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- 12. Which of the following compound is used as refrigerant :**  
 (1)  $\text{CCl}_2\text{F}_2$   
 (2)  $\text{CCl}_4$   
 (3)  $\text{CF}_4$   
 (4) Acetone
- 13. Which of the following is weak acid :**  
 (1)  $\text{C}_6\text{H}_6$       (2)  $\text{CH}_3\text{-C}\equiv\text{CH}$       (3)  $\text{CH}_2=\text{CH}_2$       (4)  $\text{CH}_3\text{-C}\equiv\text{C-CH}_3$
- 14. L.P.G. mainly consist of the following :**  
 (1) Methane    (2) Hydrogen    (3) Acetylene      (4) Butane
- 15. The solubility product of  $\text{CaCO}_3$  is  $5 \times 10^{-9}$ . The solubility will be :**  
 (1)  $2.5 \times 10^{-5}$       (2)  $7 \times 10^{-5}$       (3)  $2.5 \times 10^{-4}$       (4)  $2.2 \times 10^{-9}$
- 16. The outer electronic configuration of alkali earth metals is :**  
 (1)  $nd^{10}$       (2)  $ns^1$       (3)  $np^6$       (4)  $ns_2$
- 17. The nature of 2, 4, 6-trinitrophenol is :**  
 (1) Neutral    (2) Basic      (3) Acidic      (4) Weak basic
- 18. Which of the following group is sharp ortho and para directive :**  
 (1)  $-\text{C}_6\text{H}_5$     (2)  $-\text{OH}$       (3)  $-\text{CH}_3$       (4)  $-\text{Cl}$
- 19. By which of the following process hydrocarbons are found from petroleum :**  
 (1) combustion  
 (2) fractional distillation  
 (3) addition  
 (4) all above
- 20. A sample of petroleum contains 30% n-heptane, 10% 2-methyl hexane and 60% 2, 2, 4-trimethyl pentane, the octane no. of this sample will be :**  
 (1) 30%      (2) 60%      (3) 10%      (4) 70%
- 21. In which of the following halogens p-electrons does not take part in resonance :**  
 (1)  $\text{CH}_2=\text{CH-CH}_2\text{Cl}$       (2)  $\text{BrC}_6\text{H}_5$   
 (3)  $\text{C}_6\text{H}_5\text{Cl}$       (4)  $\text{CH}_2=\text{CHCl}$
- 22. Which of the following statement is false :**  
 (1) 40% solution  $\text{HCHO}$  is known as formalin  
 (2)  $\text{HCHO}$  is least reactive in its homologous series  
 (3) The B.P. of isovarelaldehyde is less than n-varelaldehyde  
 (4) The boiling point of ketones are higher than that of aldehydes
- 23. If  $n + l = 8$  then the expected no. of orbitals will be :**  
 (1) 4      (2) 9      (3) 16      (4) 25

24.  $A \xrightarrow{\text{Alc. KOH}} B \xrightarrow{2\text{Cl}_2} C \xrightarrow{\text{Ca(OH)}_2}$  here the compound C will be :  
 (1) Lewsite (2) Westron (3) Acetylene tetra chloride (4) Both 2 and 3
25. Which of the following is least hydrolysed :  
 (1)  $\text{BeCl}_2$  (2)  $\text{MgCl}_2$  (3)  $\text{CaCl}_2$  (4)  $\text{BaCl}_2$
26. The laughing gas is :  
 (1)  $\text{N}_2\text{O}_4$  (2)  $\text{NO}$  (3)  $\text{N}_2\text{O}$  (4)  $\text{N}_2\text{O}_5$
27. The hydrogen ion concentration of a solution is  $3.98 \times 10^{-6}$  mole per liter. The pH value of this solution will be :  
 (1) 6.0 (2) 5.8 (3) 5.4 (4) 5.9
28. The reaction of sodium acetate and sodalime gives :  
 (1) Butane (2) Ethane (3) Methane (4) Propane
29. Which of the following acids does not contain – COOH group :  
 (1) Carbamic acid (2) Barbituric acid  
 (3) Lactic acid (4) succinic acid
30. Which of the following compound of xenone does not exists :  
 (1)  $\text{XeF}_6$  (2)  $\text{XeF}_4$  (3)  $\text{XeF}_5$  (4)  $\text{XeF}_2$
31.  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  is :  
 (1) Mohr's salt (2) Blue vitriol (3) Green vitriol (4) White vitriol
32. The solution of  $\text{BiCl}_3$  in dil.  $\text{HCl}$  when diluted with water white precipitate is formed which is :  
 (1) Bismuth oxychloride (2) Bismuth oxide  
 (3) Bismuth hydroxide (4) none of these
33. The strongest acid is :  
 (1) acetic acid  
 (2) trichloroacetic acid  
 (3) dichloroacetic acid  
 (4) monochloroacetic acid
34. The false statement regarding alkane is :  
 (1) This does not perform polymerization reaction  
 (2) This does not gives elimination reaction  
 (3) It does not disappear the colour of dilute  $\text{KMnO}_4$  solution  
 (4) It does not decolourise bromine water
35. Which of the following is strongest base :  
 (1)  $\text{C}_6\text{H}_5\text{NH}_2$  (2)  $\text{CH}_3\text{NH}_2$

- (3)  $\text{NH}_3$                       (4)  $\text{CH}_3\text{CONH}_2$

**36. Which of the following aromatic compound gives sulphonation reaction very easily :**

- (1) Chlorobenzene    (2) Nitrobenzene    (3) Toluene    (4) benzene

**37. The geometry of  $\text{I}_3^-$  is :**

- (1) Triangular              (2) Linear              (3) Tetrahedral              (4) T-shape

**38. The half life of a radio active element is 140 days. 1 gm. of this element after 560 days will become :**

- (1)  $\frac{1}{16}$  gm    (2)  $\frac{1}{4}$  gm    (3)  $\frac{1}{8}$  gm.              (4)  $\frac{1}{2}$  gm.

**39. The volume concentration of hydrogen peroxide 6.8% concentration will be :**

- (1) 5                      (2) 11.2                      (3) 22.4                      (4) 20

**40. Which of the following on combustion give maximum energy :**

- (1) Ethane    (2) Propane    (3) Methane    (4) Butane

**41.  $\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl} \xrightarrow{\text{Anhy. AlCl}_3} \text{C}_6\text{H}_5\text{CH}_3 + \text{HCl}$  The name of above reaction is :**

- (1) Gattermann              (2) Reimer-tiemann  
(3) Friedel-Craft              (4) Cannizaro

**42. The oxidation state of Cr in  $\text{K}_2\text{Cr}_2\text{O}_7$  is :**

- (1) + 4                      (2) + 3                      (3) + 6                      (4) + 5

**43. The natural rubber is the polymer of :**

- (1) 1, 3- butadiene    (2) polyamide    (3) isoprene    (4) none of these

**44. Nylon-66 is a :**

- (1) polyester    (2) polyamide              (3) polyacrylate              (4) none of these

**45.  $2\text{NO}(\text{g}) + \text{Cl}_2(\text{g}) \rightleftharpoons 2\text{NOCl}$  The equilibrium constant for this reaction is :**

- (1)  $K_c = \frac{[\text{NOCl}]^2}{[\text{NO}]^2[\text{Cl}_2]^2}$               (2)  $K_c = \frac{[\text{NOCl}]^2}{[2\text{NO}]^2[\text{Cl}_2]}$   
(3)  $K_c = \frac{[\text{NOCl}]^2}{[\text{NO}]^2[\text{Cl}_2]}$               (4)  $K_c = \frac{[2\text{NOCl}]}{[2\text{NO}][\text{Cl}_2]}$

**46.  $\text{C}_6\text{H}_6 + \text{CO} + \text{HCl} \xrightarrow{\text{A}} \text{C}_6\text{H}_5\text{CHO} + \text{HCl}$  here A is :**

- (1) anhydrans ZnO    (2)  $\text{V}_2\text{O}_5/450^\circ\text{C}$   
(3) anhydrous  $\text{AlCO}_3$     (4) solid KOH

47. The values of  $K_a$  for HCN and  $\text{CH}_3\text{COOH}$  are  $7.2 \times 10^{-10}$  and  $1.75 \times 10^{-5}$  (at 25°C) respectively. The strongest acid amongst them is :  
(1)  $\text{CH}_3\text{COOH}$  (2) HCN (3) both (4) none of these

48. In which of the following carbon atom (asterisk) is asymmetric :  
(1)  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$   
(2)  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CHOH}$   
(3)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$   
(4)  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$

49. Benzene reacts with  $\text{CH}_3\text{COCl}$  in presence of Lewis acid  $\text{AlCl}_3$  to form :  
(1) Acetophenone (2) Toluene (3) Benzyl Chloride (4) Chlorobenzene

50. Which of the following is reducing agent :  
(1)  $\text{H}_2\text{S}$  (2)  $\text{HNO}_3$  (3)  $\text{H}_2\text{O}$  (4)  $\text{K}_2\text{Cr}_2\text{O}_7$

51. In which of the following alkyl chloride the possibility of  $\text{SN}_1$  reaction mechanism is maximum :  
(1)  $(\text{CH}_3)_2\text{CHCl}$  (2)  $(\text{CH}_3)_3\text{CCl}$  (3)  $\text{CH}_3\text{Cl}$  (4)  $\text{CH}_3\text{CH}_2\text{Cl}$

52. The energy produced related to mass decay of 0.02 amu is :  
(1) 28.2 MeV (2) 931 MeV (3) 18.62 MeV (4) none of these

53. The mole of hydrogen ion in 50 ml. of 0.1 M HCl solution will be :  
(1)  $5 \times 10^2$  (2)  $5 \times 10^{-3}$  (3)  $5 \times 10^3$  (4)  $5 \times 10^{-2}$

54. Petroleum is mainly consist of :  
(1) Aliphatic alcohol  
(2) Aromatic hydrocarbon  
(3) Aliphatic hydrocarbon  
(4) None of these

55.  $\text{C}_6\text{H}_5\text{OCH}_3 + \text{HI} \xrightarrow{\Delta\Delta} \dots\dots + \dots\dots$  The products in the above reaction will be :

- (1)  $\text{C}_6\text{H}_5\text{I} + \text{CH}_3\text{OH}$  (2)  $\text{C}_6\text{H}_5\text{CH}_3 + \text{HOI}$   
(3)  $\text{C}_6\text{H}_5\text{OH} + \text{CH}_3\text{I}$  (4)  $\text{C}_6\text{H}_6 + \text{CH}_3\text{OI}$

56.  $\text{F}_3\text{B}$  is :  
(1) Bronsted base (2) Lewis base (3) Lewis acid (4) Bronsted acid

57. Which of the following compound gives violet colour with  $\text{FeCl}_3$  solution:  
(1) Benzaldehyde (2) Aniline (3) Nitrobenzene (4) Phenol

58. Hypo solution forms which of the following complex compound with  $\text{AgCl}$  :  
(1)  $\text{Na}_5[\text{Ag}(\text{S}_2\text{O}_3)_3]$  (2)  $\text{Na}_3[\text{Ag}(\text{S}_2\text{O}_3)_2]$

(3)  $\text{Na}_2\{\text{Ag}(\text{S}_2\text{O}_3)_2\}$                       (4)  $\text{Na}_3[\text{Ag}(\text{S}_2\text{O}_3)_3]$

**59. Molecular oxygen is :**

(1) ferro magnetic      (2) diamagnetic      (3) para magnetic      (4) non magnetic

**60. Bonds in acetylene are :**

(1)  $2\pi$  bonds      (2) one  $\pi$  bond      (3)  $3\pi$  bonds      (4) none of these

**61. The false statement for Griynaed reagent is :**

(1) It gives tertiary alcohol with acetamide  
(2) It gives tertiary alcohol with acetone  
(3) It gives secondary alcohol with acetaldehyde  
(4) It gives primary alcohol with formaldehyde

**62. Which of the following alkane exists is liquid state at normal temperature :**

(1)  $\text{C}_{20}\text{H}_{42}$       (2)  $\text{C}_3\text{H}_8$       (3)  $\text{C}_8\text{H}_{18}$       (4)  $\text{CH}_4$

**63. The solubility of  $\text{AgCl}$  at  $25^\circ\text{C}$  will be maximum in :**

(1) Potassium chloride solution  
(2)  $\text{AgNO}_3$  solution  
(3) Water  
(4) All above

**64. The weight of a benzene molecule is :**

(1) 78 gm.      (2) 7.8 gm.      (3)  $13 \times 10^{-23}$       (4) none of these

**65.  $\text{CuFeS}_2$  is :**

(1) iron pyrites      (2) malachite      (3) chalcocite      (4) chalcopyrites

**66. Primary halides follow the following reaction mechanism :**

(1)  $\text{SN}_1$       (2)  $\text{SN}_2$       (3) both      (4) none of these

**67. C and Si belong to the same group of periodic table,  $\text{CO}_2$  is a gas and  $\text{SiO}_2$  is a :**

(1) liquid      (2) gas      (3) solid      (4) none of these

**68.  $\text{H}_2\text{S}$  is a gas while  $\text{H}_2\text{O}$  is a liquid because :**

(1) there is association due to hydrogen bonding  
(2) bond energy of OH high  
(3) the ionization potential of oxygen is high  
(4) the electro negativity of oxygen is high

**69. "The negative part of the molecule adding to the double bond goes to that unsaturated asymmetric carbon atom which is linked to the least number of hydrogen atoms." This statement is related to :**

(1) Markownikoff's law  
(2) Peroxide effect  
(3) Bayer's law of distortion

(4) none of these

**70. The conjugate base of  $\text{NH}_3$  is :**

- (1)  $\text{N}_2\text{H}_4$       (2)  $\text{NH}_2^-$       (3)  $\text{NH}_4^+$       (4)  $\text{NH}_2^+$

**71. (a)  $\text{N}_2$  and (b)  $\text{C}_2\text{H}_2$ . The nos. of  $\pi$  and  $\sigma$  bond in the molecules are respectively :**

- (1) (a) 2,2 (b) 2,2      (2) (a) 1,2 (b) 2,1  
(3) (a) 2,1 (b) 2,3      (4) (a) 2,1 (b) 2,1

**72. In which of the following compound there are maximum no. of  $\text{sp}^2$  hybrid C atoms:**

- (1) Benzene      (2) 1,3,5-hexatriene  
(3) 1,2,4-hexatriene      (4) both 1 and 2

**73. The shape of the molecule having hybrid orbitals of 20% character will be :**

- (1) octahedral      (2) tetrahedral  
(3) square planer      (4) triangular bipyramidal

**74. The pH of a solution is 5. If the dilution of this solution is increased by 100 times, the pH value will be :**

- (1) 5      (2) 7      (3) 9      (4) 8

**75. The required amount of oxygen for combustion of 20 ml. of gaseous hydrocarbon is 50 ml. The hydrocarbon will be :**

- (1)  $\text{C}_2\text{H}_2$       (2)  $\text{C}_2\text{H}_4$       (3)  $\text{C}_2\text{H}_6$       (4)  $\text{C}_3\text{H}_4$

**76. The formula of Celestine is :**

- (1)  $\text{SrSO}_4$       (2)  $\text{SrCO}_3$       (3)  $\text{SrO}$       (4)  $\text{SrCl}_2$

**77.  $\text{CuCl}_2 + \rightarrow \text{Cu} + \text{Cl}_2$ . The required amount of electricity for this reaction is :**

- (1) 4 faraday      (2) 2 faraday      (3) 1 faraday      (4) 3 faraday

**78. Nitrogen does not forms  $\text{NF}_5$  because :**

- (1) The bondenergy of  $\text{N}\equiv\text{N}$  is very high  
(2) Vaccent d-orbitals are not present  
(3) N belongs to V group  
(4) There is inert effect

**79. The normal temperature when raised by  $10^0$  C, the rate of reaction will be :**

- (1) lowered by 2 times  
(2) increased by 2 times  
(3) lowered by 10 times  
(4) increased by 10 times

**80. Which of the following gives red precipitate with ammonical cuprous chloride :**

- (1) Propane      (2) Ethane      (3) Methane      (4) Acetylene

81.  $[\text{Cu}(\text{NH}_3)_4]^{2+}$  shows the following hybridization :  
 (1)  $\text{dsp}^2$       (2)  $\text{sp}^3\text{d}$       (3)  $\text{dsp}^3$       (4)  $\text{sp}^3$
82. A solution contains  $\text{Cl}^-$ ,  $\text{I}^-$  and  $\text{SO}_4^{3-}$  ions in it. Which of the following ion is capable to precipitate all of above when added in this solution :  
 (1)  $\text{Pb}^{2+}$       (2)  $\text{Ba}^{2+}$       (3)  $\text{Hg}^{2+}$       (4)  $\text{Cu}^{2+}$
83. Fool's gold is :  
 (1)  $\text{Cu}_2\text{S}$       (2)  $\text{FeS}_2$       (3)  $\text{Al}_2\text{O}_5$       (4)  $\text{CuFeS}_2$
84. In which of the following compound the central atom is in  $\text{sp}^2$  hybrid state :  
 (1)  $\text{OF}_2$       (2)  $\text{HgCl}_2$       (3)  $\text{XeF}_2$       (4)  $\text{NH}_2^+$
85. The number of alkenyl groups possible from  $\text{C}_4\text{H}_7^-$  are :  
 (1) 7      (2) 5      (3) 3      (4) 8
86. The tetraethyl lead mixed in petrol is works as :  
 (1) Cooling agent  
 (2) Anti knocking agent  
 (3) Bleaching agent  
 (4) None of these
87. The alkaline hydrolysis of ester is known as :  
 (1) dehydrogenation    (2) dehydration    (3) esterification    (4) saponification
88. The degree of ionization of 0.4 M acetic acid will be : ( $K_a = 1.8 \times 10^{-5}$ )  
 (1)  $6.71 \times 10^{-3}$       (2)  $1.6 \times 10^{-3}$   
 (3)  $0.4 \times 1.8 \times 10^{-5}$       (4)  $1.8 \times 10^{-5}$
89. Haber process is used for production of which of the following :  
 (1)  $\text{NH}_3$       (2)  $\text{HNO}_3$       (3)  $\text{H}_2\text{SO}_4$       (4)  $\text{O}_3$
90. The  $\text{p}_{\text{Ka}}$  value of phenolphthalein is 9.1 and the pH range is 8-10. In which of the following titrations it can be used as an indicator :  
 (1)  $\text{NH}_4\text{OH}$  and  $\text{HCl}$   
 (2)  $\text{NH}_4\text{OH}$  and  $\text{CH}_3\text{COOH}$   
 (3)  $\text{NaOH}$  and  $\text{HCl}$   
 (4)  $\text{NH}_4\text{OH}$
91. Number of electrons in a one molecule of  $\text{CO}_2$  :  
 (1)  $\text{pb}^{2+}$       (2)  $\text{Hg}^{2+}$       (3)  $\text{Ba}^{2+}$       (4)  $\text{Cu}^{2+}$
92. Which of the following species shows the maximum magnetic moment :  
 (1)  $\text{Mn}^{+6}$       (2)  $\text{Ni}^{2+}$       (3)  $\text{Fe}^{3+}$       (4)  $\text{Ag}^+$
93.  $K_{\text{sp}}$  value of  $\text{CaF}_2$  is  $3.75 \times 10^{11}$  The solubility will be :



- (1)  $1.45 \times 10^{-11}$  mol/litre<sup>-1</sup>
- (2)  $3.45 \times 10^{-4}$  mol/liter<sup>-1</sup>
- (3)  $2.05 \times 10^{-4}$  mol/liter<sup>-1</sup>
- (4)  $3.75 \times 10^{-11}$  mol/liter<sup>-1</sup>

**94. When  $\text{Pb}_3\text{O}_4$  is heated with dilute  $\text{HNO}_3$  it gives :**

- (1)  $\text{PbO}_2$  and  $\text{Pb}(\text{NO}_3)_2$
- (2)  $\text{PbO}$  and  $\text{Pb}(\text{NO}_3)_2$
- (3)  $\text{PbO}_2$
- (4)  $\text{PbO}$

**95. C-H bond length is least in :**

- (1) Acetylene (2) Methane (3) Ethylene (4) Ethane

**96. The minimum nos. of carbon atoms in ketones which will show chain isomerism will be :**

- (1) Seven (2) four (3) six (4) five

**97. Which of the following organic compound could not be dried by anhydrous  $\text{CaCl}_2$  :**

- (1) ethanol (2) benzene (3) chloroform (4) ethyl acetate

**98. Which of the following compound forms white precipitate with bromine water :**

- (1) Nitrobenzene (2) Phenol (3) Benzene (4) all above

**99. Gypsum is :**

- (1)  $\text{CaSO}_4 \cdot \text{H}_2\text{O}$  (2)  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- (3)  $2\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  (4)  $\text{CaSO}_4$

**100. Which of the following carbonium ion is most stable :**

- (1)  $\text{CH}_3-\overset{+}{\text{C}}-\text{CH}_3$  (2)  $\text{CH}_3\overset{+}{\text{C}}\text{H}_2$

- (3)  $\text{CH}_3\overset{+}{\text{O}}\text{CH}-\text{CH}_3$  (4)  $\text{CH}_3\overset{+}{\text{C}}\text{H}_3$

## ANSWER SHEET

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