



## CHEMISTRY

## **BOOKS - SUNSTAR CHEMISTRY (KANNADA ENGLISH)**

# II PUC CHEMISTRY (P.U. BOARD LATEST MODEL QUESTION PAPER - 1)



1. The experimental value for the molar mass of a non-volatile solute is

twice the theoretical value. What is the Van't Hoff factor for the solute?



2. Define ppm.

3. Which of the following has a higher value for molar conductivity under similar conditions?  $0.1 {
m M~KCl}$  or  $0.01 {
m M~KCl}$ .

Watch Video Solution

**4.** For the reaction  $A + B \rightarrow P$ , the rate is given by Rate  $= K[A]^{1}[B]^{2}$ . By how many times does the rate of reaction increase when concentrations of A & B are doubled?

Watch Video Solution

**5.** Name the biocatalyst involved in the conversion of glucose into ethanol and carbon dioxide.



**6.** Write the formula of the volatile compound formed during the purification of nickel by Mond's process.

Watch Video Solution
7. What is the geometry of oxide of xenon formed when $XeF_6$ is
hydrolysed?

Watch Video Solution

**8.** Between chlorobenzene and chloroethane, which is more reactive towards nucleophilic substitution reaction?



**9.** Pentan-3- one does not undergo iodoform reaction. Give reason.

**10.** Name the nitrogenous base present in DNA but not in RNA.

3. i) According to the equation  $Cu^{2+} + 2e^- \rightarrow Cu$ , how many moles of copper are deposited when 965C of electricity is passed through a solution of  $Cu^{2+}$  ions?

(1F = 96500C).

Watch Video Solution

4. Mention any one application of Kohlrausch law.

Watch Video Solution

5. (b) Show that the half life period for a zero order reaction is directly

proportional to initial concentration.



6. What is the common oxidation state shown by Lanthanoids? Mention

any one consequence of Lanthanoid contraction.



8. Explain the Wolff-Kischner reduction of acetone and write the equation

for the same.



**9.** Give an example of a narcotic analgesic.

10. Based on theraupatic action, to which class of drug does ranitidine
belong to?
<b>Watch Video Solution</b>
<b>11.</b> What is the role of aspartame in the food industry?
Watch Video Solution
<b>12.</b> What is saponification?
Watch Video Solution

Part C

**1.** Write the equations for the reactions involved in the leaching of alumina from bauxite ore.



2. In the manufacture of ammonia by Haber's process:

i) Mention the optimum temperature and optimum pressure employed.

ii) What is the role played by potassium oxide  $(K_2 O)$ ?

Watch Video Solution

3. a) Complete the following equations:

i)  $PbS_{(s)} + 4O_{3(g)} 
ightarrow$ 

ii)  $2NaOH+SO_2 
ightarrow$ 

**4.** Write the structure of oleum  $(H_2S_2O_7)$ 

Watch Video Solution

5. a) Give reason:

i) Fluorine exhibits only one oxidation state whereas other halogens exhibit multiple oxidation states.

ii) Most of the reactions with fluorine are exothermic.

Watch Video Solution

6. b) Write the missing product:

 $NH_3 + 3Cl_{2( ext{excess})} \rightarrow ? + 3HCl.$ 

7. Explain the preparation of potassium permanganate from  $MnO_2$  Write

the balanced chemical equations for the reactions involved.

Watch Video Solution		

8. Give reasons:

i) Generally there is increase in density along 3d series of transition

metals.

Watch Video Solution

9. Give reasons:

Third ionisation enthalpy of manganese is unusually high.



10. Which of the following ions is coloured in aqueous solution?

i) 
$$Sc^{3+}$$
 ii) $Co^{2+}$  iii)  $Cu^+$ 



**11.** Using valence bond theory account for the geometry and magnetic nature of  $[NiCl_4]^{2-}$  ion. (Atomic number of Ni = 28).

Watch Video Solution

12. a) In the complex compound represented by  $CoCl_3.4NH_3$ , how many ammonia molecules satisfy the secondary valence of cobalt if one mole of the compound upon treatment with excess  $AgNO_3$  produces one mole of  $AgCl_{(s)}$ 







**14.** c) Between  $t_{2g}$  and  $e_g$  sets of d-orbitals of a central metal in an octahedral complex, which set has higher energy?

Watch Video Solution

### Part D

1. Calculate the packing efficiency in a simple cubic lattice.

2. b) An element crystallizes in a foc lattice. The edge length of the unit cell is 400 pm. Calculate the density of the unit cell.  $(molar mass = 60 g mol^{-1})$  $(Avogadro number = 6.02 \times 10^{23})$ 

Watch Video Solution

**3.** a) 24 g of a non-volatile, non-electrolyte solute is added to 600 g of water. The boiling point of the resulting solution is 373.35K. Calculate the molar mass of the solute (Given boiling point of pure water = 373 K and Kb for water=0.52 K kg me

### Watch Video Solution

4. b) i) A non ideal solution has  $\Delta H_{
m mixing}>0.$  What type of deviation does it show from Raoult's law?

ii) What is an azeotrope?



**7.** Name the product discharged at the anode during the electrolysis of an aqueous solution of sodium chloride.



8. Derive an integrated rate equation for the rate constant of a first-order

reaction.



ii) Give an example for homogeneous catalysis.

12. i) What is peptization?

ii) What is the dispersed phase in a gel?

iii) Which one of the following electrolyte is required in the smallest

quantity to precipitate a negative sol? MgCl<sub>2</sub>. AICl<sub>3</sub>, NaCl.

Watch Video Solution

13. Discuss the mechanism of hydrolysis of tert - butyl bromide.

Watch Video Solution

14. Identify the missing reactant/product in each of the following:

i) 2- Bromopentane  $+ \, alc. \, KOH 
ightarrow A + KBr$  (where A is the

major product)

ii)2' $B'+2Na \xrightarrow{\mathrm{dry\,either}} C_4H_{10}+2NaBr$ 



**16.** Write the equations involved in the preparation of phenol from cumene.



**17.** i) Give the IUPAC name of the product formed when tertiary butyl alcohol is passed over copper heated to 573 K.



20. Explain Hoffmann bromamide degradation reaction and write the

general equation for the reaction involved.

21. i) Give reason: Aniline is a weaker base than ammonia.

$$\text{ii)} \ C_6H_5NH_2 \xrightarrow[HCl, 273K]{NaNO_2} X \xrightarrow[HCl]{U_2Cl_2} Y.$$

Watch Video Solution

22. Write the Haworth structure of D - sucrose. Why is a non - reducing

sugar?

Watch Video Solution

- 23. i) How many peptide bonds are in a hexapeptide?
- ii) Write the general structure of the Zwiter ionic form of an lpha- amino

acid.

iii) Deficiency of which vitamin cause pernicious anemia?

24. i) Name the polymer whose partial structure is represented by

ii) What are the monomers of Nylon 6, 6?

C	Watch	Video	Solution

**25.** i) Name the catalyst used in the manufacture of high density polythene.

ii) What is the configuration at the carbon - carbon double bonds in

natural rubber ?