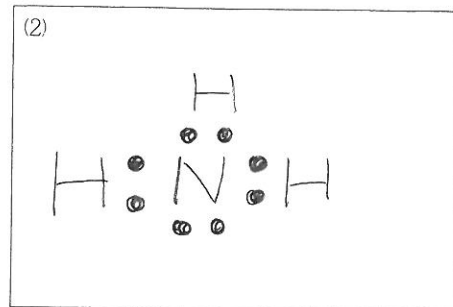
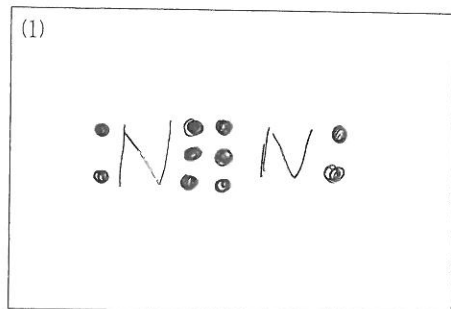


1

問 1



問 2

(a)	(b)	(c)	(d)	(e)	(f)
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問 3

(a)	(b)	(c)	(d)	(e)
-----	-----	-----	-----	-----

問 4

--

問 5 (1)

ア

$$a + b - 2x$$

(2)

イ

$$\frac{3}{2}$$

ウ

$$3$$

1

問 6

エ (b)

オ (e)

カ (a)

(エ、オは順序不同)

問 7

導出過程

塩酸を加えた後の溶液の $[OH^-] = 1.0 \times 10^{-5} \text{ mol/L}$ より、
溶液は塩基性であり、 NH_3 過剰である。

これより、反応後について、

$$[NH_3] = \frac{0.20 \times \frac{50.0}{1000} - 0.10 \times \frac{x}{1000}}{\frac{50.0+x}{1000}} = \frac{10 - 0.10x}{50.0+x}$$

$$[NH_4^+] = \frac{0.10 \times \frac{x}{1000}}{\frac{50.0+x}{1000}} = \frac{0.10x}{50.0+x}$$

のことで緩衝溶液となっている。

緩衝溶液中では NH_3 の電離と NH_4^+ の加水分解は無視できるほど少ないため、③式より、

$$[OH^-] = \frac{[NH_3]}{[NH_4^+]} \times K_b$$

$$\text{よって、} 1.0 \times 10^{-5} = \frac{10 - 0.10x}{0.10x} \times 1.7 \times 10^{-5}$$

これを解いて $x = 62.9 \text{ mL}$ 。

答えの数値

63

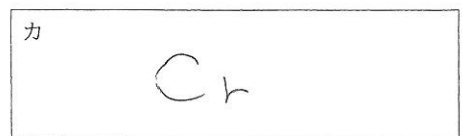
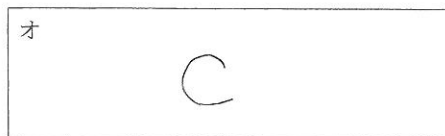
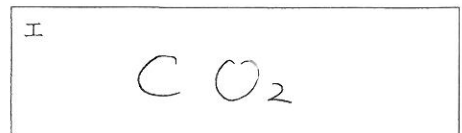
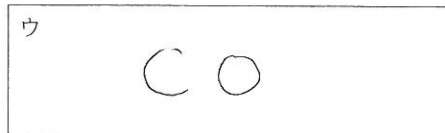
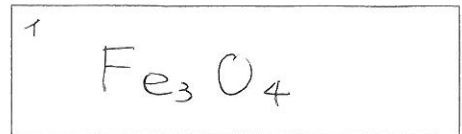
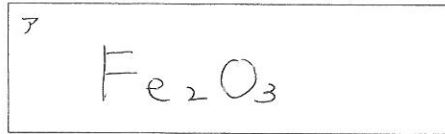
問 8

キ $k_1 [NH_3]$

ク $k_1 k_2 [NH_3]^2$

2

問 1



問 2 (1)

7.9

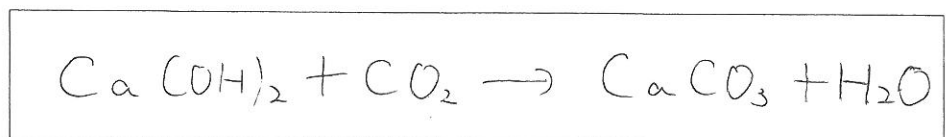
(2)

2.5×10^{-8}

問 3

(a)	(b)	(c)	(d)
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問 4



問 5 (1)

Na^+

(2)

0.37

(3)

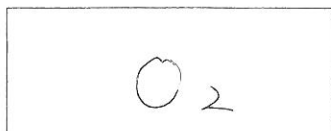
4.2

2

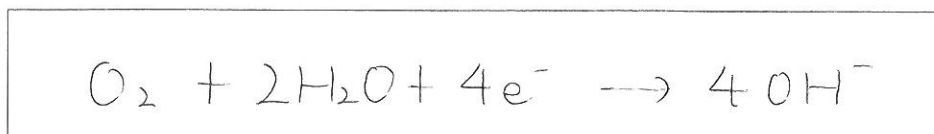
問6

(a)	(b)	(c)	(d)	(e)
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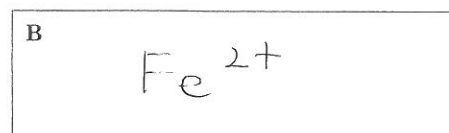
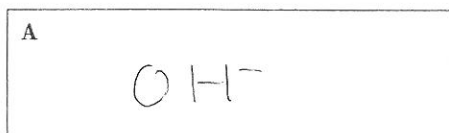
問7



問8



問9

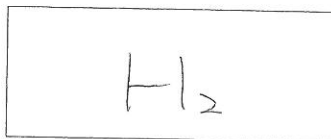


問10

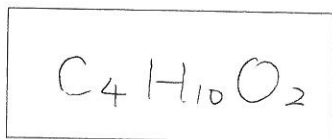
(a)	(b)	(c)	(d)	(e)
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3

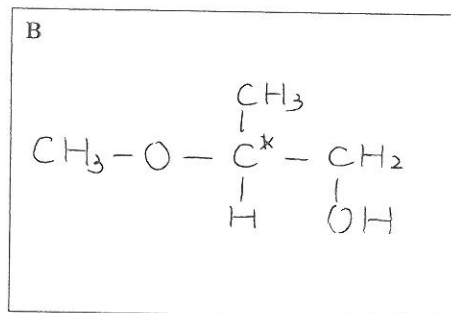
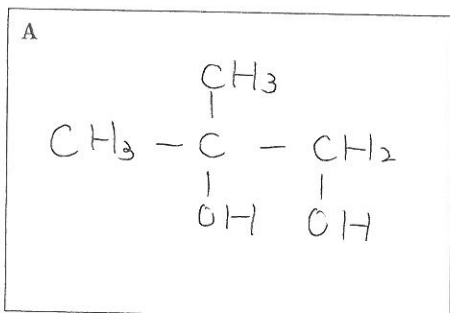
問 1



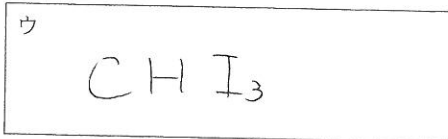
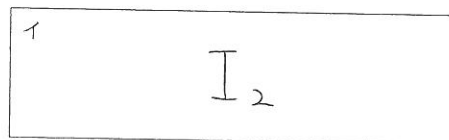
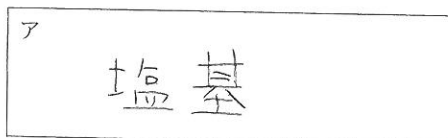
問 2



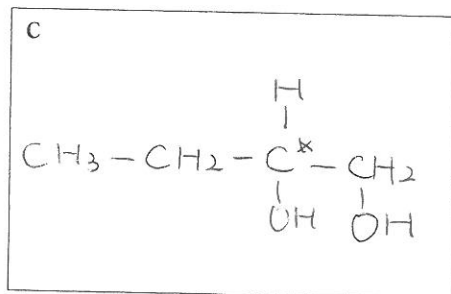
問 3



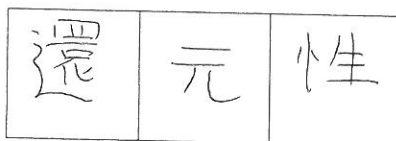
問 4



問 5

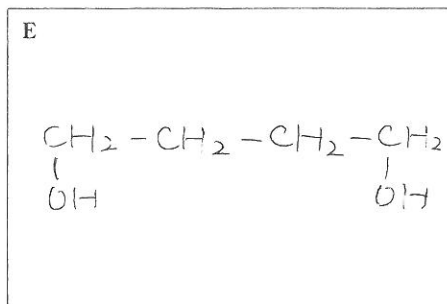
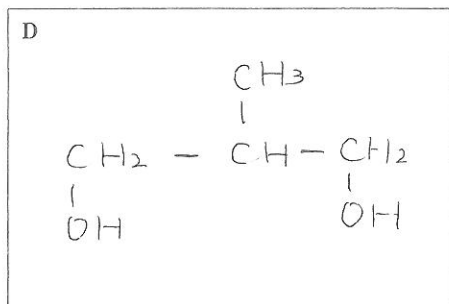


問 6

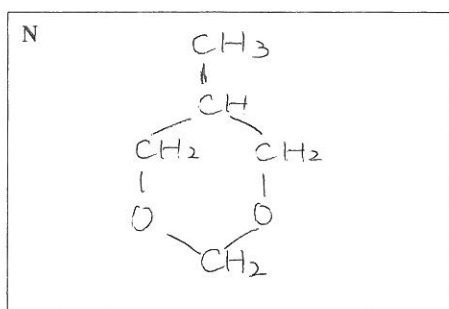


3

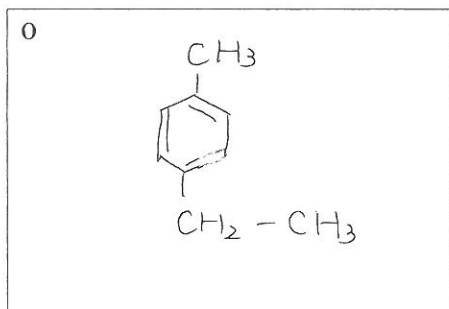
問7



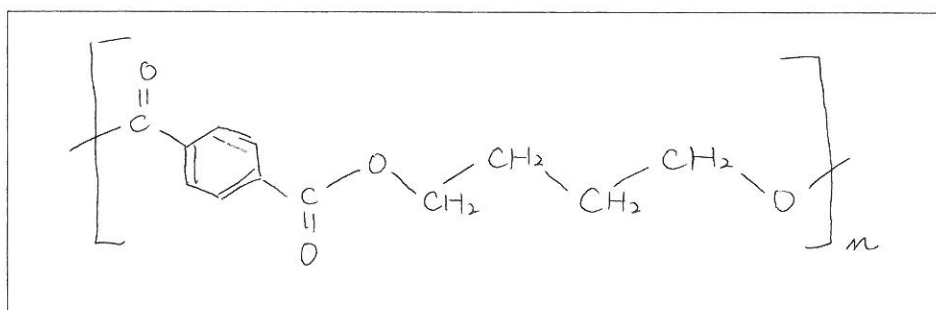
問8



問9



問10 (1)



(2)

450

(449も正解になり
思われる)