

Общий балл	Дата	Ф.И.О. Жюри	Подпись
41,75	17.03.25	Федоткина	[Подпись]

Шифр 025-2-X-56

Задание 11-1

1) $x = \text{Cl}$ - хлор

A = Cl_2O - оксид хлора (I)

B = ClO_2 - оксид хлора (IV)

C = ClO_3 - оксид хлора (VI) 1,75

D = Cl_2O_7 - оксид хлора (VII)

A = $\text{Cl}^+ - \text{O} - \text{Cl}^+$

B = $\text{O} = \text{Cl}^{+4} = \text{O}$

C = $\text{O} = \text{Cl}^{+6} = \text{O}$ 1,5

D = $\text{O} = \text{Cl}^{+7} - \text{O} - \text{Cl}^{+7} = \text{O}$

2) E) $\text{H}_2\text{O} + \text{Cl}_2\text{O} \rightarrow 2\text{HClO}$ хлорноватистая К-ТА

F) $\text{Cl}_2\text{O}_7 + \text{H}_2\text{O} \rightarrow 2\text{HClO}_4$ хлорная К-ТА

G, I) $2\text{ClO}_2 + \text{H}_2\text{O} \rightarrow \text{HClO}_2 + \text{HClO}_3$ - хлорноватая К-ТА
хлористая кислота

3) $2\text{ClO}_2 + \text{NaOH} \rightarrow \text{NaClO}_2 + \text{NaClO}_3 + \text{H}_2\text{O}$ 95

$$m_{\text{р-ра}}(\text{NaOH}) = \rho \cdot V = 1,1309 \cdot 90 = 101,78 \text{ г}$$

$$m(\text{NaOH}) = M \cdot n = 101,78 \text{ г} \cdot 0,12 = 12,21 \text{ г}$$

$$V(\text{ClO}_2) = \frac{V}{V_m} = 0,2 \text{ моль} - \text{недостаток}$$

$$V(\text{NaOH}) = \frac{m}{M} = \frac{12,21}{40} \approx 0,31 \text{ моль} - \text{избыток} \quad 2$$

$$V(\text{NaClO}_2) = V(\text{NaClO}_3) = 0,2 \text{ моль}$$

$$m(\text{NaClO}_2) = 0,2(23 + 35,5 + 32) = 18,1 \text{ г}$$

$$m(\text{NaClO}_3) = 0,2(23 + 35,5 + 48) = 21,3 \text{ г}$$

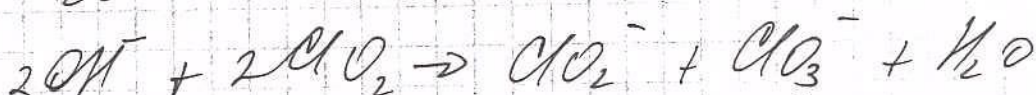
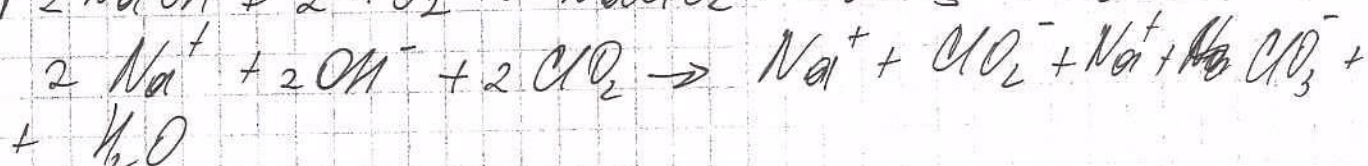
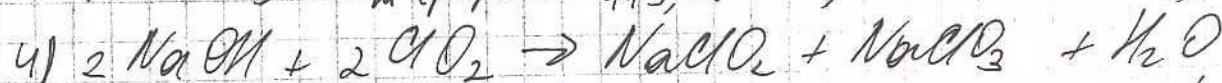
$$m(\text{ClO}_2) = 0,2(35,5 + 32) = 13,5 \text{ г}$$

$$m_{\text{р-ра}} = m(\text{ClO}_2) + m(\text{NaOH}) = 13,5 + 101,78 = 115,28 \text{ г} \quad 1$$

$$W(\text{NaClO}_2) = \frac{m(\text{в-ва})}{m(\text{р-ра})} = \frac{18,1}{115,28} = 0,157 \text{ или } 15,7 \%$$

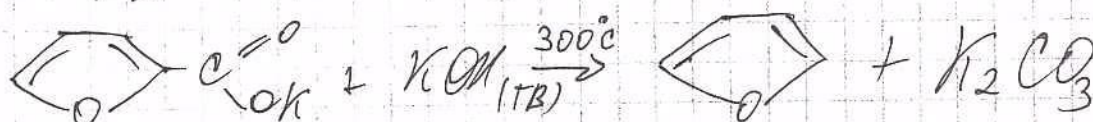
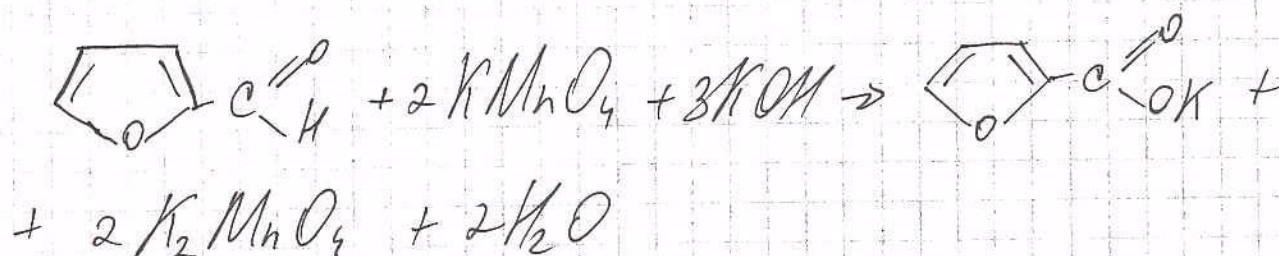
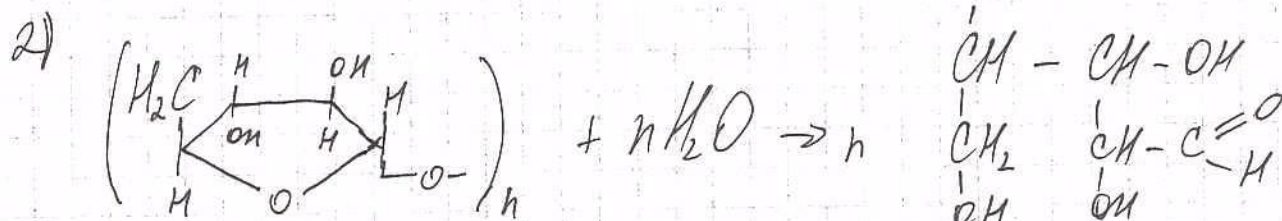
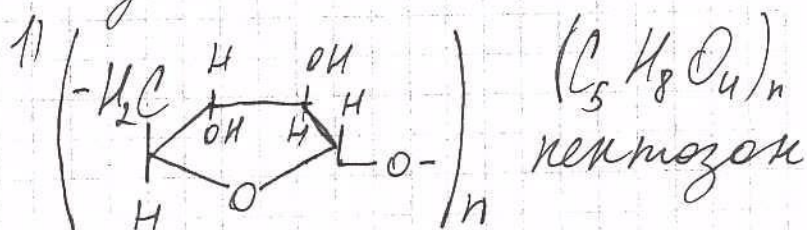
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$$w(\text{NaClO}_3) = \frac{m(\text{в. в.})}{m(\text{ср. пр.})} = \frac{21,3}{115,28} = 0,1848 \text{ или } 18,48\%$$



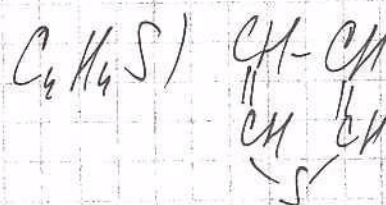
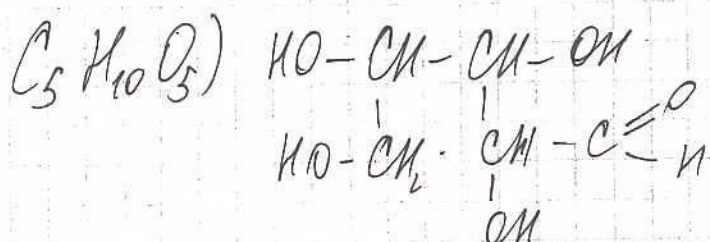
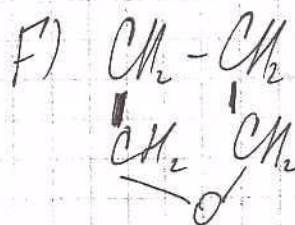
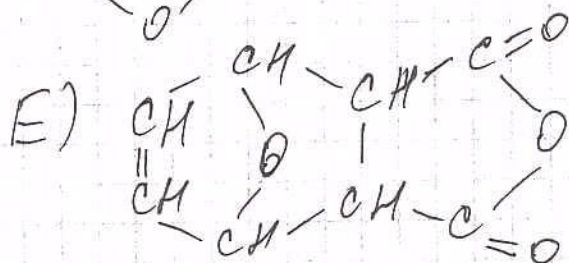
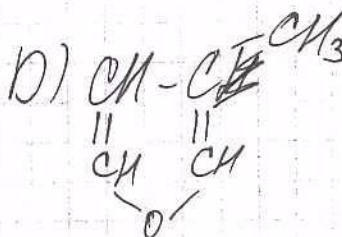
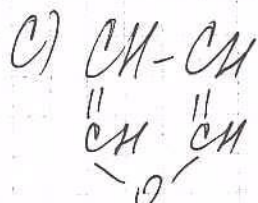
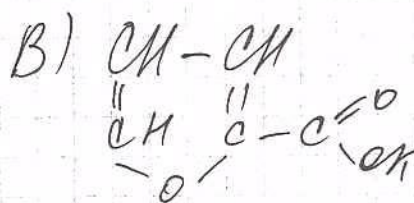
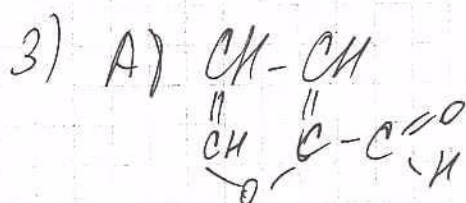
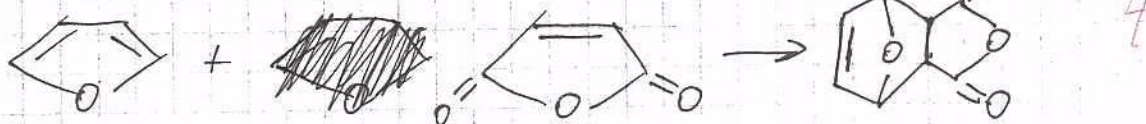
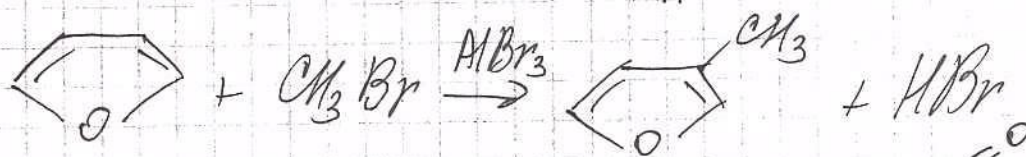
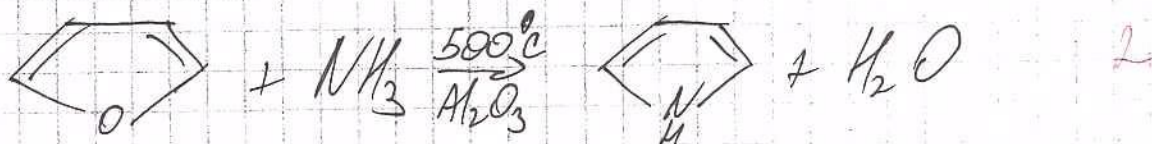
ClO_2 (Cl^{+4}) - окислитель и восстановитель

Задача 11-2

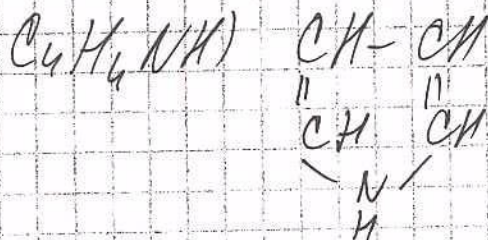


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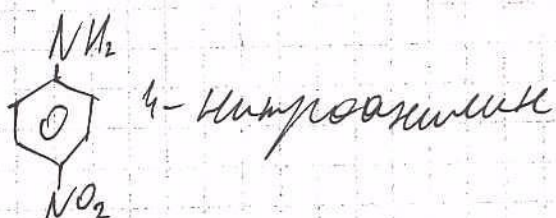
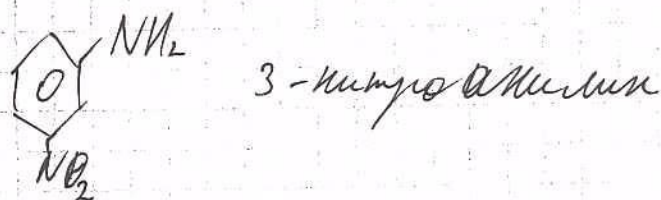
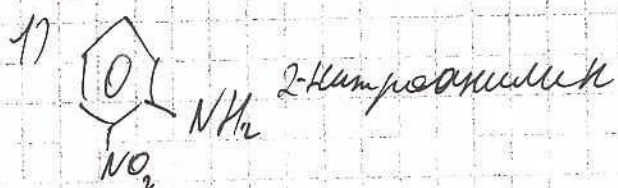
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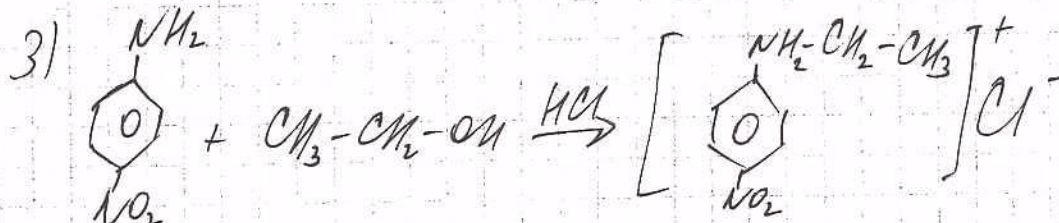
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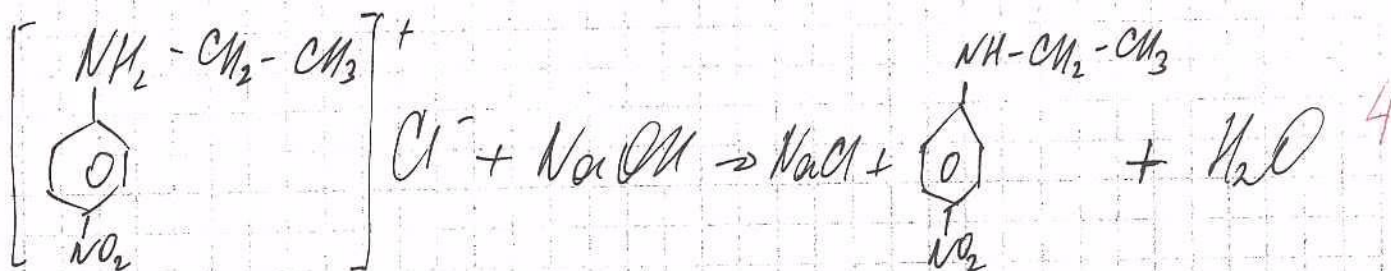
Задание 11-3



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