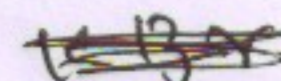
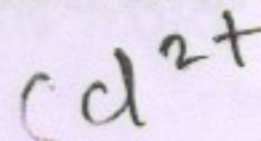
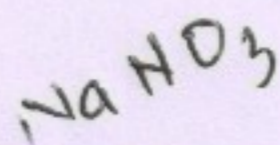


**CHEMISTRY**

51. The rate constant for a first order reaction is  $7.0 \times 10^{-4} \text{ S}^{-1}$ . If initial concentration of reactant is  $0.080\text{M}$ , what is the half life of reaction ?  
✓ A) 990 S      B) 79.2 S      C) 12375 S      D)  $10.10 \times 10^{-4} \text{ S}$
52. The polymer used in making handles of cookers and frying pans is  
✓ ~~A) bakelite~~      B) nylon-2-nylon-6  
C) orlon      ✓ ~~D) polyvinyl chloride~~
53. Which halogen has the highest value of negative electron gain enthalpy ?  
✓ A) Fluorine      B) Chlorine      C) Bromine      D) Iodine
54. What is the actual volume occupied by water molecules present in  $20 \text{ cm}^3$  of water ?  
A)  $20 \text{ cm}^3$       B)  $10 \text{ cm}^3$       C)  $40 \text{ cm}^3$       D)  $24.89 \text{ dm}^3$
55. Which of following coordinate complexes is an exception to EAN rule ?  
(Given At. No. Pt = 78, Fe = 26, Zn = 30, Cu = 29)  
A)  $[\text{Pt}(\text{NH}_3)_6]^{4+}$     B)  $[\text{Fe}(\text{CN})_6]^{4-}$     C)  $[\text{Zn}(\text{NH}_3)_4]^{2+}$     D)  $[\text{Cu}(\text{NH}_3)_4]^{2+}$
56. Which of the following statements is **INCORRECT** in case of Hofmann bromamide degradation ?  
A) Reaction is useful for decreasing length of carbon chain by one carbon atom  
✓ B) It gives tertiary amine  
C) It gives primary amine  
D) Aqueous or alcoholic KOH is used with bromine
57. Which of the following statements is **INCORRECT** for pair of elements Zr – Hf ?  
A) Both possess same number of valence electrons  
B) Both have identical atomic sizes  
C) Both have almost identical ionic radii  
✓ D) Both of these belong to same period of periodic table
58. Aldehydes or ketones when treated with  $\text{C}_6\text{H}_5 - \text{NH} - \text{NH}_2$ , the product formed is  
A) semicarbazone      B) phenylhydrazone  
C) hydrazone      D) oxime
59. Solubility of which among the following solids in water changes slightly with temperature ?  
A)  $\text{KNO}_3$       B)  $\text{NaNO}_3$       C) KBr      D) NaBr
60. What is the quantity of hydrogen gas liberated when 46 g sodium reacts with excess ethanol ?  
(Given At. mass of Na = 23)  
✓ A)  $2.4 \times 10^{-3} \text{ kg}$     B)  $2.0 \times 10^{-3} \text{ kg}$     C)  $4.0 \times 10^{-3} \text{ kg}$     D)  $2.4 \times 10^{-2} \text{ kg}$
61. Identify the weakest oxidising agent among the following.  
A)  $\text{Li}^+$       B)  $\text{Na}^+$       C)  $\text{Cd}^{2+}$       D)  $\text{I}_2$

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62. The monomers used in preparation of dextran are  
A) lactic acid and glycollic acid  
B) 3-Hydroxy butanoic acid and 3-Hydroxy pentanoic acid  
C) styrene and 1, 3-Butadiene  
D) hexamethylenediamine and adipic acid
63. Which among the following compounds does not act as a reducing agent ?  
A)  $H_2O$       B)  $H_2S$       C)  $H_2Se$       D)  $H_2Te$
64. Which of the following processes is **NOT** used to preserve the food ?  
A) Irradiation      B) Addition of salts  
C) Addition of heat      D) Hydration
65. In case of substituted aniline the group which decreases the basic strength is  
A)  $-OCH_3$       B)  $-CH_3$       C)  $-NH_2$       D)  $-C_6H_5$
66. Which among the following equations represents Arrhenius equation ?  
A)  $k = Ae^{E_a/RT}$       B)  $k = A.e^{RT/E_a}$       C)  $k = \frac{A}{e^{E_a/RT}}$       D)  $k = \frac{A}{e^{RT/E_a}}$
67. Which of the following compounds will give positive iodoform test ?  
A) Isopropyl alcohol      B) Propionaldehyde  
C) Ethylphenyl ketone      D) Benzyl alcohol
68. The first law of thermodynamics for isothermal process is  
A)  $q = -W$       B)  $\Delta U = W$       C)  $\Delta U = q_v$       D)  $\Delta U = -q_v$
69. The conversion of ethyl bromide to ethyl iodide using sodium iodide and dry acetone, this reaction is known as  
A) Swarts reaction      B) Finkelstein reaction  
C) Sandmeyer reaction      D) Stephen reaction
70. What is the hybridization of carbon atoms in fullerene ?  
A)  $SP^3$       B)  $SP$       C)  $SP^2$       D)  $dSP^3$
71. Which of the following is used as antiseptic ?  
A) Chloramphenicol      B) Bithional  
C) Cimetidine      D) Chlordiazepoxide
72. In preparation of sulphuric acid from sulphur dioxide in lead chamber process. What substance is used as a catalyst ?  
A) Manganese dioxide      B) Vanadium pentoxide  
C) Nitric oxide      D) Raney Nickel
73. The correct charge on and co-ordination number of 'Fe' in  $K_3[Fe(CN)_6]$  is  
A) +2, 4      B) +3, 6      C) +2, 6      D) +3, 3
74. Which among the following reactions is an example of pseudo first order reaction ?  
A) Inversion of cane sugar  
B) Decomposition of  $H_2O_2$   
C) Conversion of cyclopropane to propene  
D) Decomposition of  $N_2O_5$

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75. The amine which reacts with p-toluenesulphonyl chloride to give a clear solution which on acidification gives insoluble compound is  
A)  $C_2H_5NH_2$     B)  $(C_2H_5)_2NH$     C)  $(C_2H_5)_3N$     D)  $CH_3NHC_2H_5$
76. The work done during combustion of  $9 \times 10^{-2}$  Kg of ethane,  $C_2H_6$  (g) at 300 K is  
(Given  $R = 8.314 \text{ J deg}^{-1} \text{ mol}^{-1}$ , atomic mass C = 12, H = 1)  
A) 6.236 kJ    B) -6.236 kJ    C) 18.71 kJ    D) -18.71 kJ
77. What type of sugar molecule is present in DNA ?  
A) D-3-deoxyribose    B) D-ribose  
C) D-2-deoxyribose    D) D-Glucopyranose
78. The molality of solution containing 15.20 g of urea, (molar mass = 60) dissolved in 150 g of water is  
A)  $1.689 \text{ mol kg}^{-1}$     B)  $0.1689 \text{ mol kg}^{-1}$   
C)  $0.5922 \text{ mol kg}^{-1}$     D)  $0.2533 \text{ mol kg}^{-1}$
79. The acid which contains both -OH and -COOH groups is  
A) phthalic acid    B) adipic acid    C) glutaric acid    D) salicylic acid
80. Identify the compound in which phosphorus exists in the oxidation state of +1.  
A) Phosphonic acid ( $H_3PO_3$ )    B) Phosphinic acid ( $H_3PO_2$ )  
C) Pyrophosphorus acid ( $H_4P_2O_5$ )    D) Orthophosphoric acid ( $H_3PO_4$ )
81. (+) 2-Methylbutan-1-ol and (-) 2-Methylbutan-1-ol have different values for which property ?  
A) Boiling point    B) Relative density  
C) Refractive index    D) Specific rotation
82. Which among the following is **NOT** a mineral of iron ?  
A) Haematite    B) Magnesite    C) Magnetite    D) Siderite
83. Nitration of which among the following compounds yields cyclonite ?  
A) Formaldehyde    B) Benzaldehyde  
C) Urotropine    D) Acetaldehyde-ammonia
84. Calculate the work done during compression of 2 mol of an ideal gas from a volume of  $1 \text{ m}^3$  to  $10 \text{ dm}^3$  at 300 K against a pressure of 100 KPa.  
 A) -99 kJ    B) +99 kJ    C) +22.98 kJ    D) -22.98 kJ
85. Which element among the following does form  $P\pi - P\pi$  multiple bonds ?  
A) Arsenic     B) Nitrogen    C) Phosphorus    D) Antimony
86. tert-butyl methyl ether on treatment with hydrogen iodide in cold gives  
A) tert-butyl iodide and methyl iodide    B) tert-butyl alcohol and methyl alcohol  
C) tert-butyl alcohol and methyl iodide     D) tert-butyl iodide and methyl alcohol
87. Name the process that is employed to refine aluminium.  
 A) Hall's process    B) Mond process    C) Hoop's process    D) Serperck's process

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88. The colour and magnetic nature of manganate ion ( $\text{MnO}_4^{2-}$ ) is  
 A) green, paramagnetic       B) purple, diamagnetic  
 C) green, diamagnetic      D) purple, paramagnetic
89. The osmotic pressure of solution containing 34.2 g of cane sugar (molar mass =  $342 \text{ g mol}^{-1}$ ) in 1L of solution at  $20^\circ\text{C}$  is  
 (Given,  $R = 0.082 \text{ L atm K}^{-1} \text{ mol}^{-1}$ )  
 A) 2.40 atm      B) 3.6 atm      C) 24 atm      D) 0.0024 atm
90. In assigning R-S configuration which among the following groups has highest priority?  
 A)  $-\text{SO}_3\text{H}$       B)  $-\text{COOH}$       C)  $-\text{CHO}$       D)  $-\text{C}_6\text{H}_5$
91. Which among the following equations represents the reduction reaction taking place in lead accumulator at positive electrode, while it is being used as a source of electrical energy?  
 A)  $\text{Pb} \rightarrow \text{Pb}^{2+}$       B)  $\text{Pb}^{4+} \rightarrow \text{Pb}$       C)  $\text{Pb}^{2+} \rightarrow \text{Pb}$       D)  $\text{Pb}^{4+} \rightarrow \text{Pb}^{2+}$
92. For which among the following equimolar aqueous solutions Van't Hoff factor has the lowest value?  
 A) Aluminium Chloride      B) Potassium Sulphate  
 C) Ammonium Chloride       D) Urea
93. The amino acid which is basic in nature is  
 A) Histidine      B) Tyrosine      C) Proline      D) Valine
94. Which element among the following does **NOT** form diatomic molecules?  
 A) Argon      B) Oxygen      C) Nitrogen      D) Bromine
95. A molecule of Stachyose contains how many carbon atoms?  
 A) 6      B) 12       C) 18      D) 24
96. What is the SI unit of conductivity?  
 A) Sm      B)  $\text{Sm}^{-1}$       C)  $\text{Sm}^2$       D)  $\text{Sm}^{-2}$
97. Which of the following is Baeyer's reagent?  
 A) alkaline  $\text{KMnO}_4$       B) acidic  $\text{K}_2\text{Cr}_2\text{O}_7$   
 C) alkaline  $\text{Na}_2\text{Cr}_2\text{O}_7$       D)  $\text{MnO}_2$
98. What is the chief constituent of Pyrex glass?  
 A)  $\text{B}_2\text{O}_3$       B)  $\text{SiO}_2$       C)  $\text{Al}_2\text{O}_3$       D)  $\text{Na}_2\text{O}$
99. Which of the following compounds has lowest boiling point?  
 A) n-butyl alcohol      B) isobutyl alcohol  
 C) tert-butyl alcohol      D) sec-butyl alcohol
100. Identify the INVALID equation.  
 A)  $\Delta H = \sum H_{\text{products}} - \sum H_{\text{reactants}}$   
 B)  $\Delta H = \Delta U + P\Delta V$   
 C)  $\Delta H^\circ_{\text{(reaction)}} = \sum H^\circ_{\text{(product bonds)}} - \sum H^\circ_{\text{(reactant bonds)}}$   
 D)  $\Delta H = \Delta U + \Delta nRT$

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