



## CHEMISTRY

### BOOKS - OSWAAL PUBLICATION CHEMISTRY (KANNADA ENGLISH)

### SOLVED PAPER II PUC APRIL-2016

#### Part A

1. Name the law behind the dissolution of  $CO_2$  gas in soft drinks under high pressure.



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2. Ornamental gold containing copper is an example for what type of solution?

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3. Which gas is evolved at cathode during the electrolysis of an aqueous solution of NaCl?

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4. What happens to the half life period of a first order reaction if the initial concentration of the reactants is increased?

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5. Out of physisorption and chemisorption which one has lower enthalpy of adsorption?



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6. Give the composition of copper matte.



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7. Noble gases are chemically inert. Give one reason



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8. What is "Chirality" ?

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9. Complete the following chemical reaction.



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10. Which hormone regulates the sugar level in the blood

?

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1. Calculate the no. of particles (atoms) per unit cell in a FCC crystal lattice:

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2. What are ferromagnetic substances ?

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3. The rate constant of a certain first order reaction is  $200\text{S}^{-1}$ . What is its half life period ?

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4. Zr and Hf have almost identical atomic radii. Give reason?

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5. Explain Kolbe's reaction

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6. What is the action of dil NaOH on ethanal (acetaldehyde)? Name the reaction

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7. What is the role of the following chemicals in food?

(a) Sodium benzoate

(b) Saccharin.

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8. What are antifertility drugs ? Give an example

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## Part C

1. In the extraction of Aluminium by electrolysis.

i. Give the composition of electrolyte used

ii. Overall cell reaction

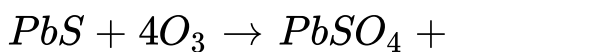
iii. Role of cryolite

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2. Write the balanced Chemical equation with condition involved in manufacture of nitric acid by ostwald's process.

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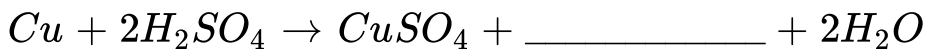
3. Complete the following chemical equations.



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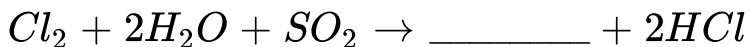


4. Complete the following chemical equations.



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5. Complete the following chemical equations.



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6. How is chlorine prepared using  $\text{KMnO}_4$  ?



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7. Why is  $I_2$  less reactive than  $ICl$ ?

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8. Calculate the spin only magnetic moment of  $Fe^{2+}$

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9. Why  $Sc^{3+}$  salts are colourless whereas  $Cr^{3+}$  salts are coloured.

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10. Write the balanced equations in the manufacture of potassium dichromate from chromite ore.

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11. Explain the hybridisation, geometry and magnetic property of  $[CoF_6]^{3-}$  based on VBT.

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12. Write any two postulates of Werner's theory of coordination compounds.

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13. Write the IUPAC name of  $[Pt(NH_3)_2(H_2O)Cl_2]$

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## Part D

1. a. Calculate the packing efficiency in a Body Centered Cubic (BCC) lattice.

b. Silver forms a ccp lattice. The edge length of its unit cell is 408.6 pm. Calculate the density of silver.

( $N_A = 6.022 \times 10^{23}$ , Atomic mass of Ag =  $108 \text{ gmol}^{-1}$ )

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3. 5.8 g of non - volatile, non - electrolyte solute was dissolved in 100 g of carbon disulphide ( $CS_2$ ). The vapour pressure of the solution was found to be 190 mm of Hg. Calculate molar mass of the solute. Given : Vapour of pure  $CS_2$  is 195 mm of Hg and molar mass of  $CS_2$  is  $76 \text{ g/mol}$ .

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4. Mention any two differences between ideal and non-ideal solutions.

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5. State Faraday's First law of electrolysis. Write its mathematical form using usual notations.

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6. State Kohlrausch law.

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7. Write the overall cell reaction taking place in Daniel Cell

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8. Derive an integrated rate equation for the rate constant of a zero order reaction.

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9. Draw a graph of potential energy v/s reaction co-ordinate showing the effect of a catalyst on activation energy.

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10. Mention any three differences between lyophilic and lyophobic colloids.

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11. What is heterogeneous catalysis ? Give an example.

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12. Explain the mechanism of  $S_N1$  reaction taking 2-bromo-2-methyl propane (t-butyl bromide)

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**13.** Explain wurtz-Fitting's reaction

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**14.** Write the general formula of Grignard reagent

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**15.** How is phenol manufactured by Cumene process?

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16. Among alcohols and phenols which one is more acidic?

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17. Explain the mechanism of addition of HCN to a carbonyl group in presence of a base.

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18. How is benzamide obtained from benzoic acid ?

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19. Explain Carbyl amine reaction

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20. What is the action of bromine water on Benzenamine (Aniline) at room temp.

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21. The  $pK_b$  values of Ammonia, methanamine and Benzenamic (aniline) are 4.75, 3.38 and 9.38 respectively. Arrange them in the increasing order of their basic strength.

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**22.** How do you show that glucose contains a linear chain of six carbon atoms.

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**23.** What are essential amino acids? Is glycine an essential amino acid ?

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**24.** Write the general formula of Zwitter ionic form of an amino acid

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25. Explain addition polymerisation with an example.



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26. Name the monomers used in the manufacture of Nylon-6, 6.



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27. Write the partial structure of Neoprene



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