**Sample Paper – 2018  
Subject – Chemistry**

**Class – XII**

Rolle No Code No.85/2/1

Time:3hrs MM:70

General instructions:

**1.All questions are compulsory.**

**2.Marks for each question are indicated against it.**

**3.Questions number 1to 8 are very short –answer questions, carrying 1 mark each. Answer these in one word or about one sentence each.**

**4.Questions number 9 to18 are short –answer questions, carrying 2 marks each. Answer these in about 30 words each.**

**5.Questions number19 to27 are short –answer questions, carrying 3 marks each. Answer these in about 40 words each.**

**6.Questions number28 to30 are long-answer questions of 5 marks each. Answer these in about 70 words each.**

**7.Use log tables, if necessary. Use of calculators is not permitted**

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| Q1 | White kind of semiconductor is Cu1.95O. | 1 |
| Q2 | Define the sorption. | 1 |
| Q3 | Write the IUPAC name of OHC-COOH. | 1 |
| Q4 | Why does NO2 group show its effect only at ortho- and para- positions and not at meta- position? | 1 |
| Q5 | Define the term over potential. | 1 |
| Q6 | When solute A is mixed with Solvent B ,boiling point of solvent increases by 10 K.Discuss what change occur in the interaction of A and B molecule? | 1 |
| Q7 | Discuss about the edema and method of precaution . | 1 |
| Q8 | How value of E of cell should be change if concentration of Cu2+ ion increases [ E0  Ni+2/Ni = – 0.25 V and E0Cu2+/Cu = + 0.34V ] | 1 |
| Q9 | Calculate the Λ°m and dissociation constant (Ka) for acetic acid,if Λ°m of HCl,NaCl,CH3COONa are 426,126,91 SCm2mol-1 and conductivity of 0.001028 mol L-1 acetic acid is 4.95x10-5 Scm-1. | 2 |
| Q10 | i)Arrange the following in decreasing order of base strength  NH3 PH3 AsH3 SbH3  ii)what happens when ammonium dichromate is heated? | 2 |
| Q11 | Define the following terms : a) Vapor phase refining b) Zone refining. | 2 |
| Q12 | i)Write the Discharging reaction of lead storage batteries.  ii)What change occur in the oxidation number of MnO2? | 2 |
| Q13 | A 5% solution (by mass) of cane sugar in water has freezing point of 271 K .Calculate the freezing point of 5% glucose in water if freezing point of pure water is 273.15 K. | 2 |
| Q14 | Al crystallizes in a cubic close packing structure (FCC) Its metallic radius is 125 pm .Find the edge length of the unit cell. How many unit cells are there in 1cm3 of Al ? How man atoms are there in 1cm3 of Al ? | 2 |
| Q15 | Silver forms c Silver forms ccp lattice and X-ray studies of its crystals show that the edge length of its unit cell is 408.6 pm.  Calculate the density of silver (Atomic mass = 107.9 u) | 2 |
| Q16 | Define the following :  i)Hardy schulze rule  ii)Electrokinetic potential | 2 |
| Q17 | i) What What is the associated colloid Give two examples. How does associated colloid differ from Multi molecular and macro molecular colloids ? | 2 |
| Q18 | Determine osmotic pressure of solution prepared by dissolving 25mg of K2SO4 in 2 Lts of water at 250C. Assuming that it is completely dissociated. | 2 |
| Q19 | Give names of the reagents to bring about the following  Transformations:  (i) Cyclohexanol to cyclohexanone  (ii) p-Fluorotoluene to p-fluorobenzaldehyde  (iii) Ethanenitrile to ethanol | 3 |
| Q20 | Account for the following:  (i) pKb of aniline is more than that of bezylamine.  (ii) Why we use pyridine during acylation of primary amide.  (iii) Although amino group is o–and p–directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline.  . | 3 |
| Q21 | Give the answer of following:  (1)Why does nitrogen show catenation properties less than phosphorus?  (2) How is O3estimated quantitatively?  (3) How do you account for the reducing behavior of H3PO3 on the basis of its structure ? | 3 |
| Q22 | i)Give two reactions that show the acidic nature of phenol. Compare acidity of phenol with that of ethanol.  ii) Explain why is orthonitrophenol more acidic than orthomethoxyphenol ? | 3 |
| Q23 | . Answer **any three** of the following :  i) Why is NaCN added in the Froth floatation process?  ii) What is the role of Cryolite in the metallurgy of Aluminium ?  iii) Name one important ore each of Aluminium and Zinc.  iv) Describe the method of refining of Nickel. | 3 |
| Q24 | Albert observed that his friend Shilpa was suffering from fever, not playing with friends and becoming easily irritable for some weeks. Albert told his teacher about this, who, in turn, called Shilpa’s parents and advised them to consult a doctor. Doctor after examining Shilpa prescribed antipyretic drugs for her.After reading the above passage, answer the following questions:  i) Name two antipyretic drug.  ii) Mention the values shown by Albert.  iii) How should Shilpa’s family help him other than providing medicine? | 3 |
| Q25 | Distinguish between compounds:  (i) Benzaldehyde and Benzal  (ii) lactic acid and mesityloxide  OR  (a) Account for the following:  (i) Benzaldehyde be is more reactive than cyclohexanone towards reaction with HCN.  (ii) 2-Fluorobutanoic acid is a stronger acid than 2-chlorobutanoic acid. | 3 |
| Q26 | Define each of following :i)c.m.c. ii)Shape selective catalysis iii)Kraft temperature | 3 |
| Q27 | (i)Explain why the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride?  (ii) Arrange the compounds of each set in order of reactivity towards SN2 displacement:  2-Bromo-2-methylbutane, 1-Bromobutane, 2-Bromobutane,1-iodobutane. | 3 |
| Q28 | i) Illustrate with the help of diagram how molar conductivity of  a)A weak electrolyte , vary with dilution of solution.  ii)Calculate the potential of hydrogen electrode in contac with a solution whose pH is 10.  iii)A solution of ZnSO4 is electrolysed for 15 minutes with a current of 2 amperes.What is the mass of Zn deposited at the cathode.  Or  (a) Define zetapotential.  (b) Write down the reactions involved in the working of a H2––O2 fuel cell.  (c) Λm°for NaCl, HCl and NaAc are 126.4, 425.9 and 91.0 S cm2mol–1respectively. Calculate Λmo  for HAc.If the conductivity of 0.00241M HAc is 7.896x10-5 s/cm.Calculate the dissociation constantof HAc.    Or  Three electrolytic cells A,B,C containing solutions ZnSO4,AgNO3,and CuSO4 respectively are connected in series .a Steady current of 1.5 amperes was respectively are connected in series .A steady current of 1.5 amperes was passed though them until 1.45g of silver deposited at the cathode of cell B.How long did the current flow? What mass of copper and zinc were deposited? (Atomic mass of Zn=65 ,Ag= 108 Cu=63.5) | 5 |
| Q29 | i) .Define molecularity .When could molecularity and order of reaction be same and  different ?  ii) During nuclear explosion, one of the products is 90Sr with half-life of 28.1 years. If 1g of 90Sr was absorbed in the bones of a newly born baby instead of calcium, how much of it will remain after 10 years if it is not lost metabolically  OR  The reaction between A and B is first order with respect to A and zero order  with respect to B. Fill in the blanks in the following table. 2   |  |  |  |  | | --- | --- | --- | --- | | Exp. | [A] / mol L -1 | [B] / mol L -1 | Initial Rate  Mol L-1 min-1 | | 01 | 0.1 | 0.1 | 2.0 × 10-2 | | 02 | - | 02 | 4.0 × 10-2 | | 03 | 0.4 | 0.4 | - | | 04 | - | 0.2 | 2.0 × 10-2 | | 5 |
| Q30 | a.Define the mole fraction 5  b.Derive the relationship b/w relative lowering in vapour pressure and mole fraction of a volatile liquid containing non volatile solute.  c.An aqueous solution of 2% non volatile solute exerts a vapor of 1.004bar at the normal boiling point of solvent what will be the molar mass of solute .  Or  a.Define the Henry Law,to avoid the bends what kind of gaseous mixture is used by scuba divers.  b.4 g of benzoic acid (C6H5COOH) dessolved in 100 g of benzene shows adepression in freezing point equal to 0.8099K Molal depression constant(Kf) for benzene is 4.9KKg/mole.calculate degree of association .  \*\*\*\*\*\*\*\*\*  **Paper Submitted By:**  **Name Omjeesingh**  **Email omjeesingh@gmail.com**  **Phone No. 9401368600/7544050595** | 5 |