CH_3-\underset{\begin{array}{c} | \\ CH_3 \end{array}}{C}=CH_2$
 (d) $CH_3-CH_2-CH=CH_2$
62. On adding NH_4OH in equilibrium
 $NH_4Cl \rightleftharpoons NH_4^+ + Cl^-$
 (a) more Cl^- will form
 (b) more NH_4Cl will decompose
 (c) more NH_4^+ will form
 (d) decomposition of NH_4Cl will reduce
63. For an electron $n = 2, l = 1$. Total magnetic quantum number for this will be
 (a) 3 (b) 2
 (c) 1 (d) zero
64. The aqueous solution of a salt is basic. It is the salt of
 (a) strong acid and strong base
 (b) strong acid and weak base
 (c) weak acid and weak base
 (d) weak acid and strong base
65. During the extraction of aluminium, cryolite adds in alumina
 (a) to obtain pure Al
 (b) to dissolve alumina
 (c) to remove impurities
 (d) to catalysis
66. The main product of the reaction of $CH_3CH_2NH_2$ with nitrous acid
 (a) CH_3CN (b) CH_3ONO
 (c) CH_3CH_2OH (d) $CH_3-N=O$
67. $A + NaNO_2 + HCl \longrightarrow CO_2 + N_2 + H_2O$
 Compound A, is
 (a) NH_2CONH_2 (b) CH_3NH_2
 (c) CH_3NC (d) CH_3CONH_2
68. If a system in equilibrium is subjected to a change of concentration, temperature or pressure the equilibrium shifts in a direction so as to undo the effect of the change imposed. This law is known as
 (a) Le-Chatelier's principle
 (b) Avogadro's principle
 (c) Guldberg-Waage principle
 (d) Gay-Lussac's principle
69. Alkaline hydrolysis of ethyl acetate gives
 (a) CH_3COOH and C_2H_5OH
 (b) CH_3COONa and C_2H_5OH
 (c) CH_3COOH and NH_3
 (d) CH_3COONa and NH_3
70. Which of the following will reduce the Tollen's reagent?
 (a) $HCOOH$ (b) CH_3COOH
 (c) $HOOC-COOH$ (d) C_6H_5COOH
71. For the reaction,
 $2SO_3 \rightleftharpoons 2SO_2 + O_2$
 the expression for the equilibrium constant (K_c) is
 (a) $\frac{2[SO_2][O_2]}{2[SO_3]}$ (b) $\frac{[SO_2][O_2]}{[SO_3]}$
 (c) $\frac{[SO_3]^2}{[SO_2][O_2]}$ (d) $\frac{[SO_2]^2[O_2]}{[SO_3]^2}$
72. The electronic configuration of Fe is
 (a) 2, 8, 14, 2 (b) 2, 8, 8, 6, 2
 (c) 2, 6, 18 (d) None of these
73. The following reaction is called
 $C_6H_5OH + 3KOH + CHCl_3 \rightarrow$ 
 $+ 3KCl + H_2O$
 (a) Kolbe-Schmidt reaction
 (b) Gattermann reaction
 (c) Fries rearrangement
 (d) Reimer-Tiemann reaction
74. The product of the reaction of chloroform with conc. HNO_3 is
 (a) chloretone (b) chloropicrin
 (c) nitromethane (d) methyl nitrite
75. At equilibrium in a reversible reaction the catalyst
 (a) increases the rate of forward direction
 (b) increases the rate of backward direction
 (c) increases the rate of forward and backward direction equally
 (d) None of the above

76. The process of conversion of higher hydrocarbon to lower hydrocarbon is called
 (a) isomerisation (b) cracking
 (c) hydroformation (d) mining
77. Which of the following reagent will differentiate in propene and propyne ?
 (a) Alkaline KMnO_4 (b) Bromine water
 (c) $[\text{Ag}(\text{NH}_3)_2]^+$ (d) None of these
78. Which of the following is Hofmann bromamide reaction ?
 (a) $\text{RCN} + 4\text{H} \longrightarrow \text{RCH}_2\text{NH}_2$
 (b) $\text{CH}_3\text{COCl} + \text{CH}_3\text{OH} \longrightarrow \text{CH}_3\text{COOCH}_3 + \text{HCl}$
 (c) $\text{CH}_3\text{CN} + \text{H}_2\text{O} \xrightarrow{\text{NaOH}} \text{CH}_3\text{COONa} + \text{NH}_3$
 (d) $\text{CH}_3\text{CONH}_2 + \text{Br}_2 + 4\text{KOH} \longrightarrow \text{CH}_3\text{NH}_2 + \text{K}_2\text{CO}_3 + 2\text{KBr} + 2\text{H}_2\text{O}$
79. The solubility product of PbS is 3.4×10^{-28} . If the concentration of Pb^{2+} is 1×10^{-2} mol then the concentration of S^{2-} at which PbS will precipitated
 (a) 3.4×10^{-26} (b) 3.4×10^{-30}
 (c) 1×10^{-2} (d) 3.4×10^{-22}
80. Formaldehyde reacts with ammonia to give following compound
 (a) formalin
 (b) formaldehyde ammonia
 (c) hexamethylene tetraamine
 (d) formamide
81. Which of the following characteristics does not show by *d*-block elements ?
 (a) Variable valency
 (b) Formation to complex compound
 (c) Diamagnetism
 (d) Paramagnetism
82. $\text{RX} + 2\text{Na} + \text{RX} \longrightarrow \text{R}-\text{R} + 2\text{NaX}$
 The above reaction is called
 (a) Wurtz reaction
 (b) Williamson's synthesis
 (c) Kolbe's electrolysis
 (d) Sabatier-Sendern's reaction
83. $\text{CH}_3\text{COOAg} + \text{Br}_2 \xrightarrow{\Delta} \text{CH}_3\text{Br} + \text{AgBr} + \text{CO}_2$
 This reaction is called
 (a) Hofmann mustard oil reaction
 (b) Hell Volhard Zelinsky reaction
 (c) Hunsdiecker reaction
 (d) Wurtz-Fittig reaction
84. For precipitation
 (a) Solubility product = ionic product
 (b) Solubility product > ionic product
 (c) Solubility product < ionic product
 (d) None of the above
85. $\text{HCHO} + 40\%$ strong alkaline solution \longrightarrow Products
 one of the product in this reaction is
 (a) $\text{CH}_3\text{CH}_2\text{OH}$ (b) CH_3COOH
 (c) $\text{CH} \equiv \text{CH}$ (d) CH_3OH
86. Which of the following reaction will not be affected by pressure ?
 (a) $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
 (b) $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$
 (c) $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$
 (d) $\text{PCl}_3 + \text{Cl}_2 \rightleftharpoons \text{PCl}_5$
87. In an atom, two electrons do not have identical set of four quantum number. This statement is belong to
 (a) Hund's law (b) Aufbau's law
 (c) $(n + l)$ law (d) Pauli's law
88. In froth floatation method of ore concentration, ore particles rise to the surface because
 (a) they are light
 (b) these are insoluble
 (c) their surface do not wet with water easily
 (d) these contain electric charge
89. Which of the following is amphoteric oxide ?
 (a) MgO (b) Al_2O_3
 (c) K_2O (d) CuO
90. Alkaline hydrolysis of an ester is called
 (a) hydrolysis (b) saponification
 (c) neutralization (d) hydrogenation
91. The number of π electrons present in an aromatic ring are
 (a) $(4 + 2)n$ (b) $(4 + 2n)$
 (c) $(4n + 2)$ (d) None of these
92. Picric acid is
 (a) *ortho*-nitrophenol
 (b) 2, 4, 6-trinitro benzoic acid
 (c) 2, 4, 6-trinitrophenol
 (d) 2, 4-dinitrophenol
93. The correct radius order of atom, its cation and anion is
 (a) atom < cation > anion
 (b) atom > cation < anion
 (c) atom = cation = anion
 (d) atom > cation > anion
94. $\text{CH}_3\text{CH}_2\text{I} + \text{NaOR} \longrightarrow \text{CH}_3\text{CH}_2\text{OR} + \text{NaI}$
 This reaction is
 (a) Wurtz reaction
 (b) Williamson's synthesis
 (c) Wittig reaction
 (d) Curtius reaction

95. Saturated hydrocarbon gives
 (a) free radical substitution
 (b) free radical addition
 (c) electrophilic substitution
 (d) electrophilic addition
96. $N_2 + O_2 \rightleftharpoons 2NO$; $\Delta H = 43.2$ kcal
 Equilibrium will go in forward direction
 (a) on increasing temperature
 (b) on decreasing temperature
 (c) on increasing pressure
 (d) on decreasing pressure
97. Ethanal forms 3-hydroxy butanal on reaction with alkali. This reaction is
 (a) Claisen condensation
 (b) Polymerization
 (c) Aldol condensation
 (d) Reimer-Tiemann reaction
98. Absolute alcohol can obtained from absolute spirit by which process
 (a) steam distillation
 (b) fractional distillation
 (c) azerotropic distillation
 (d) hydrolysis
99. Ethyl alcohol is obtained from sugar by following enzyme reaction
 (a) invertase
 (b) zymase
 (c) maltase
 (d) diastase
100. Brass is a
 (a) alloy
 (b) transition metal
 (c) non-metal
 (d) element

Answer – Key

1. d	2. a	3. a	4. b	5. a	6. d	7. c	8. c	9. b	10. a
11. b	12. b	13. b	14. d	15. b	16. c	17. b	18. c	19. b	20. d
21. b	22. c	23. c	24. b	25. b	26. c	27. c	28. b	29. d	30. b
31. d	32. b	33. b	34. c	35. c	36. d	37. d	38. c	39. b	40. b
41. c	42. b	43. b	44. a	45. d	46. b	47. b	48. a	49. c	50. b
51. a	52. a	53. a	54. a	55. d	56. d	57. c	58. b	59. d	60. d
61. b	62. d	63. a	64. d	65. b	66. c	67. a	68. a	69. b	70. a
71. d	72. a	73. d	74. b	75. c	76. b	77. c	78. d	79. a	80. c
81. c	82. a	83. c	84. c	85. d	86. b	87. d	88. c	89. b	90. b
91. c	92. c	93. b	94. b	95. a	96. a	97. c	98. c	99. b	100. a