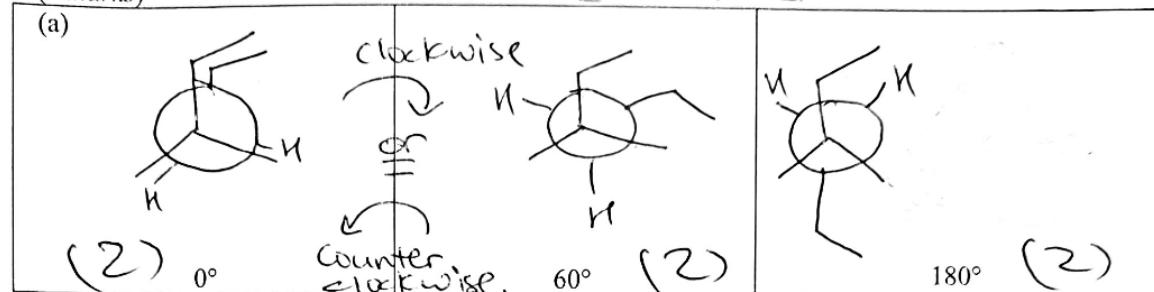


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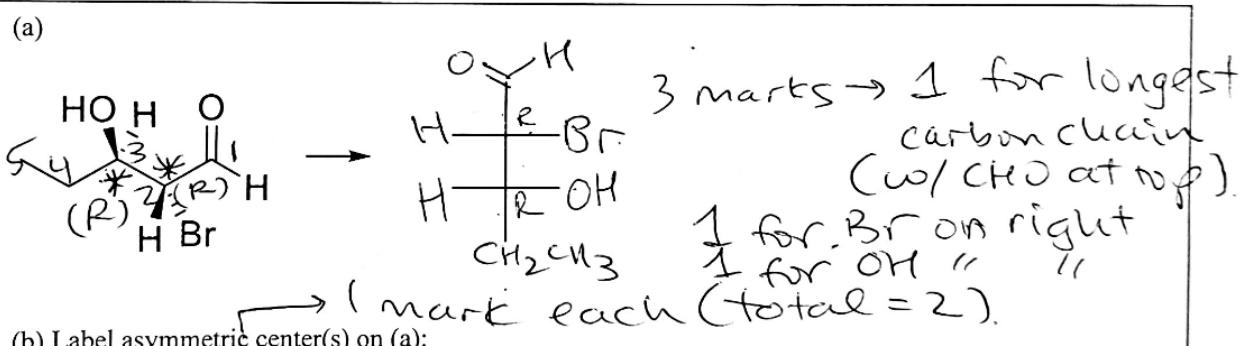
Name: _____

3. (8 marks) can rotate front or back e.



(b) ① 180° because largest groups are furthest away from each other \rightarrow least strain. ①

4. (8 marks)



(b) Label asymmetric center(s) on (a):

(c) IUPAC name including all configurations:

$(2R, 3R)$ - 2-bromo-3-hydroxypentanal

1 mark

1 mark

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Name: Answer key

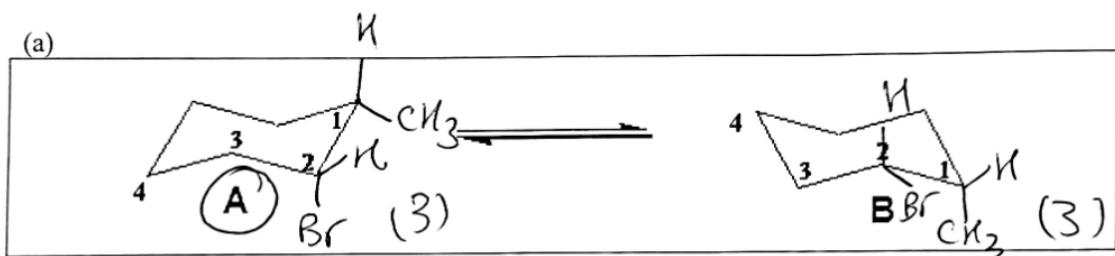
ANSWER SHEET

Part I. Multiple Choice:

Question	1	2	3	4	5	6	7	8	9	10
Answer	A	A	D	C	B	B	C	E	D	E

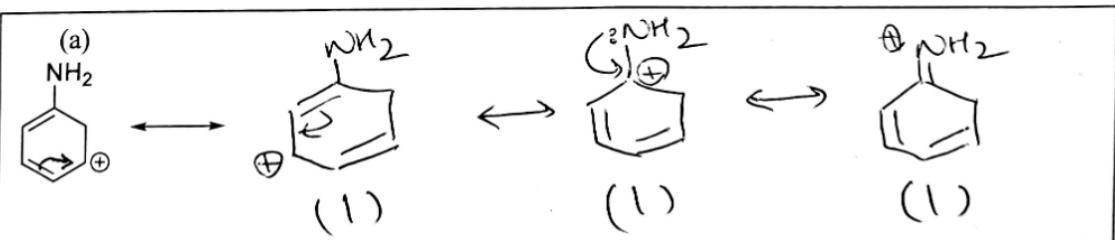
Part II. Short answers:

1. (8 marks)

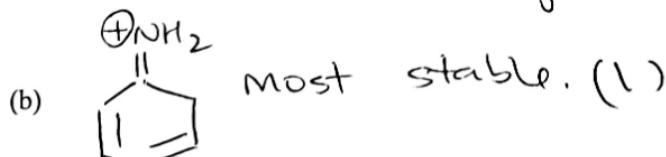


(b) A more stable (or whichever one has $-CH_3$ equatorial), due to less 1,3-diaxial strain). (1)

2. (8 marks)



1 mark \Rightarrow for showing arrows



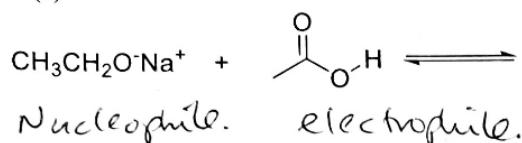
- has most covalent bonds (1)
- has all atoms with octet (1)

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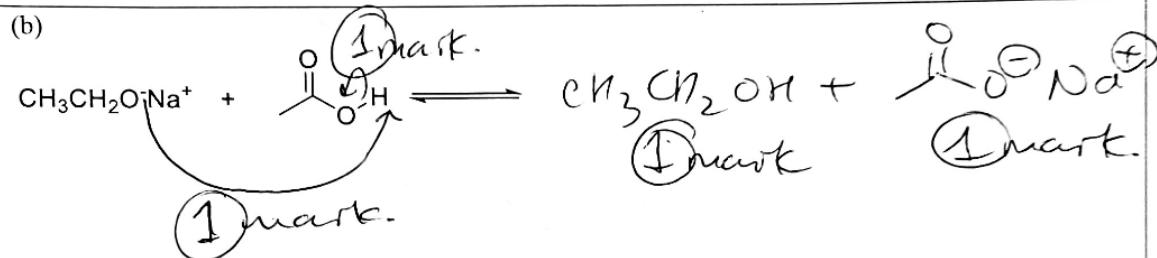
5. (8 marks)

(a)



1 mark each.
(total = 2)

(b)



(c) Equilibrium favored to the right ①

because ROH stronger acid than $\text{CH}_3\text{CH}_2\text{OR}$
(or can say RO^- more stable conjugate base

than N^+).

Table of Strain Energy in Cyclohexane Chair Conformations:

Substituent	kJ/mol
-F	0.5
-Cl	1.0
-Br	1.0
-OH	2.1
-CH ₃	3.8
-CH ₂ CH ₃	4.0
-CH(CH ₃) ₂	4.6
-C(CH ₃) ₃	11.4
-C ₆ H ₅	6.3
-COOH	2.9
-CN	0.4

END OF EXAM