CHEMISTRY

BOOKS - OSWAAL PUBLICATION CHEMISTRY (KANNADA ENGLISH)

SOLVED PAPER (II PUC 2020)

Part A

1. What is the value of Van't Hoff's factor (i) for K_2SO_4?

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2. 10 mL of liquid 'A' is mixed with 10 mL of liquid 'B', the volume of the resultant solution is 19.9 ml. What type of deviation expected

from Raoult's law ?

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3. What is secondary cell?

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4. Identify the order of the reaction from the rate constant $K = 2.3 \times 10^{-6} L \ \ \text{mol}^{-1} s^{-1}$

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5. Give reason: Zeolites are good shape-selective catalyst.

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6. Iron scraps are advisable and advantageous than zinc scraps for reducing the low grade copper ores. Why?

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7. Complete the following equations.

$XeF_6 + H_2O \rightarrow \ldots\ldots\ldots + 2HF$

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8. Give reason. In case of optically active alkyl halides, SN1 reactions are accompanied by racemisation

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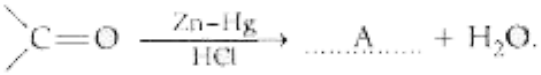
9. Identify 'A' in the reaction :



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10. Give an example for water soluble vitamin.

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11. What is the value of Van't Hoff's factor (i) for K_2SO_4?

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12. 10 mL of liquid 'A' is mixed with 10 mL of liquid 'B', the volume of the resultant solution is 19.9 ml. What type of deviation expected

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13. What is secondary cell?

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14. Identify the order of the reaction from the rate constant $K = 2.3 \times 10^{-6} L \ \ \text{mol}^{-1} s^{-1}$

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15. Give reason: Zeolites are good shape-selective catalyst.

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16. Iron scraps are advisable and advantageous than zinc scraps for reducing the low grade copper ores. Why?

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17. Complete the reaction: $XeF_6 + H_2O \rightarrow \overset{?}{.}\ldots\ldots\ldots + 2HF$

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18. Give reason. In case of optically active alkyl halides, SN1 reactions are accompanied by racemisation

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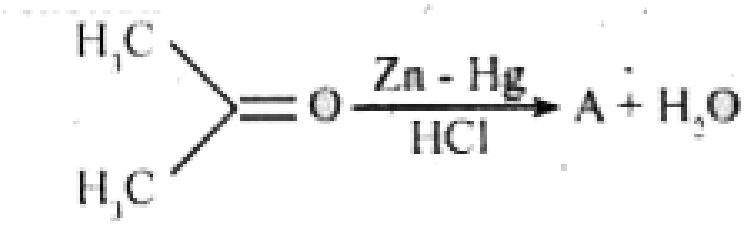
19. Identify "A" in the reaction



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20. Give an example for water soluble vitamin.

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Part B

1. Calculate the number of particles present per unit cell in a B.C.C unit cell

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2. A solution of $Ni(NO_3)_2$ is electrolysed between platinum electrodes using a current of 5 amperes for 20 minutes. What mass of nickel is deposited at the cathode?[molar mass of Ni $= 58.7gma \ \ \mathrm{mol}^{-1}$]

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3. Mention any two factors which influence the rate of the reaction.

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4. Give two reasons the chemistry of actinoids is more complicated than Lanthnoids.

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5. How is phenol prepared from Aniline? Write the equation.

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6. Explain cannizzaro's reaction taking benzaldehyde as an example.

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7. (a) Give an example for non-narcotic analgesic.

(b) Why the use of Aspartame is limited to cold foods and soft drinks ?

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8. (a) Why detergents with straight chain of hydrocarbons are prefered over branched chain hydrocarbons?

(b) Give one example for detergent with straight chain hydrocarbon.

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Part C

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

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2. Write any three anamolous properties of nitrogen.

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3. In the manufacture of sulphuric acid write :

(i) The equation with condition for oxidation of SO_2 to SO_3.

(ii) Formation of Oleum from SO_3.

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4. (a) Complete the following reaction :

(i) $NH_3 + 3Cl_2 \rightarrow \ldots\overset{?}{\ldots}\ldots + 3HCl$

(ii) $Cl_2 + F_2 \overset{473K}{\longrightarrow} \ldots\overset{?}{\ldots}\ldots$

(b) Write the structure of perchloric acid $(HClO_4)$.

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5. Transition elements show catalytic property. Give two reasons.

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6. Write the balanced equations in the manufacture of potassium dichromate from chromite ore.

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7. Using valence bond theory explain geometry, hybridisation and magnetic property of $[CoF_6]_3^-$ (Atomic number of Co = 27).

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8. Indicate the type of Isomerism in the following set of complex compounds.

$[Co(NH_3)_5SCN]Cl_2$ and $[Co(NH_3)5NCS]Cl_2$

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

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16. Write any two postulates of Werner's theory of co-ordination compounds.

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Part D

1. Calcium metal crystallises in a face centered cubic lattice with edge length of 0.556nm. Calculate the density of the metal. [Atomic mass of calcium 40 g/mol]

$[N_A = 6.022 \times 10^{23} \text{ atoms/ mol}]$

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2. Vapour pressure of benzene is 200 mm of Hg. When 2 gram of a non-volatile solute dissolved in 78 gram benzene, benzene has vapour pressure of 195 mm of Hg. Calculate the molar mass of the solute. [Molar mass of benzene is 78 g/mol^{-1}]

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3. Calculate the e.m.f. of the cell in which the following reaction takes place.

$Ni_{(s)} + 2Ag^{+}_{(0.002M)} \rightarrow Ni^{2+}_{(0.160M)} + 2Ag_{(s)}$, Given $E^{\circ}_{\text{cell}} = 1.05V$

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4. According to collision theory, what are the two factors that lead to effective collisions

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5. (a) Write a note of Dialysis.

(b) What is the effect on ΔH and ΔS during the process of adsorption ?

(c) Give an example for heterogeneous catalysis.

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6. (a) Explain S_N1 mechanism for the conversion of tertiary butyl bromide to tertiary butyl alcohol.

(b) Complete the following reactions :

(i) $CH_3 - CH = CH_2 + HI \rightarrow$

(ii)

(iii) $CH_3CH_2Br \xrightarrow[\text{Aq Ethanol}]{AgCN}$

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7. How does anisole react with methyl chloride?

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8. How is benzoyl chloride converted into benzaldehyde. Write the equation and name the reaction.

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9. (a) Mention the I.U.P.A.C. name of $(CH_3CH_2)_2 - N - CH_3$.

(b) How is Aniline prepared from nitrobenzene ?

(c) Give the equation for the conversion of aniline to 4-bromo aniline.

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10. Write a chemical reactions to elucidate

Glucose contains five - OH groups.

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11. Name the monomers present in the following polymers.

PVC

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

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18. Write the mechanism of aicd catalysed dehydration of ethanol to ethane.

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19. How is benzoyl chloride converted into benzaldehyde. Write the equation and name the reaction.

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20. Write the IUPAC name of $(CH_3)_2N - CH_2 - CH_3$.

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21. Write a chemical reactions to elucidate

Glucose contains five - OH groups.

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22. Name the monomers present in the following polymers.

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