

78%



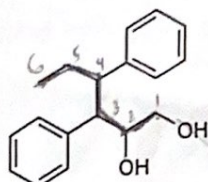
53.5 / 63 = 85%

Ether You Get it or You Don't [63 marks]

Communication [12 marks]

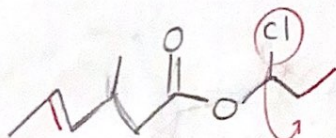
1. Write the IUPAC name or draw the structure for the following compounds. [12 marks]

(a)



3,4-diphenylhexane-1,2-diol

(b) 2-chloropropyl 3-methyl-trans-4-hexenoate *ester*



Making Connections [6 marks]

2. The following compounds have comparable molar masses. Arrange the compounds in order of decreasing boiling points and give reasons for your answer. Also, provide the structure of each substance. [6 marks]

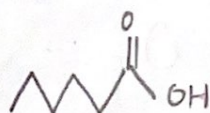
benzene



non polar
- has weak double bonds
④

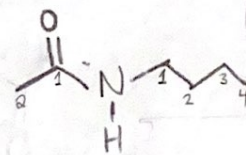
5.5 lowest bp

hexanoic acid



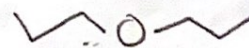
- has HB
- higher EN with →
- polar
①
highest boiling point

butyl ethanamide



- HB
- lower EN with →
- polar
②

dipropyl ether

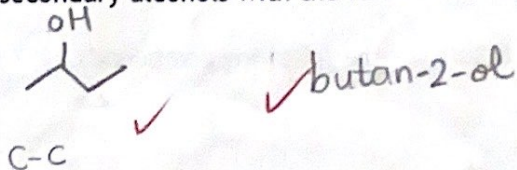


- polar
- no HB
③

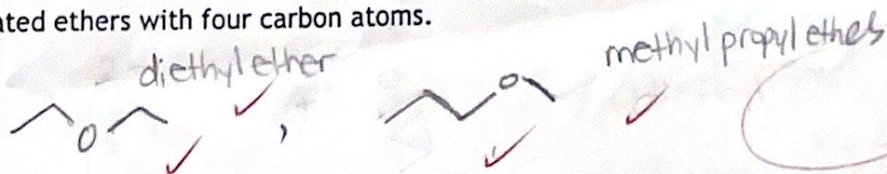
Knowledge & Understanding [16 marks]

3. Draw the structures and provide names for each of the following. [16 marks]

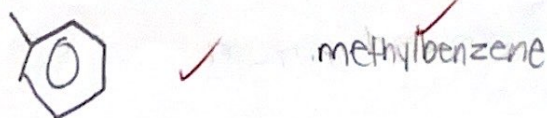
(a) All secondary alcohols with the formula $C_4H_{10}O$.



(b) All saturated ethers with four carbon atoms.



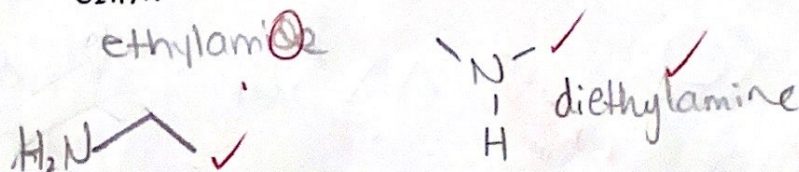
(c) All aromatic compounds with the formula C_7H_8 .



13 (d) All straight chain (non-branched) aldehydes with the formula C_4H_8O .



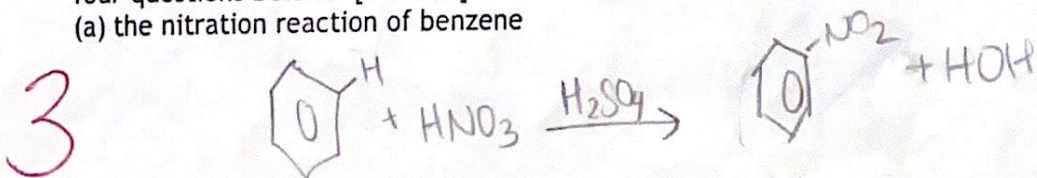
(e) All amines with the formula C_2H_5ON .



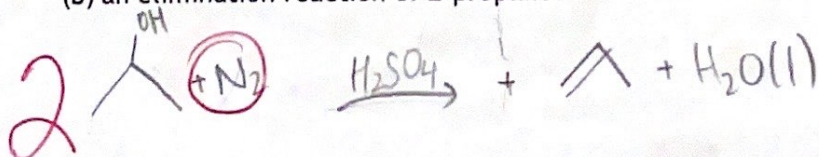
Inquiry [29 marks]

4. Write the chemical equations to illustrate the following reactions. Do any three of the four questions below. [9 marks]

(a) the nitration reaction of benzene

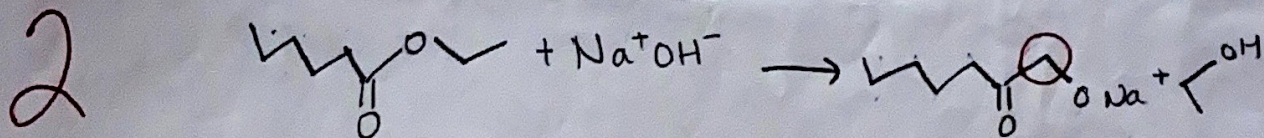


(b) an elimination reaction of 2-propanol



(c) the preparation of pentanal from an alcohol

(d) the hydrolysis of ethyl hexanoate



5. Describe a reaction pathway to synthesize ethyl ethanoate, starting from ethane. Include all conditions and safety precautions required from the procedure. [20 marks]

