Super Revision Sheet for 28.02.26

A **Write the answer of the following questions. [Each carries 2 Marks]** **[86]**

1. Explain parts per million in brief.
2. Write about Raoult's law for non-volatile solute and prove it. Write the formula to find out molecular mass of solute according to above rule.
3. Henry's law constant for CO_2 in water is 1.67×10^8 Pa at 298 K. Calculate the quantity of CO_2 in 500 mL of soda water when packed under 2.5 atm CO_2 pressure at 298 K.
4. Explain the measurement of electrode potential by constructing a hydrogen electrode.
5. Calculate emf and write nernst equation of this cell at 298 K

$$Pt_{(s)} \,|\, \underset{1bar}{H_{2(g)}} \,|\, H^+_{(0.030M)} \,|\, Br^-_{(0.010M)} \,|\, \underset{(l)}{Br_2} \,|\, Pt_{(s)}$$

6. Give Faraday law and its uses.
7. Write reactions of Electrolysis of Molten NaCl by using of Inert electrodes.
8. Write the Nernst equation and emf of the following cells at 298 K :

   $Pt_{(s)} \,|\, Br^-(0.010\ M) \,|\, Br_{2(l)} \,\|\, H^+(0.030\ M) \,|\, H_{2(g)}\ (1\ bar) \,|\, Pt_{(s)}$

   For the given reaction, the Nernst equation can be given as :

   $E^\ominus_{Mg^{2+}|Mg} = -2.37V$

   $E^\ominus_{Cu^{2+}|Cu} = +0.34V$; $E^\ominus_{Sn^{2+}|Sn} = -0.14V$

   $E^\ominus_{Br^2|Br^-} = +1.08\ V$; $E^\ominus_{Fe^{2+}|Fe} = -0.44\ V$
9. Give Nernst equation for following reaction. $M^{n+}_{(aq)} + ne^- \rightarrow M_{(s)}$
10. Explain pseudo first order reaction by giving example.
11. For a first order reaction, show that time required for 99% completion is twice the time required for the completion of 90% of reaction.
12. Which are the units of rate of reaction ?
13. $5Br^-_{(aq)} + BrO^-_{3(aq)} + 6H^+_{(aq)} \rightarrow 3Br_{2(aq)} + 3H_2O_{(l)}$
    write the equation of rate of reaction.
14. Explain on what factors the ionization enthalpies of elements having d^n configuration depends upon ?
15. Write down the electronic configuration of :
    (i) Cr^{3+} (ii) Pm^{3+} (iii) Cu^+ (iv) Ce^{4+} (v) Co^{2+} (vi) Lu^{2+} (vii) Mn^{2+} (viii) Th^{4+}
16. Write different between double salt and a complex (coordination compound)
17. State IUPAC names of the following complexes. Nessler's reagent
18. Write the IUPAC names of the following coordination compounds :
    (i) $[Co(NH_3)_6]Cl_3$ (ii) $[Co(NH_3)_5Cl]Cl_2$ (iii) $K_3[Fe(CN)_6]$
    (iv) $K_3[Fe(C_2O_4)_3]$ (v) $K_2[PdCl_4]$ (vi) $[Pt(NH_3)_2Cl(NH_2CH_3)]Cl$
19. Explain that complex $[Ti(H_2O)_6]^{3+}$ is voilet in colour, on the basis of crystal field theory.
20. Describe Ambidentate ligand with examples.
21. Write a note on Wurtz Reaction.
22. A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro compound C_5H_9Cl in bright sunlight. Identify the hydrocarbon.
23. Write down chemical equations to prepare following substance from 1-Chloropropane.
    (i) Propene (ii) Propan-1-ol
24. Explain Finkelstein Reaction.
25. Write a note on esterification reaction of alcohols.
26. Explain Lucas test.

27. Explain the Cannizzaro reaction by giving an example.
28. Explain carbylamine test giving reactions.
29. Explain Hoffmann bromamide degradation reaction.
30. What are essential and non-essential amino acids ? Give two examples of each.
31. Write a note on denaturation of proteins.
32. Write a note on structure of DNA and RNA.
33. Write the reaction equation to show the presence of –CHO and $>CO$ group in Glucose.
34. Write only names of disease occur due to deficiencies of vitamin-B_6, vitamin-B_{12}, Thiamine and Ascorbic acid.
35. Write equation of reaction of D-Glucose with
    (i) Bromine water (ii) HNO_3
36. Explain the difference between Globular and Fibrous Proteins.
37. Enlist the main postulates of werner's theory.
38. What is fuel cell ? Write a note on it.
39. What is molecularity of a relation ? Explain its types by examples.
40. What is Half-Life time of a reaction ? Derive the equation of Half-Life time $\left(t_{1/2}\right)$ for zero order reaction.
41. A reaction is first order in A and second order in B.
    (i) Write the differential rate equation.
    (ii) How is the rate affected on increasing the concentration of B three times ?
    (iii) How is the rate affected when the concen-trations of both A and B are doubled?
42. Explain Lanthanoid Contraction.
43. Write a note on interstitial compounds.

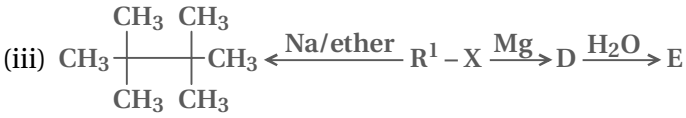
B **Write the answer of the following questions.** [**Each carries 3 Marks**] **[108]**

44. Define the following terms :
    (i) Mole fraction, (ii) Molality, (iii) Molarity, (iv) Mass percentage.
45. Explain construction of the galvanic cell according to Daniell cell. In galvanic cell explain positive and negative electrode with suitable chemical reaction.
46. Write a note on Kohlrausch law of independent migration of ions and limiting molar conductivity (Λ_m^o) of strong electrolyte.
47. Conductivity of 0.00241 M acetic acid is7.896×10^{-5} S cm^{-1}. Calculate its molar conductivity and if Λ_m^o for acetic acid is 390.5 S cm^2 mol^{-1}, what is its dissociation constant ?
48. Three electrolytic cells A, B, C containing solutions of $ZnSO_4$, $AgNO_3$ and $CuSO_4$ respectively are connected in series. A steady current of 1.5 amperes was passed through them until 1.45 g of silver deposited at the cathode of cell B. How long did the current flow ? What mass of copper and zinc were deposited ?
49. What is zero order reaction ? Determine the integrated rate equations for zero order reaction R ® P and give the information of Graph.
50. What is first order reaction ? Determine the integrated rate equation for first order reaction R ® P. and Give the information about graph.
51. What is Activation Energy (E_a) ? Explain graph of reaction of activation energy and write about its probability.
52. Give preparation of potassium dichromate and state its uses. ,
53. Give the chemical reactions showing oxidizing nature of potassium dichromate.
54. Give preparation of potassium permanganate.
55. Discuss chemical properties of potassium permanganate.
56. What is retention and inversion of configuration ? Explain with suitable example.
57. Explain dehydrohalogenation (β-elimination) of alkyl halides.
58. Write a note on Grignard Reagent.

59. Identify A, B, C, D, E, R and R^1 in the following :

(i) 

(ii) $R-Br + Mg \xrightarrow{\text{dry ether}} C \xrightarrow{D_2O} CH_3-\underset{\underset{D}{|}}{CH}-CH_3$

(iii) 

60. Give the preparation of alcohols from alkenes.

61. Explain cumene process.

62. Explain dehydration of alcohols.

63. Write a note on Kolbe's reaction.

64. Give chemical reaction of following compounds with hydrogen iodide.
(a) 1-propoxy propane (b) Methoxy benzene (c) Benzyl ethyl ether

65. Explain Williamson synthesis to prepare ether and state the limitation of the process. State all reactions.

66. Write about Wolff-Kishner reduction reaction.

67. Complete the reactions :

(i) $C_6H_5COOH + SOCl_2 \rightarrow$

(ii) $CH_3COOH \xrightarrow[\text{(ii) } H_2O]{\text{(i) } X_2/\text{Red P}}$

(iii) $CH_3CH_2COOH + NH_3 \xrightarrow{\Delta}$

68. Explain Gabriel phthalimide synthesis.

69. Write only reactions for diazotization of aniline to make red azodye and yellow azodye.

70. Convert :
(i) 3-Methylaniline into 3-nitrotoluene
(ii) Aniline into 1,3,5-tribromobenzene

71. Write a note on preparation of glucose.

72. Give reaction of aryl amine with (a) acylation in presence of pyridine catalyst. (b) with ethyl iodide and (c) with $CHCl_3$/KOH

73. Write the equations for the balanced reaction of acidic permanganate ion with (i) Fe^{2+} (ii) $C_2O_4^{2-}$ (iii) SO_3^{2-}

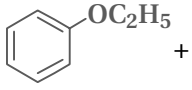
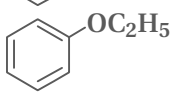
74. Explain optical isomerism in six-coordinated complex compounds.

75. Explain geometrical isomerism in six coordinated complex compounds.

76. An Aromatic compound 'A' on treatment with aqueous ammonia and heating forms compound 'B' which on heating with Br_2 and KOH forms a compound C of molecular formula C_6H_7N. write the structures and IUPAC names of compounds A, B and C.

77. Arrange the following in increasing order of their Basic strenght :
(i) $C_6H_5NH_2$, $C_6H_5N(CH_3)_2$, $(C_2H_5)_2NH$
(ii) Aniline, *p*-Nitro Aniline, *p*-toluidine.
(iii) $C_6H_5NH_2$, $C_6H_5NHCH_3$, $C_6H_5CH_2NH_2$

78. Write the mechanism of hydration of ethene to yield ethanol.

79. Predict the products of the following reactions :
(i) $CH_3 - CH_2 - CH_2 - O - CH_3 + HBr \longrightarrow$
(ii)  $+ HBr \longrightarrow$
(iii)  $+ HBr \xrightarrow[\text{Conc. } HNO_3]{\text{Conc. } H_2SO_4}$
(iv) $(CH_3)_3C - OC_2H_5 \xrightarrow{HI}$

C **Write the answer of the following questions. [Each carries 4 Marks]** **[84]**

80. 2g of benzoic acid (C_6H_5COOH) dissolved in 25g of benzene shows depression in freezing point equal to 1.62K molal depression constant for benzene is 4.9 K kg mol^{-1}. What is the percentage association of acid if forms dimer in solution ? (Molecular mass of benzoic acid is 122 g mol^{-1})

81. Explain van't Hoff factor.

82. What are non ideal solutions ? Explain non ideal solutions with positive deviation and thosewith negative deviation.

83. How many mL of 0.1 M HCl are required to react completely with 1 g mixture of Na_2CO_3 and $NaHCO_3$ containing equimolar amounts of both ?

84. State Henry's law and mention some important applications.

85. A solution containing 30 g of non-volatile solute exactly in 90 g of water has a vapour pressure of 2.8 kPa at 298 K. Further, 18 g of water is then added to the solution and the new vapour pressure becomes 2.9 kPa at 298 K. Calculate :

(i) Molar mass of the solute. (ii) Vapour pressure of water at 298 K.

86. Two elements A and B form compounds having formula AB_2 and AB_4. When dissolved in 20 g of benzene (C_6H_6), 1 g of AB_2 lowers the freezing point by 2.3 K whereas 1.0 g of AB_4 lowers it by 1.3 K. The molar depression constant for benzene is 5.1 K kg mol^{-1}. Calculate atomic massesof A and B.

87. Write a note on lead storage cell (battery). ,

88. Resistance of conductivity cell filled with 0.1 mol L^{-1} KCl solution is 100 Ω. If the resistance of the same cell when filled with 0.03 mol L^{-1} KCl solution is 520 Ω, calculate the conductivity and molar conductivity of 0.03 mol L^{-1} KCl solution. The conductivity of 0.1 mol L^{-1} KCl solution is 1.29 Sm^{-1}.

89. During nuclear explosion, one of the products is ^{90}Sr with half-life of 28.1 years. If 1 µg ^{90}Sr was absorbed in the bones of a newly born baby instead of calcium, how much of it will remain after 10 years and 60 years if it is not lost metabolically.

90. Give preparation of alkyl halides from alcohols.

91. Write a note on S_N1 reaction.

92. Write a note on preparation of aldehyde and ketone from the oxidation of alcohol.

93. Explain method of preparation of aldehyde and ketone from Grignard reagents with suitable examples.

94. Write about (a) Tollen's Test and (b) Fehling solution.

95. Write a note on Haloform test.

96. Write about aldol condensation.

97. (a) Draw optical and geometrical isomers of $[CoCl_2(en)_2]^+$.

(b) Give evidence that $[Co(NH_3)_5Cl]SO_4$ and $[Co(NH_3)_5(SO)_4]Cl$ are ionisation isomers.

98. (a) (i) Write IUPAC name of $K_3[Cr(C_2O_4)_3]$ complex. (ii) Write formula of tetrammine aquachlorido cobalt(III)chloride.

(b) $[Cr(NH_3)_6]^{3+}$ is paramagnetic while $[Ni(CN)_4]^{2-}$ is diamagnetic. Explain why ?

99. What is meant by conductivity and resistivity ? State their units.

100. The time required for 10 % completion of a first order reaction at 298 K is equal to that required for its 25 % completion at 308 K. If the value of A is 4×10^{10} s^{-1}. Calculate k at 318 K and E_a.

Strategy for 12th GSEB Chemistry Exam

Rest Well Before the Exam – Ensure you take proper rest the night before the exam so that your mind remains fresh and focused for numerical problems, chemical equations, and theory answers.

Start Your Morning with Light Revision – Revise important formulas, chemical reactions, name reactions, definitions, and key points from each chapter to refresh your memory.

Understand the Purpose of the Chemistry Exam – The paper tests your conceptual understanding, numerical solving ability, knowledge of chemical reactions, reasoning skills, and proper presentation of answers.

Stay Calm and Confident – Maintain a positive attitude and attempt each section carefully without panic. Read every question properly, especially numericals and reaction-based questions, before solving.

Utilize the Reading Time Wisely – Use the 15-minute reading time to go through the question paper carefully, identify easy and difficult questions, check options, and plan the order in which you will attempt them.

Manage Your Time Effectively – Distribute time properly among MCQs, short answers, long answers, and numericals. Try to complete the paper 15–20 minutes early for revision.

Practice Theory, Reactions, and Numericals – Revise important definitions, derivations, chemical equations, conversions, graphs, and diagrams. Practise solving numerical problems step-by-step with proper units and formula substitution.

Recheck Your Answer Sheet – Carefully check calculations, units, chemical formulas, balancing of equations, spellings of scientific terms, and diagrams. Ensure answers are clear, systematic, and written in neat handwriting.

ALL THE BEST