CHEMISTRY

BOOKS - SUNSTAR CHEMISTRY (KANNADA ENGLISH)

ANNUAL EXAM QUESTION PAPER MARCH - 2017

Part A

1. How does molarity varies with temperature?

2. 10ml of liquid 'A' is mixed with 10ml of liquid 'B' the volume of the resultant solution is 19.9 ml. What type of deviation expected from Raoult's law?

3. Write the mathemtatical expression for limiting molar conductivity of sodiumm

chloride $[NaCI]$.

4. Define collision frequency.

5. Name the adsorbent used to remove of colouring matter from solution.

6. Give an example of a metal purified by Mond process.

▶ **Watch Video Solution**
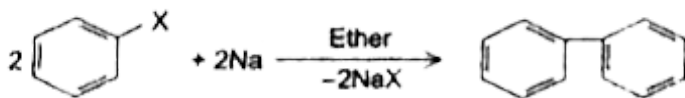
7. Which noble gas in most abundant in atmospheric dry air?

▶ **Watch Video Solution**

8. What is the name of the following reaction?

$$2 \text{ (Ar-X)} + 2Na \xrightarrow[-2NaX]{\text{Ether}} \text{biphenyl}$$

▶ **Watch Video Solution**

9. Formaldehyde [HCHO] Undergoes Cannizzaro reaction: Give reason.

▶ **Watch Video Solution**

10. Deficiency of which vitamin causes the disease scurvy.

▶ **Watch Video Solution**

Part B

1. Give the differences between crystalline and amorphous solids with respect to shape and melting point.
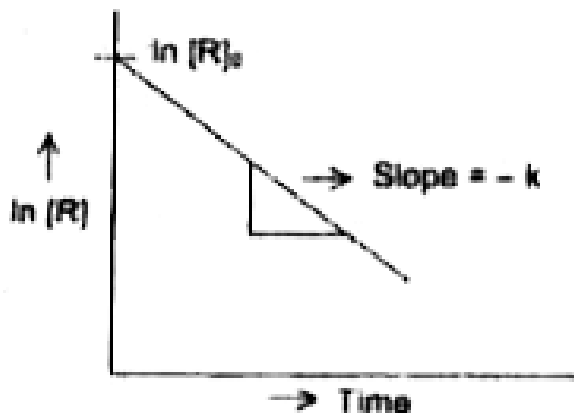
▶ **Watch Video Solution**

2. Write the cathodic and anodic cell reactions of Hydrogen -Oxygen fuel cell.

3. From the following graph, identify order of reaction and mention the unit of its rate

constant.

4. What is lanthanoid contraction? Mention the cause for it.

5. How anisole reacts with acetyl chloride $[CH_3COCl]$ in the presence of anhydrous $AlCl_3$? Write the chemical equation for the reaction.

▶ Watch Video Solution

6. What is the action of ammonia $[NH_3]$ on benzoic acid? Write equation.

▶ Watch Video Solution

7. Give an example for

(i) Non-narcotic analgesics (ii) Antiseptics.

▶ **Watch Video Solution**

8. What are anionic detergents? Give an example.

▶ **Watch Video Solution**

Part C

1. During the extraction of aluminimum by Hall - He'rault process,

i) Write neat labelled diagram of elecctrolytic cell.

ii) Write over all cell reaction.

iii) At which electrode oxygen gas is liberated?

2. In the manufactore of ammonia by Haber's process, write the flow chart and chemical equations with optimum conditions.

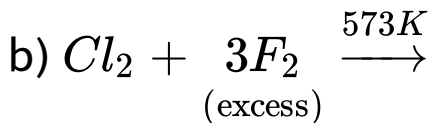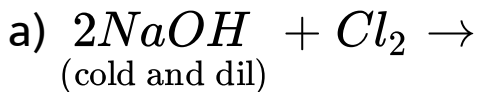**3.** Mention any two reasons for the anomalous behaviour of oxygen.

4. Write the balanced chemical equation for the action of concentrated sulphuric acid on copper metal.

5. Complete the following equations.

a) $2NaOH$ + Cl_2 $\rightarrow$
(cold and dil)

b) Cl_2 + $3F_2$ $\xrightarrow{573K}$
(excess)

▶ **Watch Video Solution**

6. Write the structure of chlorous acid

$[HOClO]$

▶ **Watch Video Solution**

7. Calculate the spin - only magnetic moment of Fe [Atomic number of iron = 26].

8. Which element of 3d series exhibits maximum oxidation state?

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

10. With the help of Valence Bond theory account for hybridisation, geometry and magnetic property of $\left[Ni(CN)_4\right]^{2-}$ complex ion $[Z$ for $Ni = 28]$

11. Write the cis and trans isomeric structures of $\left[Fe(NH_3)_2(CN)_4\right]^{-}$.

12. What is the co - ordination number of Fe in $\left[FeCl_2(en)_2\right]Cl$?

Part D

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

2. An element having atomic mass 63.1 g/mol has face centred cubic unit cell with edge length $3.608 \times 10^{-8} cm$. Calculate the density of unit cell. [Given : $NA = 6.022 \times 1023$ atoms/mol].

3. 1.0 g of non - electrolyte solute dissolved in 50 g of benzene lowered the freezing point of

benzene by 0.4 K. Find the molar mass of the solute. [Given : Freezing point depression constant of benzene = 5.12 K. kg mol].
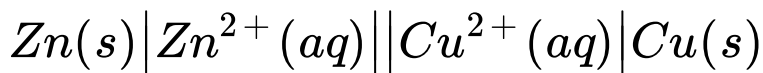
4. How solubility of a gas in liquid changes with increase in temperature?

5. The electrode potential for the Danicell given below is 1.1V.

$$Zn(s)\big|Zn^{2+}(aq)\big|\big|Cu^{2+}(aq)\big|Cu(s)$$

Write overall cell reaction and calculate the standard Gibb's energy for the reaction. $[F = 96487c/mol]$.

6. Mention any two factors which affects the conductivity of electrolytic solution.

7. Derive an integrated rate equation for the

rate constant of a zero order reaction.

8. Write

i) Arrhenius equation.

ii) The formula to calculate half life. Period of

zero order reaction.

9. write any two differences between lyophilic and lyophobic colloids .

▶ **Watch Video Solution**

10. Explain the mechanism of enzyme catalysis.

▶ **Watch Video Solution**

11. How does entropy change for adsorption?

12. Write SN^2 mechanism of the conversion of

methyl chloride to methyl alcohol.

13. Aldehydes are generally more reactive than

ketones towards nucleophillic addition

reactions. Give two reasons.

14. What is asymmetric carbon atom.

▶ **Watch Video Solution**

15. Explain the Kolbe's reaction with equation.

▶ **Watch Video Solution**

16. Write the mechanism of acid catalysed dehydration of ethanol to ethene.

17. How benzene is converted into benzaldehyde by Gatterman-Koch reaction.

18. Complete and name the following reaction.

$$>\!C = 0 \xrightarrow[\text{HCl}]{\text{Zn - Hg}}$$

19. What is the effect of electron withdrawing group on the acidity of carboxylic acid ?

▶ **Watch Video Solution**

20. How aniline is prepared by Hoffmann bromamide degradation reaction? Give equation.

▶ **Watch Video Solution**
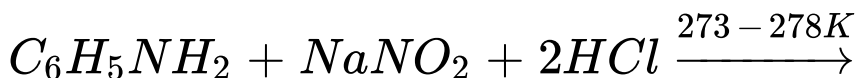
21. i) Write IUPAC name of $CH_3CH_2NH_2$.

ii) Arrange the following amines in the order of their increasing basic strength in aqueous solution.

$(CH_3)_3N_1, (CH_3)_2NH_1, CH_3NH_2$.

▶ **Watch Video Solution**

22. Complete the following equation.

$$C_6H_5NH_2 + NaNO_2 + 2HCl \xrightarrow{273-278K}$$

▶ **Watch Video Solution**

23. Write Haworth structure for maltose.

24. Give an example for

i) Globular proteins.

ii) Naturally occurring optically inactive amino

acid.

25. Name the nucleic acid which is responsible for genetic information.

26. Explain the preparation of Buna-N with equation.

27. Name the monomer present in the following polymer

i) Poly vinyl chloride. Ii) Natural rubber.

▶ **Watch Video Solution**

28. Give an example for biodegradable polymer.

▶ **Watch Video Solution**