

75%

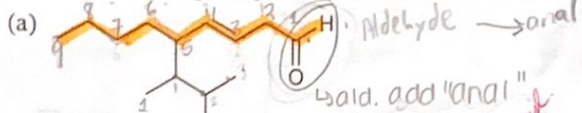
We Have Amine Teacher!
[93 marks]



42.5 / 93 46%

Communication [24 marks] (12.5)

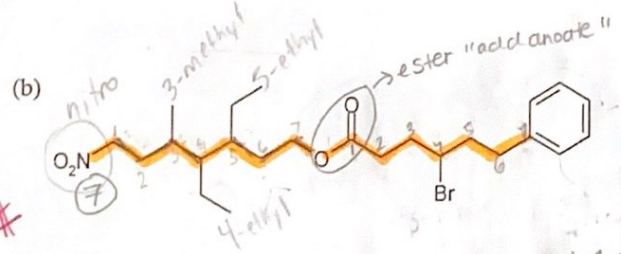
1. Name the following compounds. [6 + 8 = 14 marks]



5-(1,2-dimethylpropyl) ~~4~~ 1,2-dimethylpropyl-trans-3-enal

5-(1,2-dimethylpropyl)-trans-non-3-enal

5

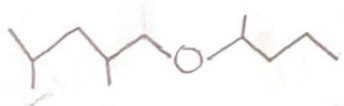


4,5-diethyl-3-methyl-1-nitroheptyl 4-bromo-7-phenyl-1-octyl ether

3,4-diethyl-5-methyl-7-nitroheptyl 4-bromo-6-phenylhexanoate

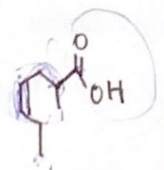
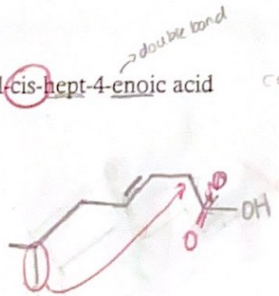
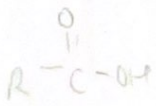
2. Draw structures for the following compounds. [6 + 4 = 10 marks]

(a) 1-methylbutyl 2,4-dimethylpentyl ether



7.5

(b) 2-methyl-cis-hept-4-enoic acid

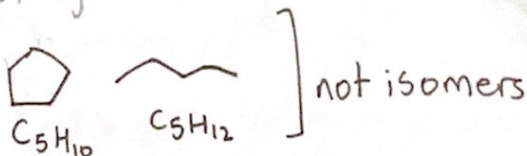


Handwritten scribbles and symbols at the bottom left.

Making Connections [9 marks]

3. Is cyclopentane an isomer of pentane? Explain fully. [3 marks]

No because cyclopentane is aromatic and ring shaped, pentane is a straight chain (an aliphatic hydrocarbon)



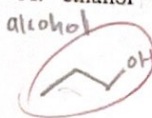
4. The following compounds have approximately the same molar mass. Arrange them in order of decreasing boiling point and explain fully. Include a structural diagram of each. [6 marks]

A. ethanol

B. ethylamine

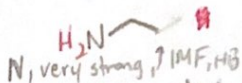
C. ethane

OH group, HB



polar
 ↑ HB

amine

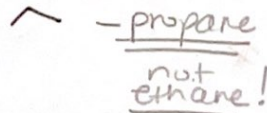


polar
 HB

alkane

Single bond, weak

non polar



alkanes < ethers < esters < amines < aldehydes < ketones < alcohols < C. Acids < amides

3

Order A B C

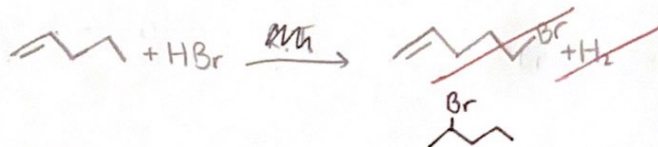
Inquiry [28 marks]

5. Write structural diagram equations to illustrate three of the four reactions below. Include all pertinent conditions. [4 + 4 + 4 = 12 marks]

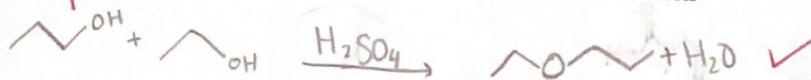
(a) the alkylation of benzene



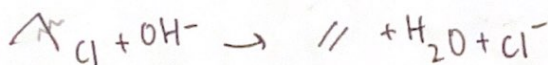
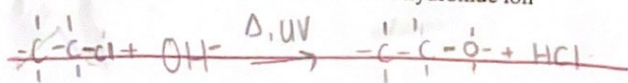
(b) the reaction of pent-1-ene with hydrogen bromide



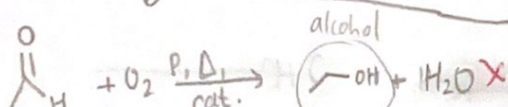
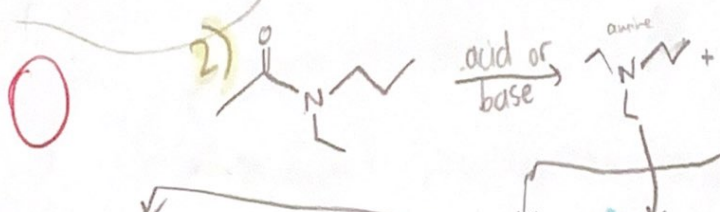
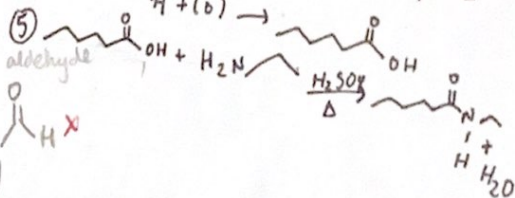
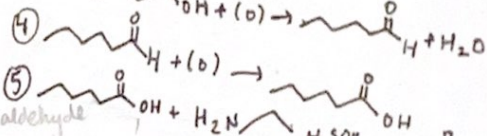
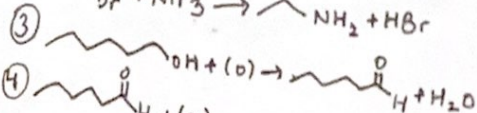
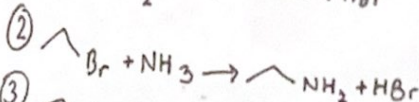
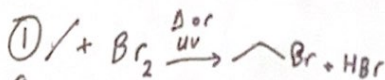
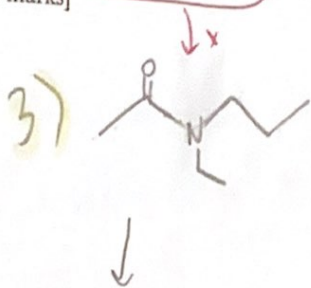
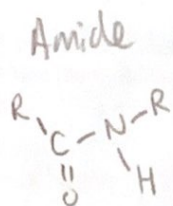
(c) the preparation of an asymmetrical ether from 2 alcohols



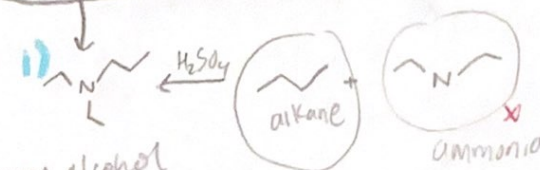
(d) the reaction of chloroethane with hydroxide ion



5. Propose a reaction sequence to synthesize N-ethyl hexanamide from an alcohol, an alkane and ammonia. Include all pertinent conditions. [16 marks]



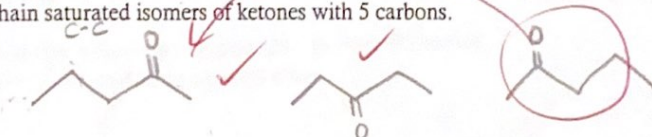
hydrogenation of an aldehyde makes primary alcohol



Knowledge & Understanding [4 + 28 = 32 marks]

7. For each of the following compounds, draw the structural diagrams. [4 marks]

(a) All the straight chain saturated isomers of ketones with 5 carbons.



(b) All the saturated isomers of esters with 4 carbons.

