



# CHEMISTRY

BOOKS - JEEVITH PUBLICATIONS

CHEMISTRY (KANNADA ENGLISH)

PUE BOARD MODEL QUESTION PAPER

4 WITH ANSWERS

Part A

1. Define VantHaff's factor.



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**2. What are isotonic solutions?**



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**3. Mention the SI unit for molar conductivity.**



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4. For the reaction  $A+B \rightarrow \text{products}$ . The rate becomes doubled when concentration of only A is increased by two times, the rate is increased by four times, when the concentration of B alone is doubled what is the order of the reaction?



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5. Name the enzyme used in the inversion of cane sugar.





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6. Name the method used for refining of zirconium.



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7. Complete the reaction

$XeF_4 + O_2F_2 \rightarrow A + O_2$ . Identify A.



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8. What is racemic mixture ?



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9. Name the product obtained when acetaldehyde reacts with hydroxyl amine.



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10. Name the nitrogenous base present in RNA only.



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## Part B

1. 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 of Ag = 107.9 u)



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2. What is corrosion? Mention a general method to prevent it.



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3. Write the Arrhenius equation and mention what each term stands for.



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4. Give any two differences between lanthanoids and actinoids.



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5. How does Acetyl chloride react with Anisole in presence of anhydrous aluminium chloride catalyst. Write the chemical equation of the reaction.



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6. Explain the effect of electron withdrawing groups. [EWG] on the acidity of carboxylic acids. Give examples.



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7. What are antacids? Give an example.



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8. What are food preservatives ? Give an example .



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## Part C

1. How is pure alumina obtained from bauxite by leaching process.



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2. Write the reactions that take place during the manufacture of nitric acid by Ostwald's process.



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3. (i) What happens when potassium chlorate is heated in presence of  $MnO_2$ , write the equation for the reactions also.

(ii) Draw the structure of sulphuric acid.



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4. (i) How is chlorine prepared by using  $MnO_2$  ?



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5. D-block elements form co-ordination compounds. Give reasons.



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6. How is potassium dichromate prepared from chromite ore ?



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7. Using VBT, explain the geometry and magnetic property of  $[Ni(CN)_4]^{-2}$ . (Atomic Number of Ni=28).



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8. Write any three postulates of Werner's theory of complexes.



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## Part D

1. Calculate the number of particles per unit cell in fcc.



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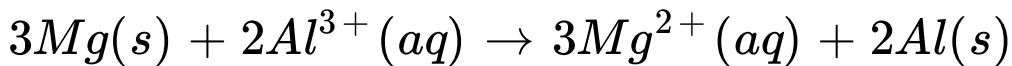
2. The boiling point of benzene is 353.23 K when 1.80 g of a non-volatile, non-ionising solute was dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of solute.

[Given  $K_b$  for benzene = 2.53 K kg  $mol^{-1}$ ]



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3. Calculate the standard free energy change for the following reaction occurring in the galvanic cell at 298 K.



Given :  $E_{Mg^{2+}/Mg}^{\circ} = -2.37V$  and

$E_{Al^{3+}/Al} = -1.66V$



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4. (a) Derive the integrated rate equation for the rate constant of a first order reaction.

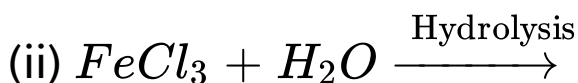
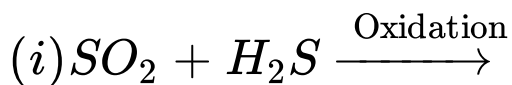
(b) What is pseudo first order reaction?



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5. (a) Complete and balance the following reaction



(b) Mention two characteristics of enzyme catalysis

(c) What is the sign of  $\Delta S$  for the adsorption of gas on solids?



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1. (a) Explain  $SN^1$  mechanism by taking tertiary butyl bromide as an example.

(b) What is Wurtz Fitting's reaction? Give an example.



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2. (a) How is phenol manufactured by cumene process. Give the chemical reactions of the reaction involved.

(b) How do you prepare ethanol by using the Grignard Reagent?



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3. (a) How is benzoyl chloride converted into benzaldehyde? Name the reaction.

(b) Write the chemical reaction for the reaction between dilute NaOH and acetaldehyde, mention the name of the product formed.



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4. (a) Explain how is Hinberg's reagent is used to distinguish the primary, secondary and tertiary amines.

(b) Write the chemical reactions involved in the conversion of aniline into phenol.



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5. (a) What are carbohydrates? And how are they classified?

(b) What is a peptide bond? How many peptide bonds are present in a tetra peptide?



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6. (a) (i) What are condensation polymers?

Give an example.

(ii) Give the IUPAC of the monomer of natural rubber.

(b) What are Biodegradable polymers? Give an example.



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