# CHEMISTRY

## BOOKS - JEEVITH PUBLICATIONS CHEMISTRY (KANNADA ENGLISH)

## ANNUAL EXAM QUESTION PAPER WITH ANSWER MARCH(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 dring 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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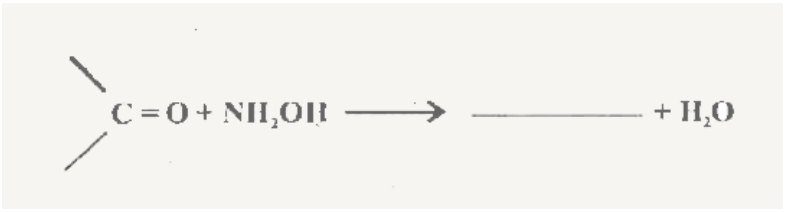
**9.** Completely the following chemical reaction.

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**10.** Which hormone regulates the sugarlevel in the blood ?

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Part B

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

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**2.** What are ferromagnetic substances? Give one example.

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**3.** The rate constant of a certain first order reaction is $200S^{-1}$. 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?

Saccharin

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**8.** What is the role of the following chemicals in food?

Sodium benzoate

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**9.** What are antifertility drugs ? Give an example

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## Part C

**1.** In the extraction of Aluminium by electrolysis

Give the composition of electolyte used

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**2.** In the extraction of Aluminium by electrolysis

overall cell reaction

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**3.** In the extraction of Aluminium by electrolysis

Role of cryolite

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

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**5.** Complete the following chemical equations.

$PbS + 4O_3 \rightarrow PbSO_4 +$ _____

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**6.** Complete the following chemical equations.

$$Cu + 2H_2SO_4 \rightarrow CuSO_4 + \_\_\_\_\_ + 2H_2O$$

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**7.** Complete the following chemical equations.

$$Cl_2 + 2H_2O + SO_2 \rightarrow \_\_\_\_\_ + 2HCl$$

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**8.** How is chlorine prepared using $KMnO_4$ ?

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**9.** Why is $I_2$ less reactive that ICl?

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**10.** Calculate the spin only magnetic moment of

$Fe^{2+}$

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

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**12.** Describe the manufacture of potassium dichromate from chromite ore.

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

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**14.** Write any two postulates of werner theory of Co-ordination compounds.

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**15.** Write the IUPAC name of $\left[Pt(NH_3)_3(H_2O)Cl_2\right]$.

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## Part D

**1.** Calculate the number of particles in Body Centered Cubic (BCC) lattice.

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**2.** Silver crystallizes in CCP lattice. The edge length of its unit cell is 408.6 pm. Calculate density of silver (atomic mass of silver is 107.9)

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**3.** 5.8 g of non - volatile, non - electrolyte solute was dissolved in 100 g of carbon disuiphide $(CS_2)$. 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 $76g/mol$.

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**4.** Write two differences between ideal and non-ideal solution

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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 Kohlrauseh law.

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

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**8.** Derive the integrated rate equation for rate constant of 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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## Part E

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

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

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

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

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**5.** Among alcohols and phenols which one is more acidic ? And why ?

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

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**7.** How is bezamide obtained from benzoic acid ?

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**8.** Explain Carbyl amine reaction

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

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**10.** The pkb 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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**11.** How do you show that glucose contains a linear chain of six carbon atoms.

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


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

**14.** Explain addition polymerisation with an example.

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**15.** Name the monomers usedl in the manufacture of Nylon-6, 6.

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**16.** Write the partial structure of Neoprene

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