

化学問題 I

問 1

ア	ファンデルワールス
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問 2

2.3

問 3

$8.5 \times 10^6$

問4

イ	CO
ウ	Fe <sub>3</sub> O <sub>4</sub>
エ	CO <sub>2</sub>

a	1	b	2	c	1
d	1	e	3	f	1
g	1	h	1		
i	1	j	2		

問5

才	>	力	$1-2x$
キ	<	ク	$-\frac{50}{21}x^2 - x + 1$

問6

ケ	0.16
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化学問題 II

問1

ア	蒸気圧降下
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問2

イ	$x_C P_A$
ウ	$1 - x_C$
エ	$x_C$

問 3

才	$P_C$
力	$P_1 - P_A$

問 4

キ	$P_A P_C$
ク	$P_C - P_A$

問 5

ケ	$y_{C3} - x_{C0}$
コ	$2x_{C0} - 1$

化学問題 III

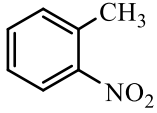
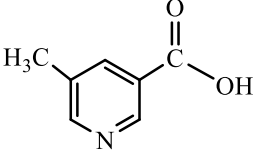
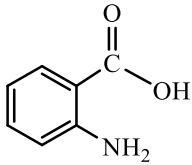
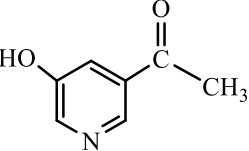
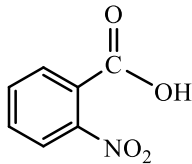
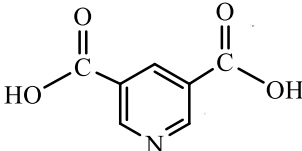
問1

安息香酸

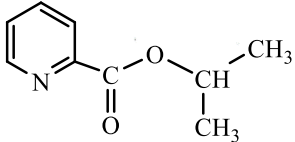
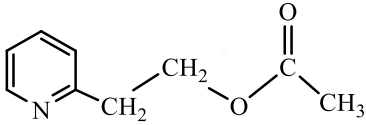
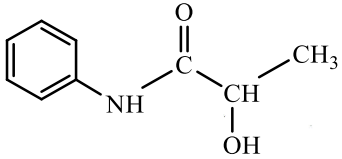
問2

9

問3

A		B	
C		D	
E		F	

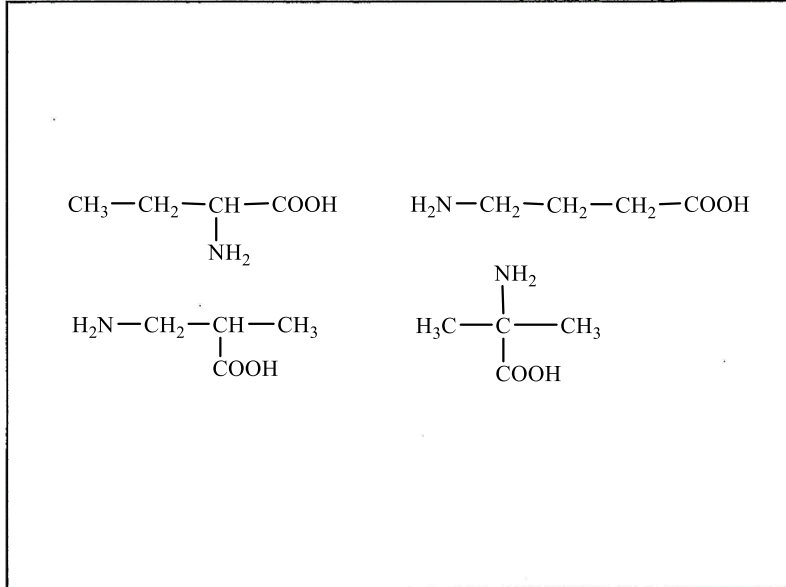
問4

G	 <p>Chemical structure of 2-(2-methylpropanoate)pyridine: A pyridine ring is attached to a carbonyl group (C=O) at the 2-position. The carbonyl carbon is also bonded to an oxygen atom, which is further bonded to a central carbon atom. This central carbon atom is bonded to two methyl groups (CH<sub>3</sub>) and a hydrogen atom.</p>
H	 <p>Chemical structure of 2-(acetoxymethyl)pyridine: A pyridine ring is attached to a methylene group (CH<sub>2</sub>) at the 2-position. This methylene group is further bonded to another methylene group (CH<sub>2</sub>), which is bonded to an oxygen atom. The oxygen atom is part of an ester linkage to a carbonyl group (C=O), which is also bonded to a methyl group (CH<sub>3</sub>).</p>
I	 <p>Chemical structure of N-benzyl-L-alanine: A benzene ring is attached to an amino group (NH) at the 1-position. The nitrogen atom of the amino group is bonded to a carbonyl group (C=O). The carbonyl carbon is also bonded to a central carbon atom. This central carbon atom is bonded to a hydroxyl group (OH) and a methyl group (CH<sub>3</sub>).</p>



化学問題 IV

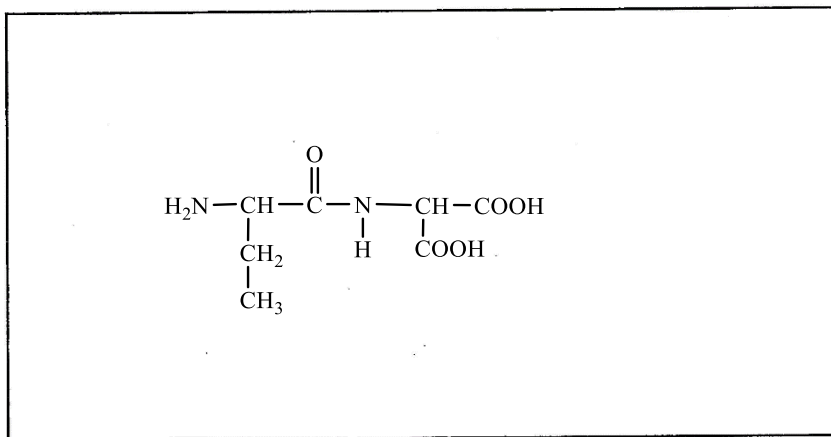
問 1



問2

X1	$\begin{array}{c} \text{HOOC}-\text{CH}-\text{COOH} \\   \\ \text{NH}_2 \end{array}$
X2	$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{CH}-\text{COOH} \\   \\ \text{NH}_2 \end{array}$

問3



問4

2

問 5

Y1	$\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{COOH}$
Y2	$\begin{array}{c} \text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{CH}-\text{COOH} \\   \\ \text{NH}_2 \end{array}$