



# CHEMISTRY

## BOOKS - OSWAAL PUBLICATION CHEMISTRY (KANNADA ENGLISH)

### Solved Paper 4

#### Exercise

1. State Henry's law.



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2. Van't Hoff's factor for a solution is less than one . What is the conclusion drawn from it ?



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3. How many faraday of electricity is required to reduce 1 mole of  $MnO_4^-$  ions to  $Mn^{2+}$  ions?



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4. If the unit of rate constant of a reaction is  $\text{mol}^{-1}\text{Ls}^{-1}$  then mention its order.



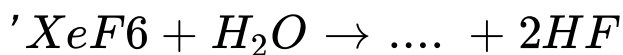
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5. Name a metal refined by Van Arkel method.



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6. Complete the following equation.



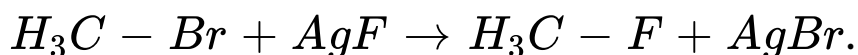
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7. What is an ambidentate ligand ? Name the type of structural isomerism arises when such ligand present in the complex.



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8. Name the following reaction:



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9. Ethanal( $CH_3CHO$ ) undergoes aldol condensation reaction. Give reason.



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10. Deficiency of which vitamin cause the disease "Rickets".



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11. What is Frenkel defect ? How does it affect density of the solid ?



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12. Draw a neat labelled diagram of  $H_2 - O_2$  fuel cell. Write the reaction occurs at cathode of the cell.

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13. A first order reaction is found to have a rate constant  $K = 5.5 \times 10^{-14} S^{-1}$  . Find the half-life of the reaction.

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**14.** Give reasons:

Cerium (Ce) exhibits +4 oxidation state.



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**15.** Give reason: Actinoid contraction is greater from element to element than lanthanoid contraction.



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**16.** How anisole reacts with bromine in ethanoic acid? write the chemical equation for the reaction.



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**17.** Explain the preparation of carboxylic acids from Grignard reagent . Give equation.



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**18.** Given an example each for

(a) Artificial sweetening agents (b) Narcotic analgesics.



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**19.** What are analgesics? Give an example for narcotic analgesics.



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20. What are cationic detergents? Give an example.



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21. Explain the process of obtaining "blister copper" from "copper matte" with equations.



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22. Write the equations involved in the manufacture of nitric acid by Ostwald's process

by maintaining reaction conditions.



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**23.** (a) How is ozonised oxygen prepared in the laboratory? Give equation.

(b) Give the composition of "Oleum".



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**24.** (a) How is ozonised oxygen prepared in the laboratory? Give equation.

(b) Give the composition of "Oleum".



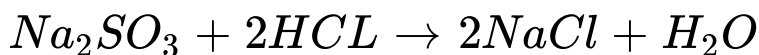
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25. Complete the following equation:



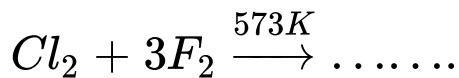
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26. Complete the following equation:



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27. Complete the following equations:



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28. How is potassium permanganate ( $KMnO_4$ ) prepared from  $MnO_2$  ? write the equation.



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29. Why 3d-series of elements acts as good catalyst?



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30. Given reason :  $Ti^{4+}$  salts are colourless where as  $Cr^{3+}$  salts are coloured.



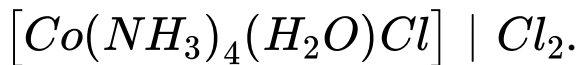
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31. Explain the hybridisation, geometry and magnetic property of  $[Ni(Cl)_4]^{2-}$ .



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32. Write the IUPAC name of:



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33. Explain linkage isomerism with example.



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34. Calculate packing efficiency in simple cubic unit cell.



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**35.** 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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**36.** Define : (i) Molality of a solution (ii) Isotonic solutions





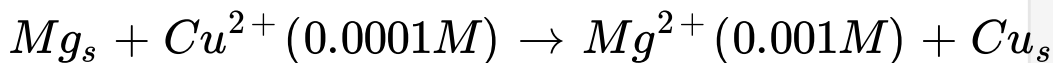
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37. Define : (i) Molality of a solution (ii) Isotonic solutions



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38. Calculate e.m.f. of the cell for the reaction:



Given that:  $E^\circ_{(Mg^{2+} / Mg)} = -2.37V$

$E^\circ_{(Mg^{2+} / Mg)} = +0.34 V$



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**39.** State Kohlrausch law.



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**40. i)** State Kohlrausch law.

ii) What is meant by limiting molar conductance.



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**41.** Derive an integrated rate equation for the rate constant of a first-order reaction.



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**42.** Draw a graph of potential energy V/S reaction co - ordinates showing the effect of catalyst on activation energy ( $E_a$ ) of a reaction.



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**43.** write any two differences between lyophilic and lyophobic colloids .



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



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**45.** Give an expression for Freundlich adsorption isotherm.



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**46.** Write the equations for the steps in SN-1 mechanism of the conversion of tert-Butyl

bromide into tert-butyl alcohol.



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**47.** Explain fitting reaction .



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**48.** Name the reagent used in the dehydrohalogenation of haloalkanes.



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49. Write the mechanism of acid catalysed dehydration of ethanol to ethane.



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50. Between phenol and alcohol which is more acidic ? Why ?



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51. Explain Rosenmund reduction with equation.



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52. How does propanone ( $CH_3COCH_3$ ) reacts with hydrazine? Give equation.



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53. Name an oxidising agent used in the Etard's reaction



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54. (a) Explain carbyl amine reaction with equation.

(b) How does nitrobenzene is reduced to aniline?

Give equation.

(c) Write the IUPAC name of  $C_6H_5 - N(CH_3)_2$



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55. How does nitrobenzene is reduced to aniline ?

Give equation.



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**56.** (a) Write Haworth structure of "Lactose".

(b) i) What are non-essential amino acids?

ii) Write Zwitter ionic structure of "glycine".

(c) Name the nitrogenous base present in RNA but not in DNA.



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**57.** What are non-essential amino acids?



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**58.** (a) Write Haworth structure of "Lactose".

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ii) Write Zwitter ionic structure of "glycine".

(c) Name the nitrogenous base present in RNA but not in DNA.



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



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**60.** Explain the preparation of Nylon-6,6 with equation.



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**61.** (a) Explain the preparation of Nylon-6, 6 with equation.

(b) What are thermoplastic polymers? Give an example

(c) Write the structure of isoprene (2-methyl-1,3-butadiene).



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**62.** (a) Explain the preparation of Nylon-6, 6 with equation.

(b) What are thermoplastic polymers? Give an example

(c )Write the structure of isoprene (2-methyl-1,3-butadiene).



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