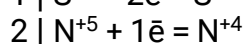
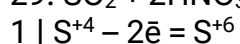


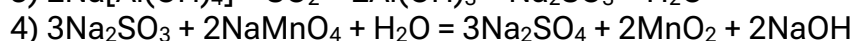
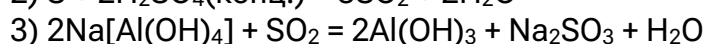
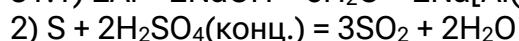
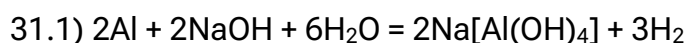
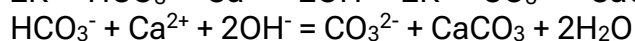
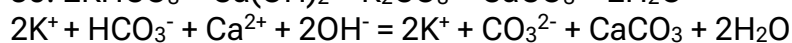
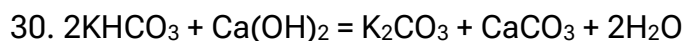
**1 часть**

- 1) 34
- 2) 521
- 3) 13
- 4) 24
- 5) 976
- 6) 43
- 7) 2131
- 8) 1423
- 9) 21
- 10) 341
- 11) 13
- 12) 245
- 13) 14
- 14) 6325
- 15) 4165
- 16) 51
- 17) 123
- 18) 123
- 19) 322
- 20) 433
- 21) 1324
- 22) 3221
- 23) 65
- 24) 4521
- 25) 342
- 26) 34,2
- 27) 20,4
- 28) 112

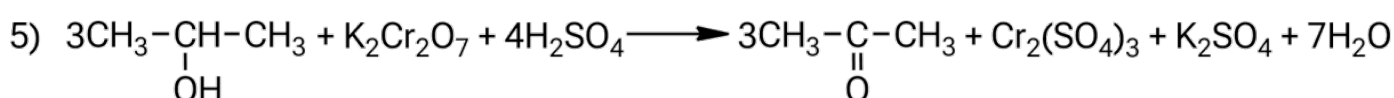
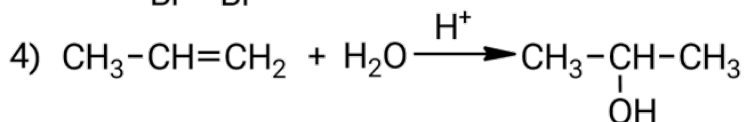
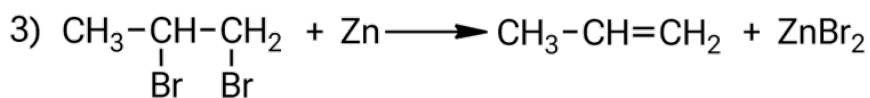
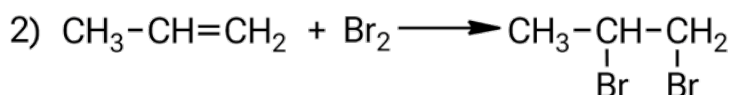
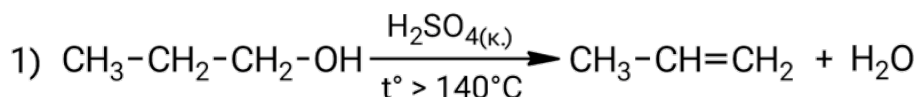
**2 часть**

$\text{SO}_2$  ( $\text{S}^{+4}$ ) – восстановитель

$\text{HNO}_3$  ( $\text{N}^{+5}$ ) – окислитель

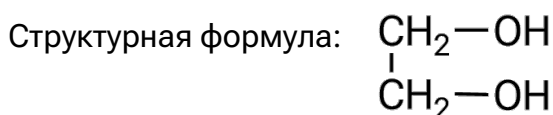


32.

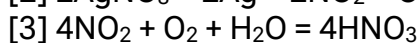
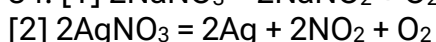
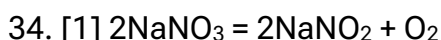
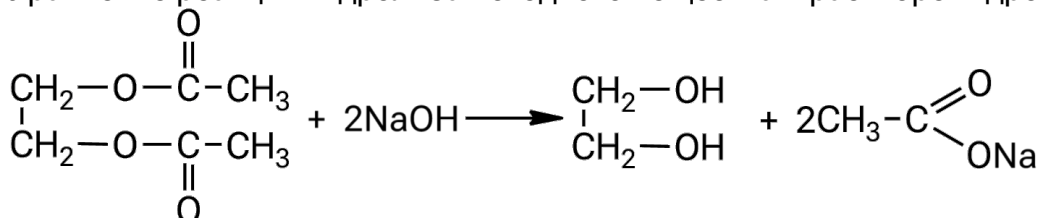


33.

$$x : y : z = n(\text{C}) : n(\text{H}) : n(\text{O}) = m(\text{C})/M(\text{C}) : m(\text{H})/M(\text{H}) : m(\text{O})/M(\text{O}) = 38,71/12 : 9,68/1 : 51,61/16 = 3,23 : 9,68 : 3,23 = 1 : 3 : 1 = 2 : 6 : 2$$

Молекулярная формула:  $\text{C}_2\text{H}_6\text{O}_2$ 

Уравнение реакции гидролиза исходного вещества в растворе гидроксида натрия:

Пусть  $n(\text{NaNO}_3) = x$  моль,  $n(\text{AgNO}_3) = y$  моль, тогда

$$m(\text{см}) = m(\text{NaNO}_3) + m(\text{AgNO}_3) = 42,5 \text{ г}$$

$$m(\text{NaNO}_3) = 85x \text{ г}$$

$$m(\text{AgNO}_3) = 170y \text{ г}$$

$$\omega(\text{p}) = m(\text{p})/m(\text{см})$$

$$m(\text{p}) = 0,48 \cdot 42,5 = 20,4 \text{ г}$$

$$m(\text{p}) = m(\text{p}(\text{NaNO}_3)) + m(\text{p}(\text{AgNO}_3))$$

Количество протонов в  $\text{NaNO}_3$  $p = \bar{e}$  = порядковый номер

$$N_p(\text{NaNO}_3) = N_p(\text{Na}) + N_p(\text{N}) + 3N_p(\text{O}) = 11 + 7 + 3 \cdot 8 = 42$$

$$n_p(\text{NaNO}_3) = 42x \text{ моль}$$

$$M(\text{p}) = 1 \text{ г/моль}$$

$$m_p(\text{NaNO}_3) = 42x \text{ г}$$

Количество протонов в  $\text{AgNO}_3$ 

$$N_p(\text{AgNO}_3) = N_p(\text{Ag}) + N_p(\text{N}) + 3N_p(\text{O}) = 47 + 7 + 3 \cdot 8 = 78$$

$$n(\text{AgNO}_3) = 78y \text{ моль}$$

$$m(\text{AgNO}_3) = 78y \text{ г}$$

$$85x + 170y = 42,5$$

$$42x + 78y = 20,4$$

$$85x = 42,5 - 170y$$

$$x = (42,5 - 170y)/85 = 0,5 - 2y$$

$$42(0,5 - 2y) + 78y = 20,4$$

$$6y = 0,6$$

$$y = 0,1$$

$$x = 0,5 - 0,2 = 0,3$$

$$n(\text{NaNO}_3) = 0,3 \text{ моль}$$

$$n(\text{AgNO}_3) = 0,1 \text{ моль}$$

$$n(\text{NO}_2) = 0,1 \text{ моль}$$

$$n(\text{O}_2) = 0,15 + 0,05 = 0,2 \text{ моль} - \text{избыток}$$

$$m(\text{HNO}_3) = 0,1 \cdot 63 = 6,3 \text{ г}$$

$$m(\text{р-ра}) = m(\text{H}_2\text{O}) + m(\text{NO}_2) + m_{\text{прор}}(\text{O}_2)$$

$$m(\text{NO}_2) = 0,1 \cdot 46 = 4,6 \text{ г}$$

$$n_{\text{прор}}(\text{O}_2) = 0,1/4 = 0,025 \text{ моль}$$

$$m_{\text{прор}}(\text{O}_2) = 0,025 \cdot 32 = 0,8 \text{ г}$$

$$m(\text{р-ра}) = 10 + 4,6 + 0,8 = 15,4 \text{ г}$$

$$\omega(\text{HNO}_3) = 6,3/15,4 = 0,409 (40,9\%)$$