(1)

$$\Pi = i M R T$$

A -> $0.13 \cdot 298 = 38.74$

B -> $2 \cdot 0.13 \cdot 298 = 77.48$

C -> $4 \cdot 0.13 \cdot 298 = 154.96$

D -> $3 \cdot 0.13 \cdot 310 = 120.9$

C

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(2)

$$V = k [NO_2]^2$$

$$k = V / [NO_2]^2 = \frac{1.35\ 10^{4}}{(0.035)^2} =$$

$$1.10\ 10^{7}\ L/mol\ s$$

C

(3) [B] ANODO

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(4) $\overset{+7}{MnO_4^-} + \overset{+1}{ClO^-} \rightarrow \overset{+4}{MnO_2} + \overset{+3}{ClO_2^-}$

$MnO_4^- + 3e^- \rightarrow MnO_2$

$\downarrow$

$MnO_4^- + 3e^- \rightarrow MnO_2 + 4OH^-$

$\downarrow$

$2H_2O + MnO_4^- + 3e^- \rightarrow MnO_2 + 4OH^-$

$ClO^- \rightarrow ClO_2^- + 2e^-$

$\downarrow$

$$ClO^- + 2OH^- \rightarrow ClO_2^- + 2e^-$$

$$\downarrow$$

$$ClO^- + 2OH^- \rightarrow ClO_2^- + H_2O + 2e^-$$

$$2\times\left(2H_2O + MnO_4^- + 3e^- \rightarrow MnO_2 + 4OH^-\right)$$

$$3\times\left(ClO^- + 2OH^- \rightarrow ClO_2^- + 2e^- + H_2O\right)$$

$$H_2O + \underset{+7}{2}MnO_4^- + \underset{+1}{3}ClO^- \rightarrow \underset{+4}{2}MnO_2 + 2OH^- + \underset{+3}{3}ClO_2^-$$

2 3 2 3

A

5

$$\Delta T = 2 \cdot K_b \cdot m$$

$$m = \frac{1}{2 \cdot K_{ob}}$$

$$\simeq 0.96 \ m$$

$$m_{NaCl} = 0.96 \cdot 0.5 = 0.48 \ m$$

$$\text{MASS}_{NaCl} = 0.48 \cdot 58.44$$

$$\simeq 28.05 \ g$$

$$\boxed{C}$$