

Задача №1



$w(Zn) = 31.85\%$

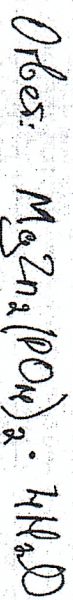
$w(Z) = \frac{Ar \cdot n \cdot 100}{M(E)} \Rightarrow M(E) = \frac{Ar \cdot n \cdot 100}{w(Z)}$

$M(E) = \frac{Ar(Zn) \cdot n \cdot 100}{w(Zn)} = \frac{85 \cdot 2 \cdot 100}{31.85} = 416.2 / \text{моль}$

$M(nH_2O) = M(E) - 24 - (85 \cdot 2) - (31 \cdot 2) - (16 \cdot 8)$

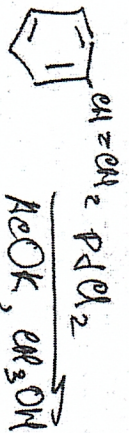
$= 42.2 / \text{моль}$

$x_2: M(nH_2O) = 42.2 : 18 = 4$



Задача №3

Р-8 №1



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

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$m(\text{бензойная}) = 31.82$

$n(\text{бензойная}) = \frac{31.82}{219.2 / \text{моль}} = 0.15 \text{ моль}$

Пусть бензойная кислота $1 = 1.625x$, тогда

бензойная кислота $2 = x$

Бензойная кислота $= \frac{n_{\text{бенз.}}}{n_{\text{реор.}}} \cdot 100\%$

$n(\text{реор.})$ бензойная $= 0.15x$

г.к. $n(\text{бензойная})$ в двух бензойных кислотах $= 0.15x$, а бензойная кислота 1 бензойная $= 1.625x$, тогда

$n_{\text{реор.}}(\text{бензойная})$ бензойная $1 = \frac{0.15x}{1.625x} =$

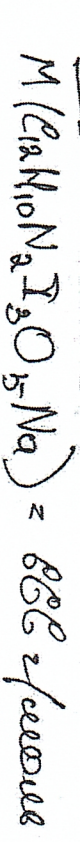
0.0923 моль

$\frac{n(\text{бензойная})}{n(\text{реор.})} = \frac{1}{2} \Rightarrow n(\text{реор.}) = 0.0923 \text{ моль}$

$m(\text{реор.}) = 0.0923 \text{ моль} \cdot 104.2 / \text{моль} =$

9.62

Задача №4



или на сдвиг

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УНИВЕРСИТЕТ

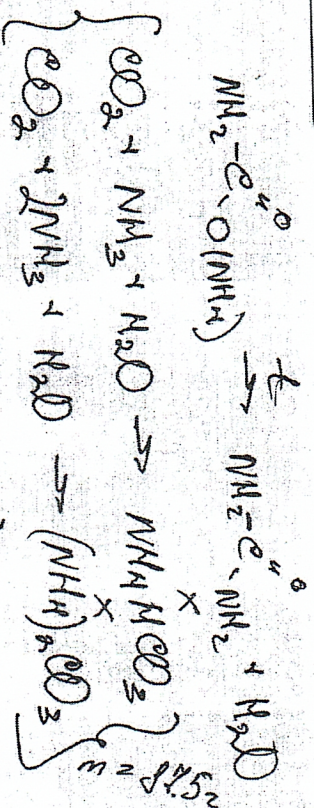
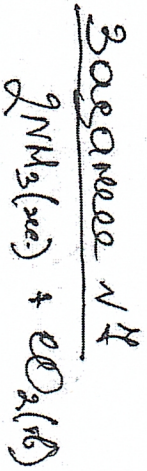
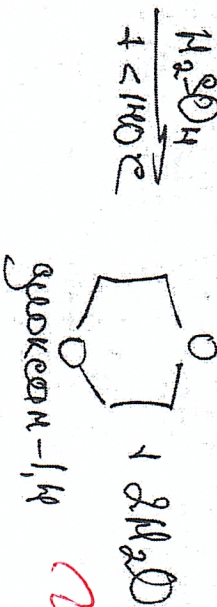
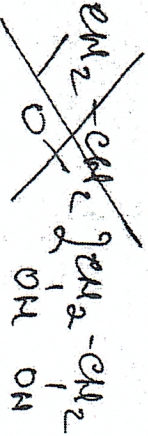
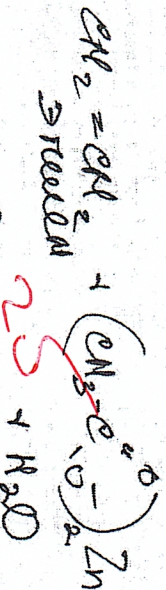
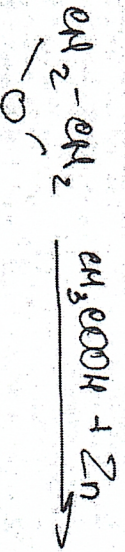
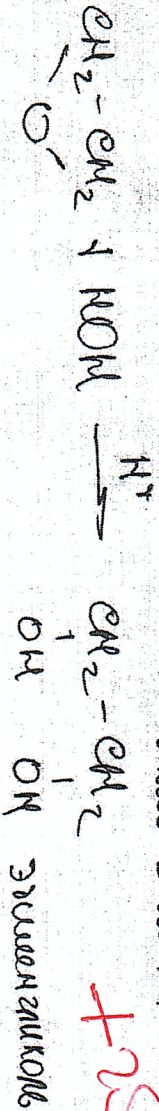
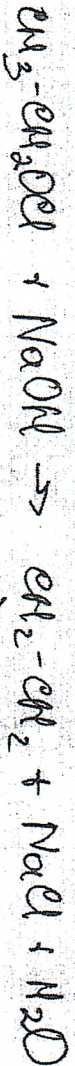
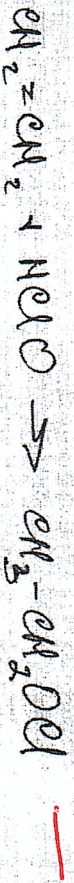
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10x088

$$w(I) = \frac{388}{666} \cdot 100\% = 58.2\%$$

25

Задача №6



$$\begin{aligned} n(NH_4HCO_3) &= n((NH_4)_2CO_3) = x \\ 96x + 49x &= 82.5 \\ 145x &= 82.5 \end{aligned}$$

$$x = 0.5 \text{ моль}$$

$$\frac{n(NH_4HCO_3)}{n(CO_2)} = \frac{n(NH_4HCO_3)}{n(NH_3)} = \frac{1}{1} \Rightarrow$$

$$n(CO_2)_1 = n(NH_3)_1 = 0.5 \text{ моль}$$

$$\frac{n(NH_4)_2CO_3}{n(CO_2)} = \frac{1}{1} \Rightarrow n(CO_2)_2 = 0.5 \text{ моль}$$

$$\frac{n(NH_4)_2CO_3}{n(NH_3)} = \frac{1}{2} \Rightarrow n(NH_3)_2 = 1 \text{ моль}$$

$$n(NH_3)_{\text{общ}} = 1 + 0.5 = 1.5 \text{ моль (исх.)}$$

$$n(CO_2)_{\text{общ}} = 0.5 + 0.5 = 1 \text{ моль (исх.)}$$

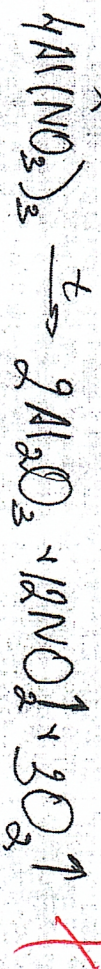
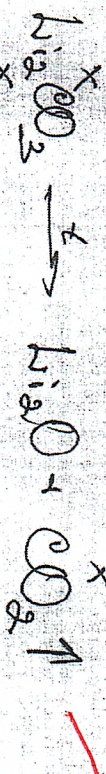
$$\frac{n(\text{NH}_3)}{n(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_4)} = \frac{2}{1} \Rightarrow n(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_4) = 0.45 \text{ моль}$$

$$\frac{n(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_4)}{n(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_2)} = \frac{1}{1} \Rightarrow n(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_2) = 0.45 \text{ моль}$$

$$m(\text{NH}_2\text{-C}^{\text{O}}\text{-ONH}_2) = 0.45 \text{ моль} \cdot 60 \text{ г/моль} = 27 \text{ г}$$

Ответ: 27 г

Задача 13



$$PV = nRT$$

$$n = \frac{PV}{RT} = \frac{100.11 \text{ кПа} \cdot 4.91}{8.314 \cdot 298 \text{ К}} = 0.19 \text{ моль}$$

$$n(\text{Li}_2\text{CO}_3) = n(\text{Al}(\text{NO}_3)_3) = x$$

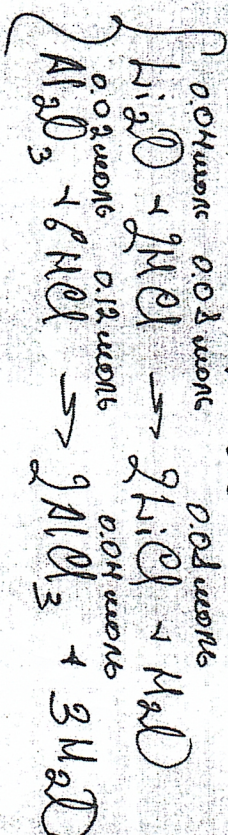
$$\frac{n(\text{Li}_2\text{CO}_3)}{n(\text{CO}_2)} = \frac{1}{1} \Rightarrow n(\text{CO}_2) = x \text{ моль}$$

$$\frac{n(\text{Al}(\text{NO}_3)_3)}{n(\text{NO}_2)} = \frac{1}{4} \Rightarrow \frac{1}{12} = \frac{1}{3} \Rightarrow n(\text{NO}_2) = 3x$$

$$\frac{n(\text{Al}(\text{NO}_3)_3)}{n(\text{O}_2)} = \frac{1}{3} \Rightarrow \frac{1}{3} = \frac{1}{3} \Rightarrow n(\text{O}_2) = 0.45x$$

$$x + 3x + 0.45x = 0.19 \text{ моль}$$

$$x = 0.04 \text{ моль}$$



Итого:

$$V = 100 \text{ см}^3$$

$$p = 106.2 \text{ кПа} \quad T = 298 \text{ К} \quad m = n \cdot M = 100 \text{ см}^3 \cdot 1.06 \frac{\text{г}}{\text{см}^3}$$

$$106.2 - 100 = 6.2 \Rightarrow n(\text{HCl}) = \frac{10.62}{36.52 \text{ г/моль}} =$$

$$= 0.29 \text{ моль}$$

еще на вес. ср.

