Vidyamandir Classes
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MOCK TEST PAPER # 6

HINTS & SOLUTION

CHEMISTRY (CLASS-XII)

2. $[PtCl(NH_3)_5]Cl_4$

4. Increasing order of their boiling points may be as under.

$CH_3CH_2CH_3 < CH_3OCH_3 < CH_3CHO < CH_3CH_2OH$

5. By Hofmann Bromamide reaction :

$RCOOH + NH_3 \rightarrow RCONH_2$

$RCONH_2 + 4NaOH + Br_2 \rightarrow RNH_2 + 2NaBr + Na_2CO_3 + 2H_2O$

6. Glycosidic linkage

7. Monomers used for the synthesis of Buna-S is butadiene and styrene.

8. Transition metal ions exhibit colour which have partially filled *d*-orbitals.

9. Simple cubic : $d = a$

Body centered : $d = \frac{\sqrt{3}}{2}a$

Face centered : $d = \frac{a}{\sqrt{2}}$

10. Malachite green is an example of triphenylmethane dye.

11. $\Delta T_f = K_f \times \frac{W_B}{M_B} \times \frac{1000}{W_A} = 5.12 \times \frac{1.8}{256} \times \frac{1000}{75}$

$= 0.48$

13. First calculate k

$k = \frac{\text{Cell constant}}{R} = \frac{1\ \text{cm}^{-1}}{200\ \text{ohms}}$

Now equivalent conductivity,

$\lambda_{eq} = \frac{k}{C_{eq}} = \frac{1\ \text{cm}^{-1}}{200\ \text{ohms} \times 0.01\ \text{eq} \times (1000\ \text{cm}^3)^{-1}}$

$= \frac{1 \times 1000}{200 \times 0.01}\ \text{ohm}^{-1}\ \text{cm}^2\text{eq}^{-1}$

$= 500\ \text{ohm}^{-1}\ \text{cm}^2\ \text{eq}^{-1}$

14. First calculate : $\frac{r^+}{r^-} = \frac{95\ \text{pm}}{181\ \text{pm}} = 0.525$

22. $R-\overset{+}{N}\equiv\overset{-}{C}: + A^+ \longrightarrow R-\overset{+}{N}\equiv C-A+:B^-$

Isocyanide — Electrophile — Species(I) — Nucleophile

$R-\ddot{N}=C\begin{matrix}A\\B\end{matrix}$

Addition product

25. (i) Let the rate law be $r_0 = [A]^m[B]^n$

$(r_0)_1 = 5.07 \times 10^{-5} = (0.20)^m(0.30)^n$ ...(i)

$(r_0)_2 = 5.07 \times 10^{-5} = (0.20)^m(0.10)^n$ ...(ii)

$(r_0)_3 = 7.16 \times 10^{-5} = (0.40)^m(0.05)^n$ ...(iii)

Dividing equation (i) by equation (ii),

$\frac{(r_0)_1}{(r_0)_2} = \frac{5.07 \times 10^{-5}}{5.07 \times 10^{-5}} = \frac{(0.20)^m(0.30)^n}{(0.20)^m(0.10)^n}$

$1 = 3^n$ or $3^0 = 3^n \Rightarrow n = 0$

Dividing equation (iii) by equation (ii),

$\frac{(r_0)_3}{(r_0)_2} = \frac{7.16 \times 10^{-5}}{5.07 \times 10^{-5}} = \frac{(0.40)^m(0.05)^n}{(0.20)^m(0.10)^n}$

$1.412 = 2^m$ or $2^{1/2} = 2^m \Rightarrow m = \frac{1}{2}$ or $m = 0.5$

Thus order of reaction w.r.t. $A = 0.5$, order of reaction *w.r.t.* $B = 0$

(ii) As $t_{75\%} = 2t_{50\%}$, this shows that $t_{1/2}$ is independent of initial concentration. Hence, it is a first order reaction.

26. (i) $MgO_{(s)} + C_{(s)} \rightarrow Mg_{(s)} + CO_{(g)}$;

$\Delta_r G = -628 - (-314) = -314\ \text{kJ}$

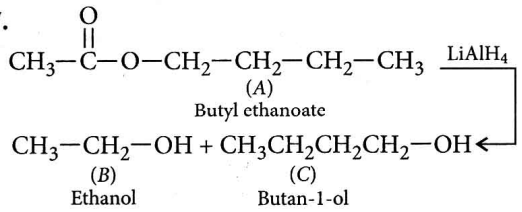
As $\Delta_r G$ for the reaction is –ve, the reaction is feasible. Therefore, $C_{(s)}$ will reduce MgO to Mg.

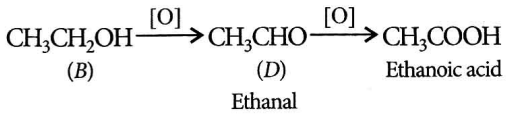
(ii) Dolomite, is $MgCO_3 \cdot CaCO_3$.

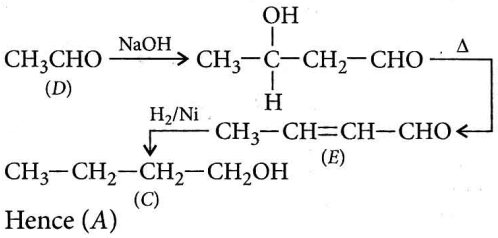
(iii) $E°$ of Zn ($E°_{Zn^{2+}/Zn} = -0.76$) is lower than that of copper ($E°_{Cu^{2+}/Cu} = +0.34$),

therefore, Zn is a stronger reducing agent than Cu. Thus, zinc reduces $[Ag(CN)_2]^-$ to metallic Ag.

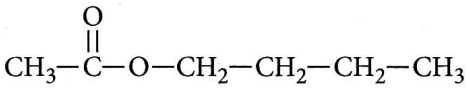
27.







Hence (*A*)



(*B*) CH_3CH_2OH

(*C*) $CH_3CH_2CH_2CH_2OH$

(*D*) CH_3CHO

(*E*) $CH_3—CH=CH—CHO$

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