



CHEMISTRY

BOOKS - JEEVITH PUBLICATIONS CHEMISTRY (KANNADA ENGLISH)

ANNUAL EXAMINATION QUESTION PAPER MARCH 2018

Part A

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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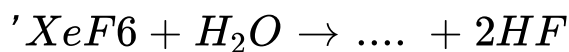
4. If the units of rate constant in a reaction is $mol^{-1}LS^{-1}$ then mention its order.

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5. Name a metal refined by van Arkel method.

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6. Complete the following equation.

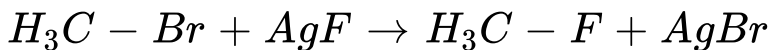


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7. What is an ambidentate ligand?

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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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Part B

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

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

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4. Give reason :

a) Cerium (Ce) exhibits +4 oxidation state.

b) Actinoid contraction is greater from element to element than lanthanoid contraction.

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5. How anisole reacts with bromine in ethanoic acid ?

Write the chemical equation for the reaction.

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6. Explain the preparation of carboxylic acid from Grignard reagent. Give equation.

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7. Given an example for each.

(a) Artificial sweetening agents.

Narcotic analgesics.

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8. What are cationic detergents? Give an example.

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Part C

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

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2. Write the equation involved in the manufacture of nitric acid by Ostwalds process by maintaining reaction conditions.

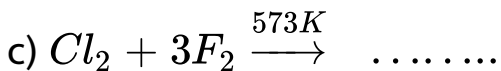
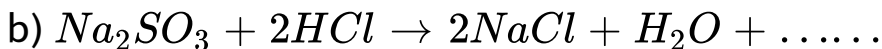
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3. (a) How is ozonised oxygen prepared in the laboratory? Give equation.

(b) Give the composition of "Oleum".

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4. Complete the following equations :



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

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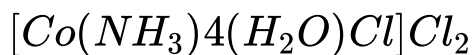
6. Why 3d-series of elements acts as good catalyst?

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

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8. (a) Write the IUPAC name of



(b) Explain linkage isomerism with example.

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1. (a) calculate packing efficiency in simple cubic lattice.

(b) An element having atomic mass 107.9 u has FCC

lattice . The edge length of its unit cell is 408.6 pm

calculate density of the unit cell.

Given, $N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$].



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2. (a) The boiling point of benzene is 353.23K. When

1.80g of a non-volatile, non-ionisable solute was

dissolved in 90g benzene, the boiling point raised to

354.11K. Calculate molar mass of the solute. [K_b for

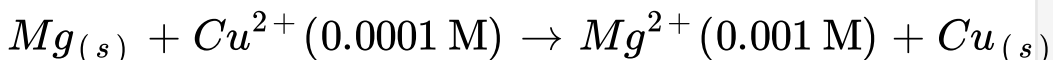
benzene = 2.53K kg mol⁻¹].

(b) Define : (i) molality of a solution.

(ii) Isotonic solutions.

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



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

$E_{Cu^{2+}/Cu}^{\circ} = +0.34V$

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4. Derive an intergrated rate for the first order reaction.



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5. Draw a graph of potential energy v/s reaction co-ordinate showing the effect of a catalyst on activation energy.



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



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7. What is heterogeneous catalysis ? Give an example.

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8. Give an expression for Freundlich adsorption isotherm.

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9. 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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10. Explain fitting reaction .

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

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

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13. Explain Rosenmund reduction with equation.

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

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

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16. Explain carbyl amine reaction with equation.

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17. How does nitrobenzene is reduced to aniline ? Give equation.

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18. Write the IUPAC name of $C_6H_5 - \underset{CH_3}{|} N - CH_3$

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19. Give the Haworth structure of lactos.

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20. (i) What are non - essential amino acids ?

(ii) Write zwitter ionic structure of "glycine "

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21. Name the nitrogenous base present in RNA but not in DNA.

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22. Explain the preparation of Nylon-6, 6 with equation.

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23. What are thermoplastic polymers? Give an example.

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

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