CHEMISTRY

BOOKS - OSWAAL PUBLICATION CHEMISTRY (KANNADA ENGLISH)

SOLVED PAPER II PUC TOPPER'S ANSWER MARCH-2015

PART -A

1. At a given temperature and pressure nitrogen gas is more soluble in water than Helium gas. Which one of them has higher value of K_n ?

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2. On mixing equal volumes of acetone and ethanol, what type of deviation from Raoult's law is expected?

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3. What happens to molar conductivity when one mole of KCl dissolved in one litre is diluted to five litres?

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4. What happens to the half life period for a first order reaction, if the initial concentration of the reactants is increased?

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5. Name the process usually employed for the purifacation of -Nickel.

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6. Identify the product A in the following reaction.

$XeF_6 + 3H_2O \rightarrow A + 6HF$

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7. How many moles of $AgCl$ will be precipitated when an excess of $AgNO_3$ solution is added to one molar solution of $[CrCl(H_2O)_5]Cl_2$?

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8. Name the organic compound formed when chlorobenzene is treated with sodium in dry ether.

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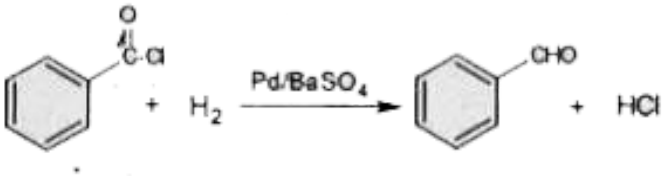
9. Name the following reaction.



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10. Deficiency of which vitamin causes the diseasee perncious anaemia?

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PART -B

1. What is meant by the term coordination number in solids? What is the coordination number in a face centered cubic close packing structure?

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2. State Farday's first law of electrolysis. For the electrode reaction $Zn^{+2} + 2e^{-} \rightarrow Zn_{(s)}$, what quantity of

electricity in coloumbs is required to deposite one mole of zinc.

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3. A reaction is first order with respect to the reactant A and second order with respect to the reactant B in a reaction $A + B \rightarrow$ product

Write the differential rate equation.

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4. A reaction is first order with respect to the reactant A and second order with respect to the reactant B in a reaction $A + B \rightarrow$ product

How is the rate of the reaction affected on increasing tile concentration of B by two times.

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5. Give-any two differences between lanthanoids and actinoids.

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6. Name the product formed when phenol is treated wilh acidified solution of $Na_2Cr_2O_7$ Give equation.

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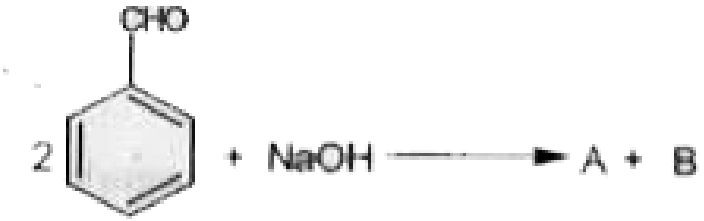
7. Identify A and B in the following reaction.



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8. What is the role of these as food additives?

Sodium benzoate

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9. What is the role of these as food additives?

Aspartame

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10. Explain saponfication of olis/fats with equation.

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PART -C

1. Describe the three steps involved in the leaching of bauxite to get pure alumina (equations not expected).

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2. Write the equations involved in the preparation of nitric acid by Ostwalld's process by maintaining the reaction conditions.

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3. complete the following equations:

$CH_4 + 2O_2 \rightarrow$

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4. complete the following equations:

$$2Fe^{+3} + SO_2 + 2H_2O \rightarrow$$

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5. complete the following equations:

$$C_{12}H_{22}O_{11} \xrightarrow{conc.\ H_2SO_4}$$

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6. Which is the strongest acid among the hydrogen halides? Give one reason

[X=F,Cl,Br,I]

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7. Write the structure of Chloric acid $(HClO_3)$

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8. Give reason (one each) for the following :

Transition metal are good catalytic agent

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9. Give reason (one each) for the following :

Second ionisation enthalpy of copper is very high.

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10. Give reason (one each) for the following:

(a) Transition metals are good catalytic agent

(b) Second ionisation enthalpy of copper is very high.

(c) The spin only magnetic moment of Sc^{3+} is zero (Z = 21).

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11. Write the equations involved in the preparation of potassium dichromate from

chromite ore.

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

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13. For the given complex $\left[Co(NH_3)_5Br\right]SO_4$, write the IUPAC name and its ionisation isomer.

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14. Which set of d-orbitals of metals ion or atom experience more repulsion in octahedral field created by the ligand.

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PART -D

1. Caleulate the packing efficiency in a unit cell of Cubic Close Packing(CCP) structure.

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2. Name the crystal defect which lowers the density in an ionic crystal

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3. A solution containing 18g of non - volatile non - electrolyte solute is dissolved in 200g of water freezes at 272.07K. Calculate the molecular mass of solute. Given $K_f = 1.86 kg/mol$ and freezing point of water = 273K

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4. Define isotonic solution. What happens when the blood cell is dipped in a solution

containing more than normal saline concentration?

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5. Calculate the EMF of the cell for the reaction.

$Mg_{(s)} + 2Ag^{+}_{(aq)} Mg^{+}_{(aq)} + 2Ag(s)$

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

$E^{\circ} Ag^{+} / Ag = 0.08V$

$\left[Mg^{2+}\right] = 0.001M, \left[Ag^{+}\right] = 0.0001M$

$\log 10^{5} = 5$

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6. What are fuel cells ?

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

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

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9. Write any two differences between physisorption and chemisorption.

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10. Name the phenomenon/effect for the following :

Colloidal particles are in zig-zag motion

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11. Name the phenomenon/effect for the following :

When an electrical potential is applied across two platinum electrodes dipping in colloidal

solution, particles moves towards one or the other electrodes

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12. Name the phenomenon/effect for the following :

Scattering of light by colloidal sol

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13. Write equations for the steps in SN^1 mechanism of the conversion of tert.butyl bromide into tert.butyl alcohol.

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14. Identify the products A, B and C in the following equation.

$$CH_3OH \xrightarrow[Cl_2]{\text{Red P}} A \xrightarrow[\text{acetone}]{\text{NaI}} B \xrightarrow[\text{Na and dry ether}]{C_6H_5I} C$$

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

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16. Explain Williamson's reaction. Write the general equation.

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17. Write the organic compound formed in the following equation .

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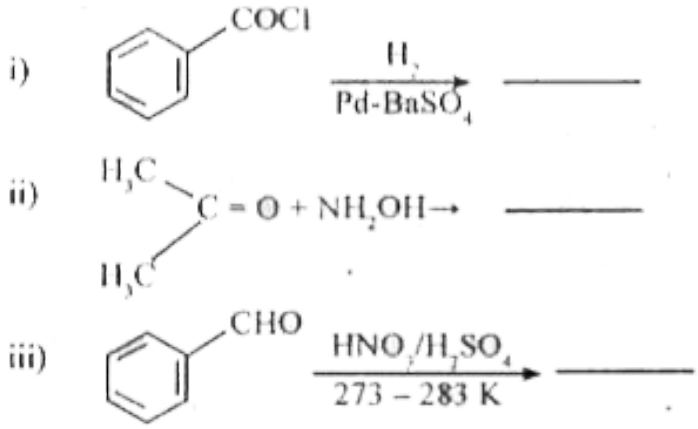
18. Complete the reaction



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19. Write the organic compound formed in tht following equations

$$CH_3 - Mg - Br + CO_2 \xrightarrow[H_2O^+]{\text{dry ether}}$$

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20. Explain HVZ (Hell-Volhard-Zelinsky) reaction with equation.

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21. Identify the reactant 'A' in the following reaction

$$A + 2R - X \rightarrow R_4N^+X^-$$

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22. Explain Hoffmann's bromamide degradation reaction for the preparation of methanamine.

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23. Which is more basic among aqueous solutions of aniline and ammonia ? Give one reason.

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24. Write Haworth structure for maltose.

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25. What is meant by denaturation of protein ? Which level of structure remains intact during denaturation of globular protein ?

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26. Name the base present only in DNA but not in RNA.

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27. Write the partial structure of Neoprene

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28. Write the partial structure of

Terylene (Dacron)

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29. Write the partial structure of

Nylon-6

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

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