

IB Chemistry HL Notes
Core and Further Organic Chemistry

Alkanes

Isaac D. Lim

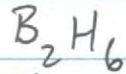
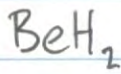
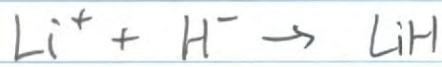
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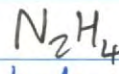
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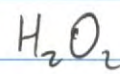
ORGANIC CHEMISTRY



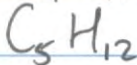
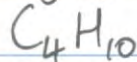
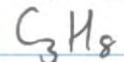
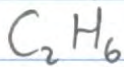
Diborane



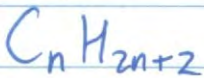
hydrazine



Alkanes

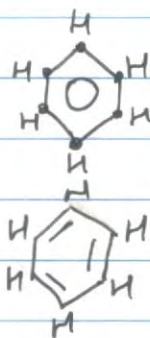
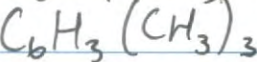
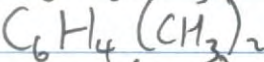
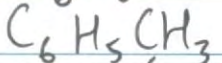
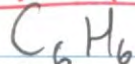


car petrol

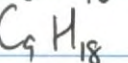
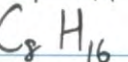
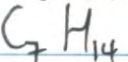
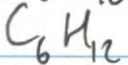
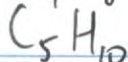
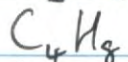
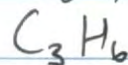


↳ $\text{C}_{15+}\text{H}_{32+}$ solids

Aromatic



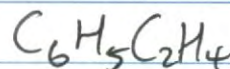
Alkenes



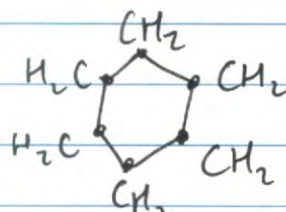
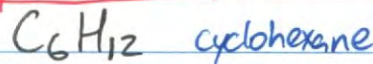
⋮



(have C=C double bond, so no CH_2)

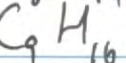
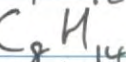
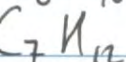
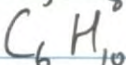
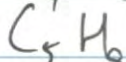
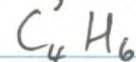
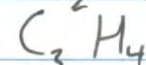
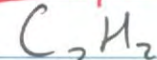


Cycloalkanes

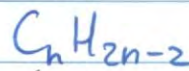


~ cyclohexane and hexene are isomers (both C_6H_{12})

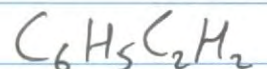
Alkynes



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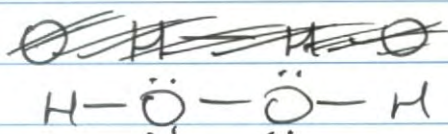
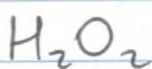
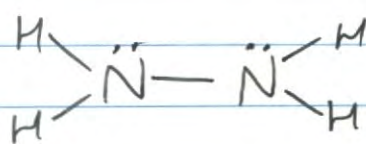
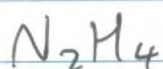


(have C≡C triple bond, so no C₁ chain)



All Homologous Series

C-C molecules



are WEAK
bonds

- \Downarrow
- * C-C is $348 \text{ kJmol}^{-1} \rightarrow \sim 150 \text{ kJmol}^{-1}$
 - * so C-C strong bond can form macromolecules.
 - * b/c can extend Carbon chain; series with contain hundreds of compounds.

* Catenation - the ability to form extended chains of covalently bonded atoms.

Practicals

- * Organic reactions generally do not take place spontaneously.
- * Strong Carbon bonds have to be broken.
- * Experimentally, a lot of heat has to be applied.
- * Unlikely to get 100% conversion of reactions \rightarrow products.
- * 70% yield is very good
- * B/c of lower yield, will be a mixture of reactants and products.
- * Have to separate mixture: appreciable
 - distillation: must have difference in boiling points
 - fractional distillation.