

1.  $\Delta G$  ରେ  $\Delta H$  ର 16 num. ସ୍ଥାନ,

$$S > Se > Te > O$$

$$4. S_{HCl} = \frac{30 \times 10 \times 1.1}{36.5}$$

$$= 9.04 \text{ M}$$

$$e_1 v_1 S_1 + e_2 v_2 S_2 = e v S$$

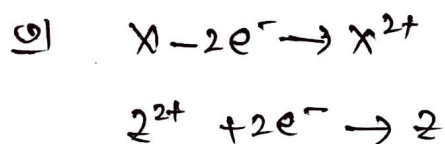
$$1 \times 10 \times 10^{-3} \times 9.04 + 2 \times 40 \times 10^{-3} \times 0.05 = \frac{1 \times 150 \times 10^{-3} \times S}{150 \times 10^{-3} \times S}$$

$$\therefore S = 0.6293 \text{ M}$$

500 mL of,

$$n_{NaOH} = 0.6293 \times 0.5$$

$$= 0.315 \text{ mol}$$

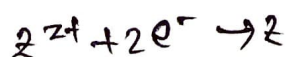
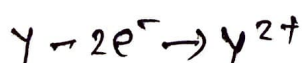


$$E_{\text{cell}}^{\circ} = -0.88 + (-0.44)$$

$$> -1.32 \text{ V} < 0 \therefore \text{ସ୍ପONTANEOUS}$$

$$\therefore E_{\text{cell}}^{\circ} = 0.76 + (-0.44)$$

$$= +0.32 \text{ V} > 0 \therefore \text{ସ୍ପONTANEOUS}$$



91 A →

$$Q_1 n_1 = Q_2 n_2 S_2$$

$$\Rightarrow 1 \times \frac{W}{55.85} = 6 \times 15 \times 10^{-3} \times 0.4$$

$$\therefore W_A = 2.011 \text{ g}$$

$$\therefore \text{Percentage} = \frac{2.011}{3} \times 100 = 67.02\%$$

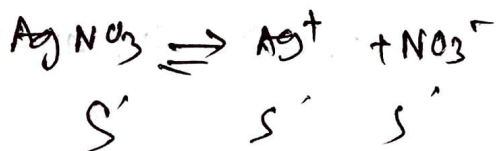
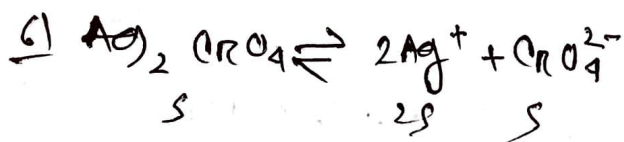
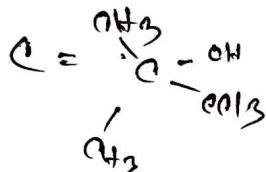
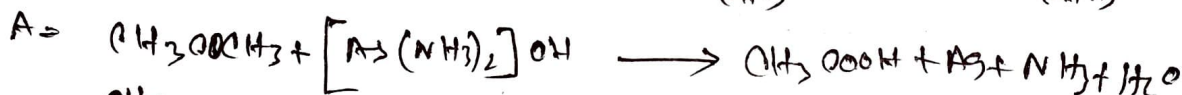
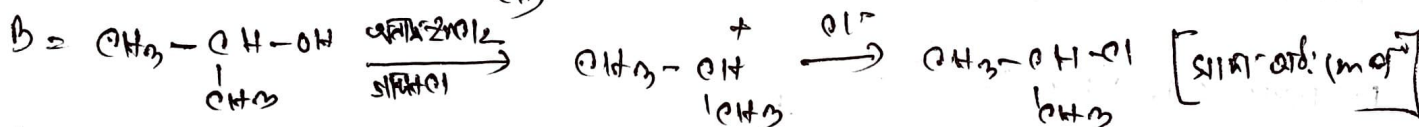
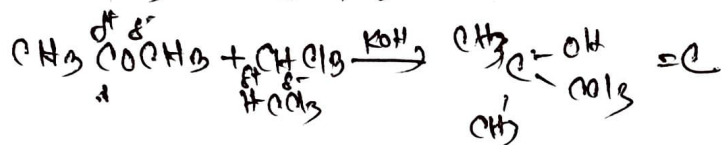
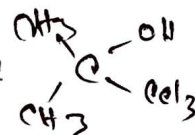
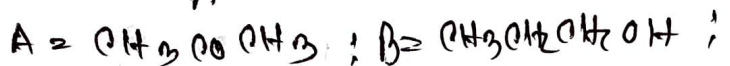
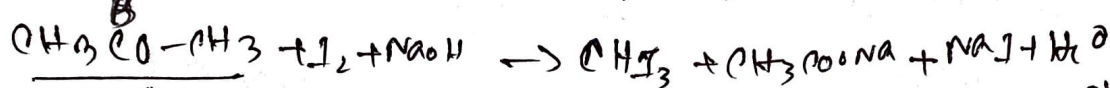
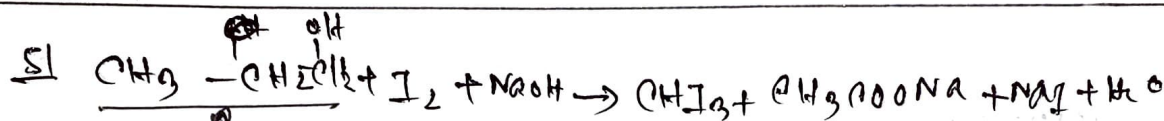
B →

$$W_B = 55.85 \times 5 \times 20 \times 10^{-3} \times 0.3$$

$$= 1.6755 \text{ g}$$

$$\therefore \text{Percentage} = \frac{1.6755}{2} \times 100 = 83.775\%$$

$\therefore$  B નો ધારિત દિલ્લેશ્વર (17) ની,



$\text{AgNO}_3$  નો  $K_{sp} = 9 \times 10^{-12}$

$$S = \frac{9 \times 10^{-12}}{(0.1)^2} = 9 \times 10^{-10} \text{ M}$$

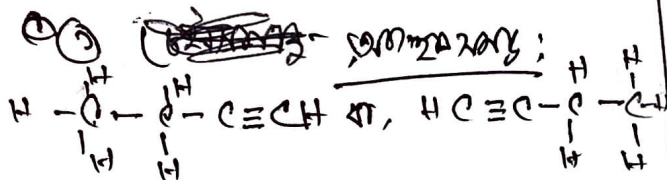
ફોલોવિંગ વાંચકો

71)  $C_4H_{10}$  ;  $n=4$

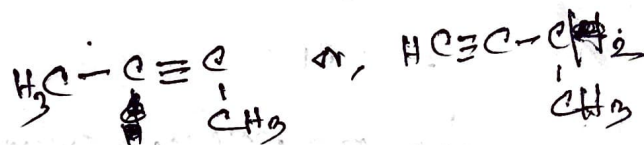
$C_4H_{10}$  ର ସାମାନ୍ୟ ସିଂଗ୍ଲ  
2 ଅଟେ ।

72) ଗୋଟିଏ ସାମାନ୍ୟ —

(2) ଅସାମାନ୍ୟ —



~~ଅସାମାନ୍ୟ~~ : ଗୋଟିଏ ସାମାନ୍ୟ



81)  $i + = vef$

$$S = \frac{i +}{vef} \Rightarrow \frac{4000 \times 10^3 \times 3 \times 600 \times 3}{0.5 \times 2 \times 96500}$$

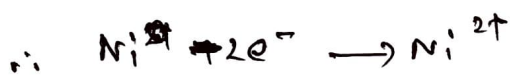
$$\therefore S = 0.4476 \text{ cm}$$

$$\therefore \Delta S = (1.5 - 0.4476) = 1.0524 \text{ m} \text{ @}$$

(b)

$$n = 0.4476 \times 0.5$$

$$= 0.2238 \text{ mol}$$



~~or~~ ~~or~~

$$\therefore N = 0.224 \times 6.023 \times 10^{23} = 1.35 \times 10^{23} \text{ A}$$

$$W = 0.224 \times 58.7 = 13.16 \text{ g} \text{ ଅଟେ @}$$

$$71) p_{OH} = p_{K_b} + \log \frac{[salt]}{[base]}$$

$$\Rightarrow pH = pK_b + \log \frac{n_{salt}}{n_{base}} \rightarrow 0$$



$$\cancel{20 \text{ mmol}} = \cancel{20 \text{ mmol}} \quad n_{NaOH} = 40 \times 0.5 = 20 \text{ mmol}$$

$$\cancel{20 \text{ mmol}} = \cancel{20 \text{ mmol}} \quad n_{H_2SO_4} = 15 \times 0.667 = 10 \text{ mmol}$$

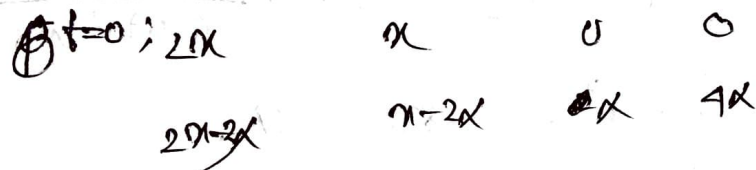
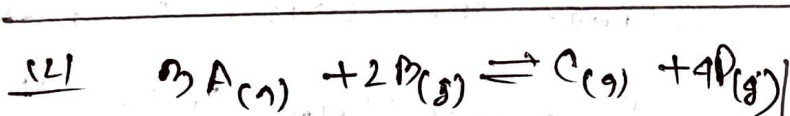
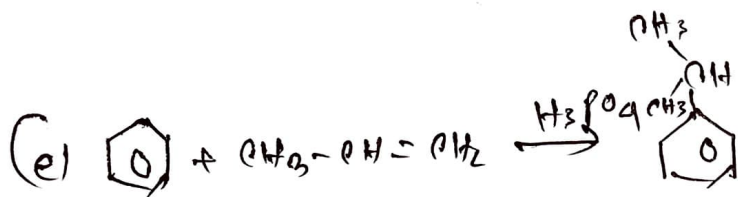
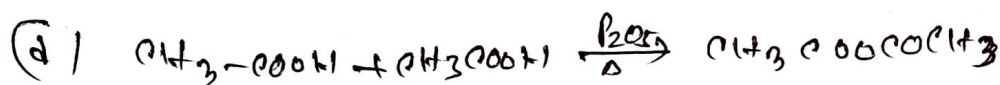
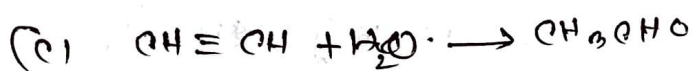
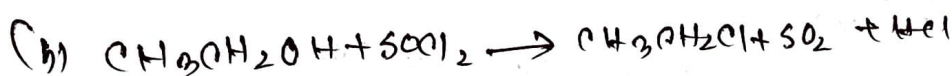
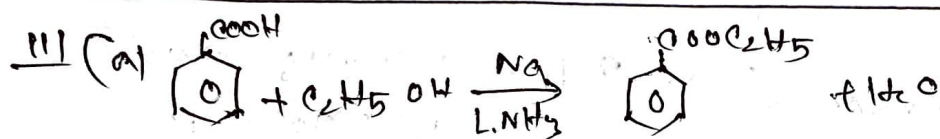
$$\therefore 1 \text{ mol } H_2SO_4 \text{ is } 2 \text{ mol } NaOH$$

$$\therefore n_{NaOH} \text{ is } = 2 \times 10^{-3} \text{ mol} \text{ ମିଶ୍ର}$$

$$\therefore pH = -\log [1.77 \times 10^{-5}] + \log \frac{0.12 - 2 \times 10^{-3}}{0.09 + 2 \times 10^{-3}}$$

$$\therefore pH = 4.86 \text{ @}$$

13) 10)  $D.O. = \frac{1}{4} \times 0.025 \times 10 \times 10^3$   
 $= 6.25 \times 10^{-5} \times 32 \times 10^3$   
 $= 2 \text{ ppm}$   
 $D.O.f = \frac{1}{4} \times 9.5 \times 10^3 \times 0.015 \times 32 \times 10^3$   
 $= 0.42 \text{ ppm}$   
 $\therefore \text{COP} = 1.58 \text{ ppm}$   
 $50 \text{ mL} \text{ --- } 1.58 \text{ ppm}$   
 $\therefore 1000 \text{ mL} \text{ --- } \frac{1.58 \times 1000}{50} = 31.6 \text{ ppm}$  @.



At  $t=2$ :  
 $x-2x = 4x$ ;  $x = \frac{x}{C}$  [B]

$K_c = \frac{[C] \times [D]^4}{[A]^3 \times [B]^2} \Rightarrow \frac{\frac{x}{30} \times \left(\frac{4x}{30}\right)^4}{\left(\frac{45x}{6}\right)^3 \times \left(\frac{20x}{6}\right)^2}$

$[C] = \frac{x}{5}$ ;  $[D] = \frac{4x}{5}$   
 $[A] = \frac{2x-3x}{5}$ ;  $[B] = \frac{x-2x}{5}$

$\Rightarrow K_c = \frac{\frac{x}{30} \times \frac{256x^4}{8100}}{\frac{45^3 x^3}{6^3} \times \frac{20^2 x^2}{6^2}}$

$\therefore K_c = \frac{256x^5}{905} \times \frac{6^5}{45^3 \cdot 20^2}$   
 $\therefore K_c = 2.25 \times 10^{-9} (\text{mol L}^{-1})^6$   
 $= 2.25 \times 10^{-9} = K_p$  @.



$$13) \quad n = \frac{P V}{P T} \Rightarrow \frac{206.67 \times 10^6}{101.325 \times (37+273)}$$

$$\therefore P = 1.64 \text{ atm}$$

$$= 801.4 \text{ mol}$$

$$\therefore V = \frac{801.4 \times 0.0821 \times 273}{1}$$

$$= 17962.03 \div 25$$

$$= 718.5 \text{ L}$$

$$\therefore 718.5 \times 10^3 = \frac{4}{3} \pi r^3$$

$$\therefore r = \frac{5.45 \text{ m}}{0.814 \text{ m}}$$

$$14) \quad 10^\circ \text{C} \rightarrow 20, \\ 100^\circ \text{C} \rightarrow 250$$

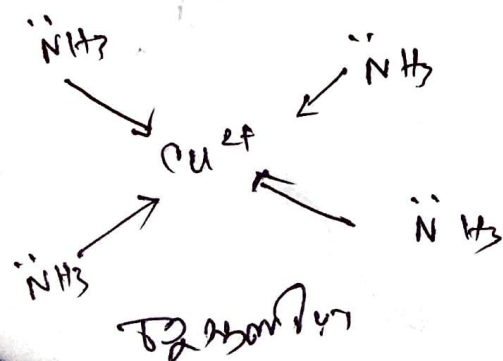
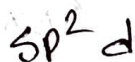
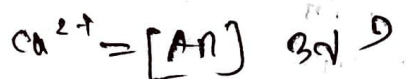
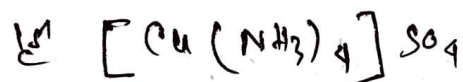
$$23) \quad 300 \text{ g water} \rightarrow 200 \text{ g}$$

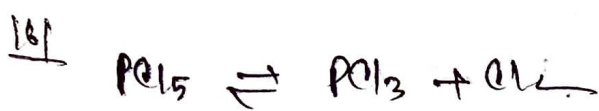
$$\therefore 300 \text{ g water} \rightarrow 20, \quad \frac{280 \times 300}{350} = 214.3$$

$$\therefore 120 \text{ g water} \rightarrow 20$$

$$\therefore 300 \text{ g water} \rightarrow \frac{20 \times 300}{120} = 50$$

$$\therefore \text{Total water} (214.3 - 50) \\ = 164.3 \text{ g}$$





at  $t=0$  1 0 0

at  $t$   $1-x$   $x$   $x$

$$n_T = 1 - x + x + x = 1 + x$$

$$P_{\text{PCl}_3} = \frac{x}{1+x} \times P = 1.33 \text{ atm}$$

$$P_{\text{Cl}_2} = \frac{x}{1+x} \times P = 1.33 \text{ atm}$$

$$P_{\text{PCl}_5} = \frac{1-x}{1+x} \times P = 0.332 \text{ atm}$$

$$K_p = \frac{(1.33)^2}{0.332} = 5.33 \text{ atm}$$

$$P_{\text{total}} = 2.992 \text{ atm}$$

$$5.33 = \frac{x^2}{1-x^2} \times (2.992)^2$$

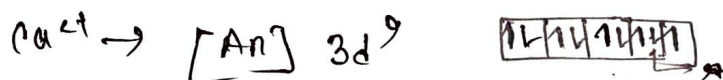
$$K = 0.8$$

$$\therefore n_T = 1.8 \text{ mol}$$

$$\therefore x = 0.61 \text{ mol} ; n_T = 1.61 \text{ mol}$$

$$\therefore V = \frac{1.61 \times 0.0821 \times 298}{2.992} = 12.12 \text{ L}$$

$$\therefore V = \frac{1.8 \times 0.0821 \times 298}{2.992} = 14.72 \text{ L}$$



$$n = 3$$

$$l = 2$$

$$m = 1$$

$$s = -\frac{1}{2}$$

$$181 \frac{1}{\lambda} = R_H \left[ \frac{1}{n_1^2} - \frac{1}{n_2^2} \right] ; \lambda \propto \frac{1}{n_2}$$

$\therefore \text{at } n_1 = 1$

$$\lambda_{\text{max}} \propto \frac{1}{n_2^2}$$

$$\lambda_{\text{min}} \propto \frac{1}{n_2^2}$$

$$\frac{1}{\lambda_{\text{max}}} = R_H \left( \frac{1}{4} - \frac{1}{9} \right)$$

$$\lambda_{\text{max}} = \frac{36}{5R_H} ; \lambda_{\text{min}} = \frac{4}{R_H}$$

$$\therefore \Delta \lambda_1 = \frac{16}{5R_H}$$

at  $n_1 = 2$

$$\frac{1}{\lambda_{\text{max}}} = R_H \left( \frac{1}{16} - \frac{1}{25} \right) ; \lambda_{\text{max}} = \frac{400}{9R_H}$$

$$\lambda_{\text{min}} = \frac{16}{9R_H} ; \Delta \lambda_2 = \frac{256}{9R_H}$$

$$205 \frac{1}{\lambda_{\text{max}}} = R_H \left( \frac{1}{25} - \frac{1}{36} \right)$$

$$= \frac{900}{11R_H}$$

$$\lambda_{\text{min}} = \frac{25}{R_H} ; \Delta \lambda_3 = \frac{625}{11R_H}$$

$$\therefore \Delta \lambda_1 < \Delta \lambda_2 < \Delta \lambda_3$$

Ⓐ