



# CHEMISTRY

## BOOKS - SUNSTAR CHEMISTRY

### (KANNADA ENGLISH)

## II PUC CHEMISTRY (SUPPLEMENTARY EXAM QUESTION PAPER JULY - 2016)

### Part A

1. What are ideal solutions?



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2. What is the effect of rise in temperature on the solubility of gases in liquids?



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3. Write Nernst equation for Daniell cell.



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4. Rate constant of a reaction is  $K = 3.4 \times 10^{-4} \text{ mol}^{-1} \text{ LS}^{-1}$  What is the order of the reaction ?



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5. Which is the dispersed phase in Emulsion ?



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6. Write the principle involved in zone refining

.



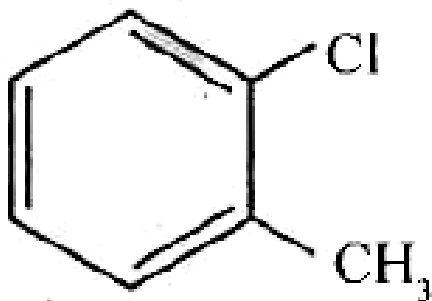
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7. Name the nobles gas obtained as decay product of  ${}_{226}\text{Ra}$ .



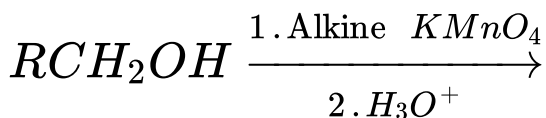
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8. Write the IUPAC name of



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9. Complete the following chemical reaction



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10. Which Vitamin deficiency casuses the disease 'Rickets'?



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## Part B

1. Which type of Stoichmetric defect is shown by the following solids?

a)  $AgCl$

b)  $KCl$



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2. What is a secondary cell? Write the equation for the cathodic reaction of lead storage battery ?



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3. 75% of the first order reaction is completed in 30 minutes. Calculate rate constant of the reaction.



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4. What is lanthanoid contraction? Write the general oxidation state of actinoids.



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5. Explain Reimer - Tiemann reaction with an example .



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6. Aldehydes are generally more reactive than ketones towards nucleophilic addition reactions. Give two reasons.



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7. (i) What are tranquilizers?

(ii) Name the first popular artificial sweetening agent.



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8. Why soaps do not work in hard water ?



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## Part C

1. Explain the extraction of aluminium from purified alumina by Hall-Heroult process.



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



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3. Mention three anomalous behaviour of oxygen.



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4. Write the structure of Sulphuric acid.



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5. How hot and concentrated sodium hydroxide reacts with chlorine gas ?



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6. How does electronegativity of Halogens vary down the group?



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7.  $Cu^{2+}$  ions are coloured but  $Zn^{2+}$  ions are colourless. Give reason.



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8. Write the formula to calculate spin only magnetic moment.



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9. How is  $KMnO_4$  [Potassium permanganate] is prepared from  $MnO_2$ ? Write equations.



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10. Using VBT, explain the geometry and magnetic property of  $[CO(NH_3)_6]^{+3}$ .



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**11. (a)** Explain ionization isomerism with an example .



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**12.** What are homoleptic complexes?



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**Part D**

1. a) Calculate the packing efficiency of particles in a body centred cube.



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2. Calculate the number of particles per unit cell of FCC .



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3.  $300\text{cm}^3$  of an aqueous solution of a protein contains 2.12 g of the protein, the protein, osmotic pressure of such a solution at 300 K is found to be  $3.89 \times 10^{-3}$  bar. Calculate the molar mass of the protein.

$$\left( R = 0.0823 \text{ L bar mol}^{-1} \text{ K}^{-1} \right)$$



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4. i) State Henry's law.

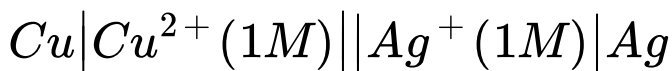
ii) Soda water bottles are sealed under high

pressure. Give reason.



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5. Find the value of  $\Delta G^\circ$  at  $25^\circ C$  for the following electrochemical cell.



$$\left[ E_{Cu} = +0.34V, E_{Ag}^\circ = +0.8V \right]$$

$$F = 96487C$$



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6. Write the equations of anodic and cathodic reactions occur during rusting of iron.



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



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**8.** Write the energy distribution curve showing temperature dependence of rate of a reaction.



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**9.** Mention any one application of adsorption.

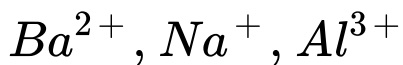


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**10. i)** What is 'Tyndall effect'?

**ii)** In the coagulation of negative sol, arrange

the following ions in ascending order of their flocculating power.



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**11.** What is heterogeneous catalysis? Give an example.



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12. i) Explain  $S_N2$  mechanism taking an example of chloromethane.

ii) Write the general equation for the reaction of primary alcohol with  $SOCl_2$ .



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Name the above reaction.

ii) P - dichlorobenzene has higher melting

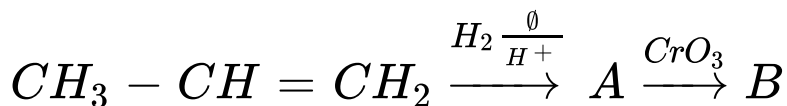
point than those of ortho and meta isomers.

Give reason.



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14. i) Identify 'A' and 'B' in the following equations.



ii) What is Lucas reagent?



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15. Explain Williamson's ether synthesis.



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16. i) How does benzaldehyde reacts with acetophenone in presence of a dilute alkali?

ii) Name the product formed when acetaldehyde reacts with HCN.



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**17.** Among formic acid and acetic acid, which is more acidic ? Give reason.



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**18. i)** Explain the reduction of nitrocompounds to amines with an examples.

**ii)** Why aromatic primary amines cannot be prepared by Gabriel synthesis?



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19. How is aniline converted in phenyl isocyanide ? Write the equation.



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20. Write Haworth structure for maltose.



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21. What is nucleoside?



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**22.** What are fibrous proteins Give an example .



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



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**24.** What is vulcanisation of rubber?





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25. Give an example for biodegradable polymer.



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