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| **CHEM 210: Analytical Chemistry**  **IR SPECTROSCOPY QUESTIONS** |  |
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 1. You are given a series of organic samples A, B, and C. You are told that one compound is methanol, CH3OH, another is cyclohexane, C6H12, and the third is octanal, C8H16O. You are to identify A, B, and C using the IR spectra. Justify your choices by telling what band was used to verify the identities, and which functional group produced the band.

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| http://www.800mainstreet.com/irsp/Image22.gif**A** |
| http://www.800mainstreet.com/irsp/Image23.gif**B** |

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| http://www.800mainstreet.com/irsp/Image24.gif**C** |

2. You have the IR spectra for an organic liquid that was found on the clothes of a criminal defendant. The crime scene was heavily contaminated with a mixture of hydrocarbons, but there were no ketones, aldehydes, acids or alcohols present. Is the defendant's clothing contaminated with a hydrocarbon? Would this spectral evidence put the suspect at the crime scene? Justify your answer using IR functional group information.

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| http://www.800mainstreet.com/irsp/Image25.gif |

3. Assign the following molecules to the IR spectra A-E below. Justify your assignments.



















