Electromagnetic Spectrum

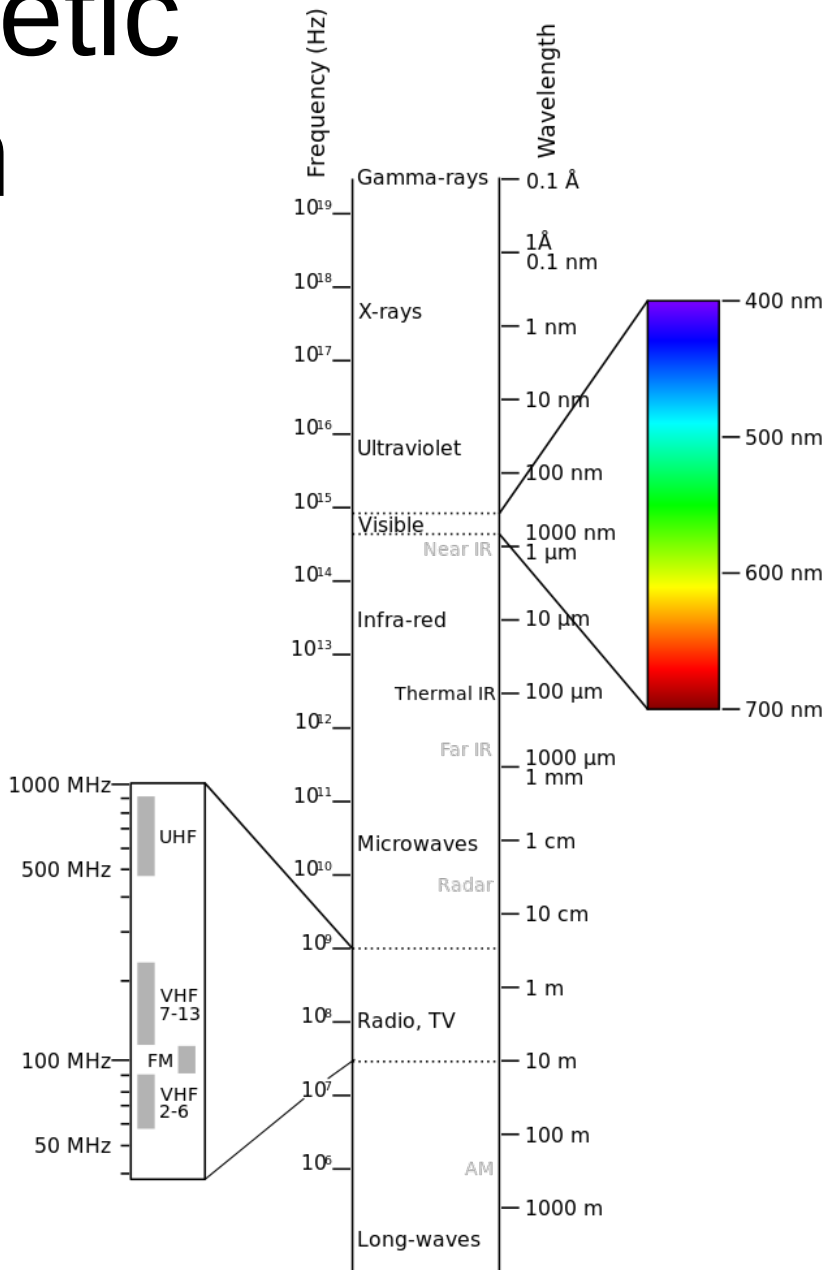
- $f = c/\lambda$

  or

- $f = E/h$

  or

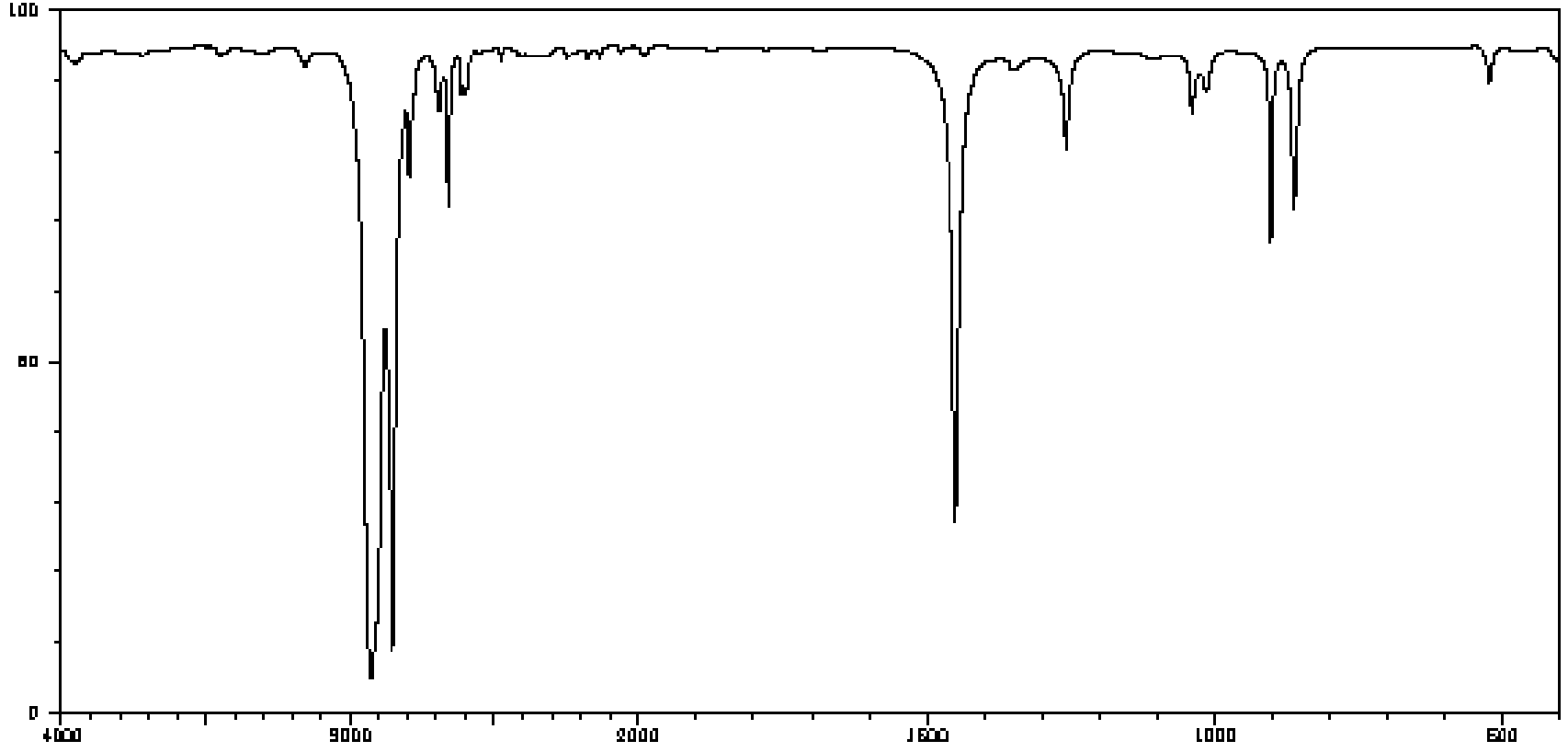
- $E = hc/\lambda$
- Where *c* is the speed of light
- And *h* is Planck's constant



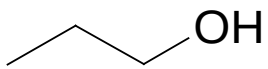
Visualization of Vibrations

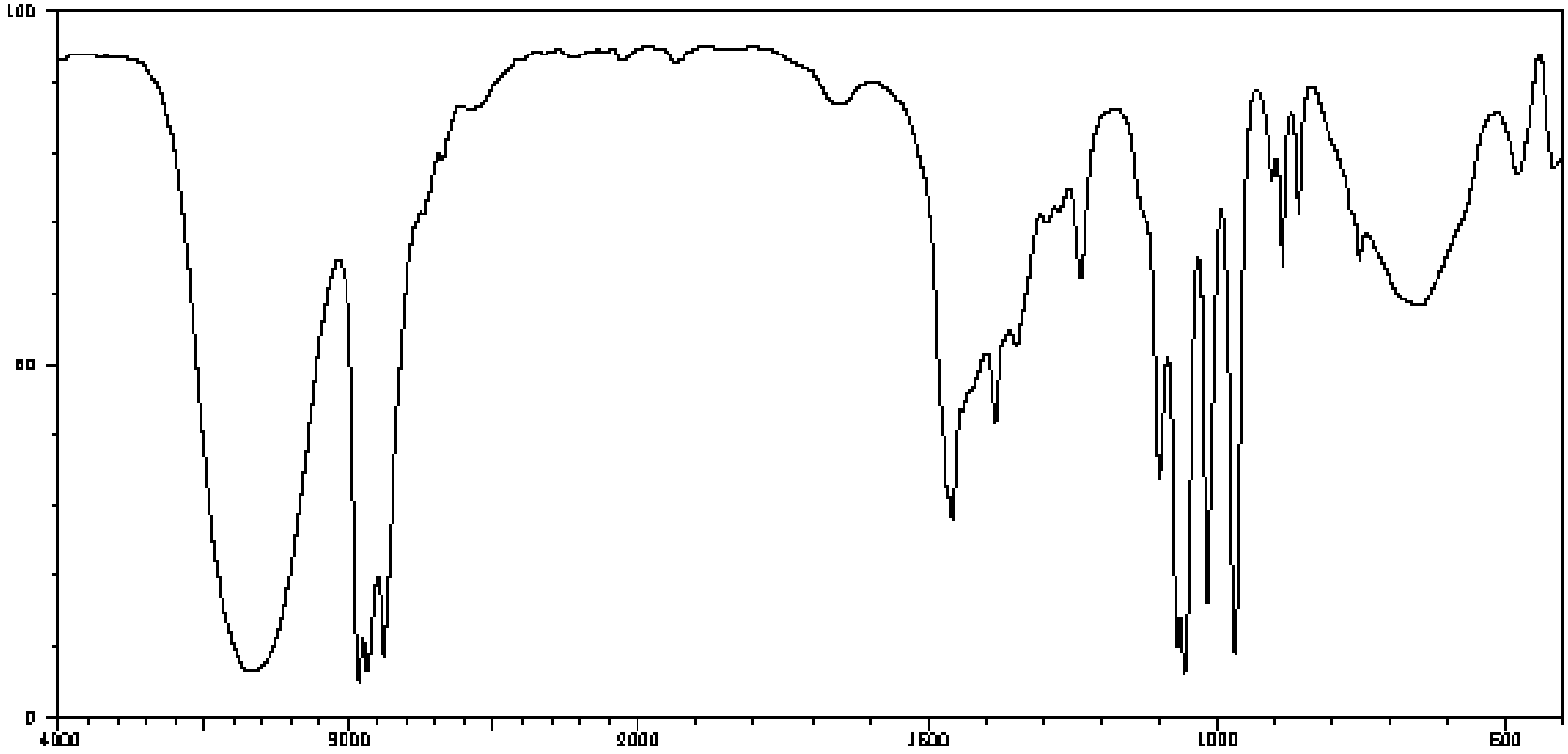
- Methyl amine (all 15 vibrations)
  - http://cheminf.cmbi.ru.nl/wetche/organic/vibr/
- H2O, CO2, and Adamantane
  - http://www.chm.bris.ac.uk/jmol/jmolv/vibratingmols/vibmenu.htm
- Quite a few molecules
  - http://www.molwave.com/software/3dnormalmodes/3dnormalmodes.htm

Cyclohexane

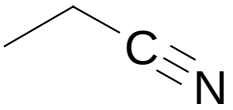


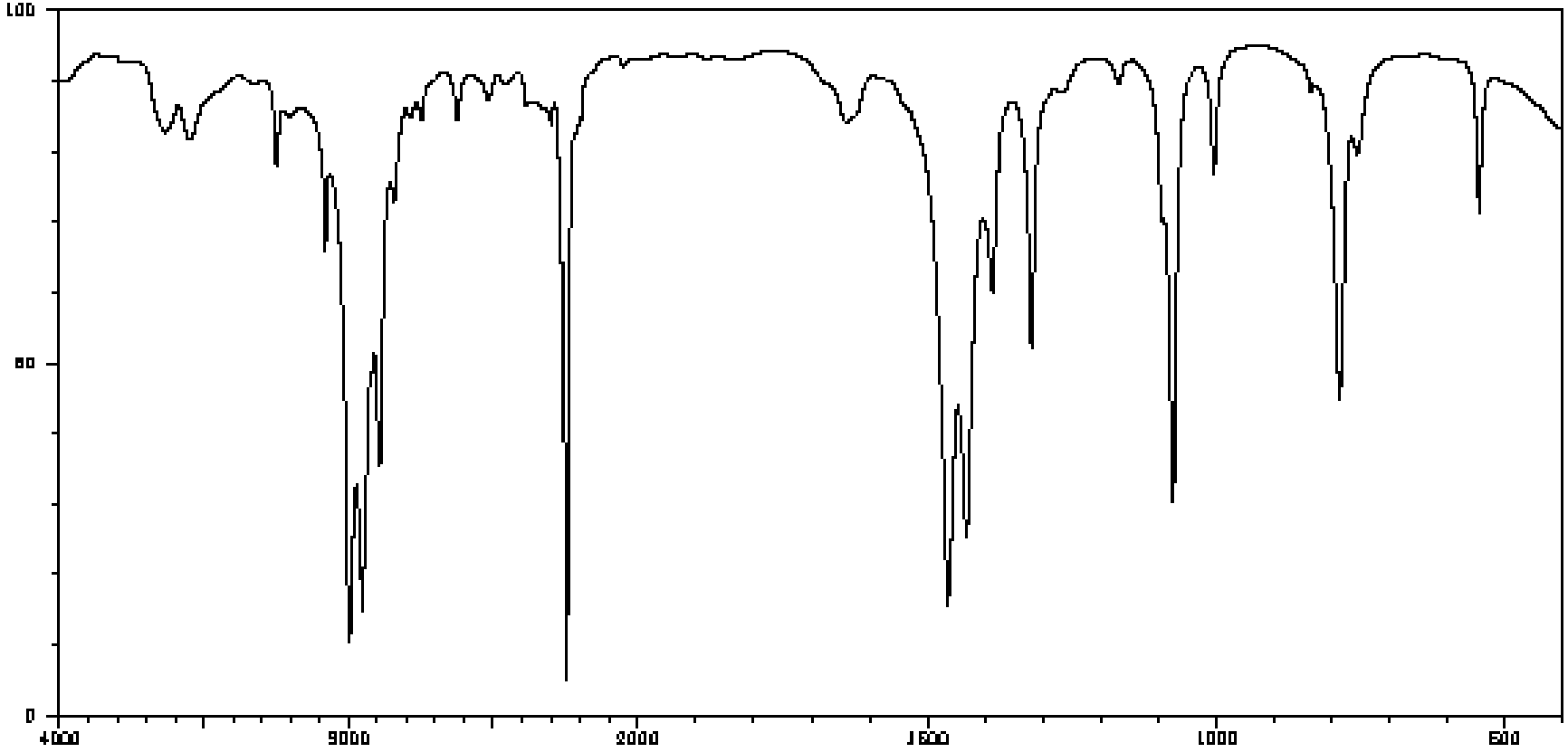
1-Propanol



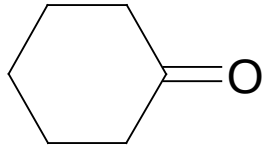


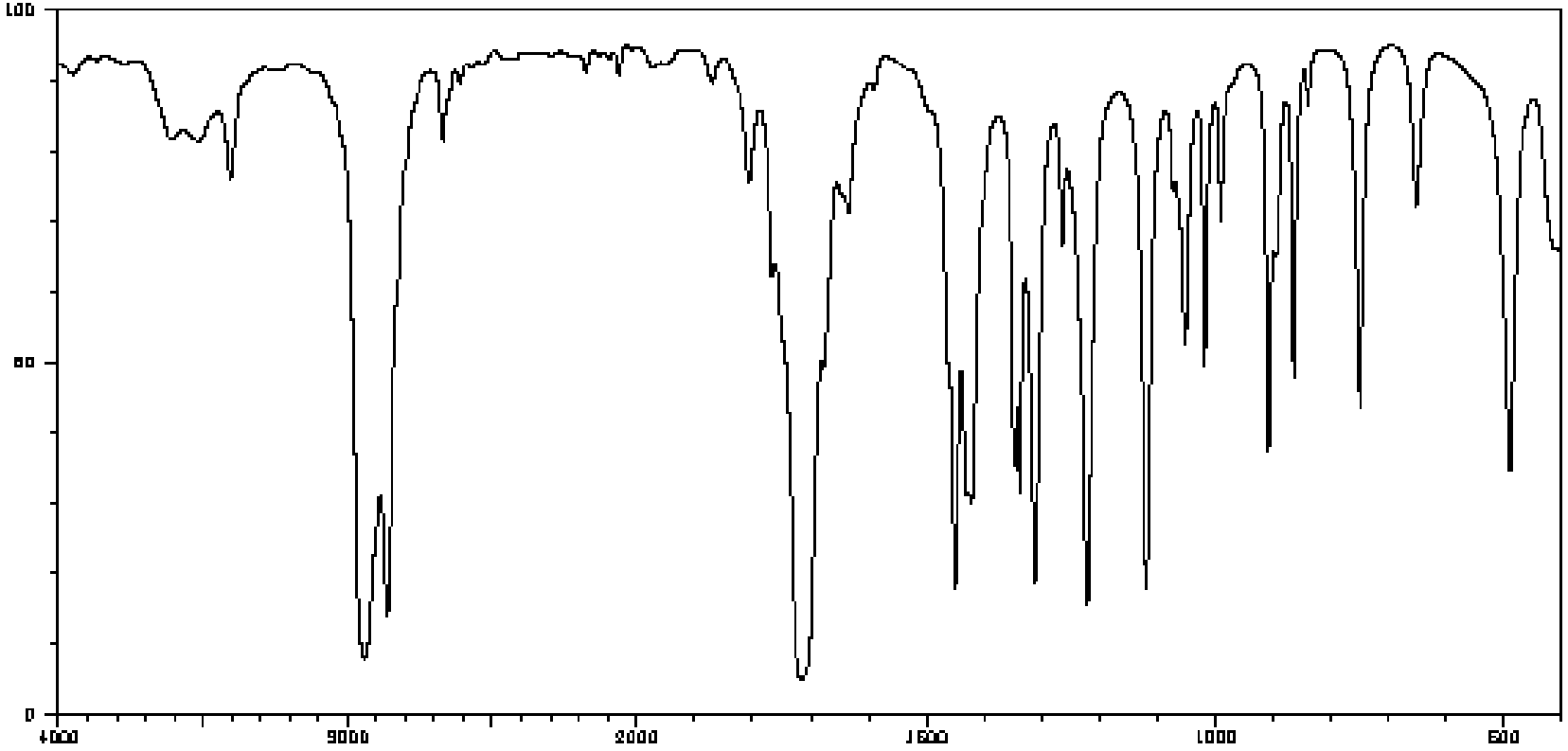
Propanenitrile



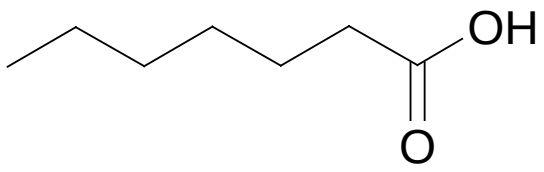


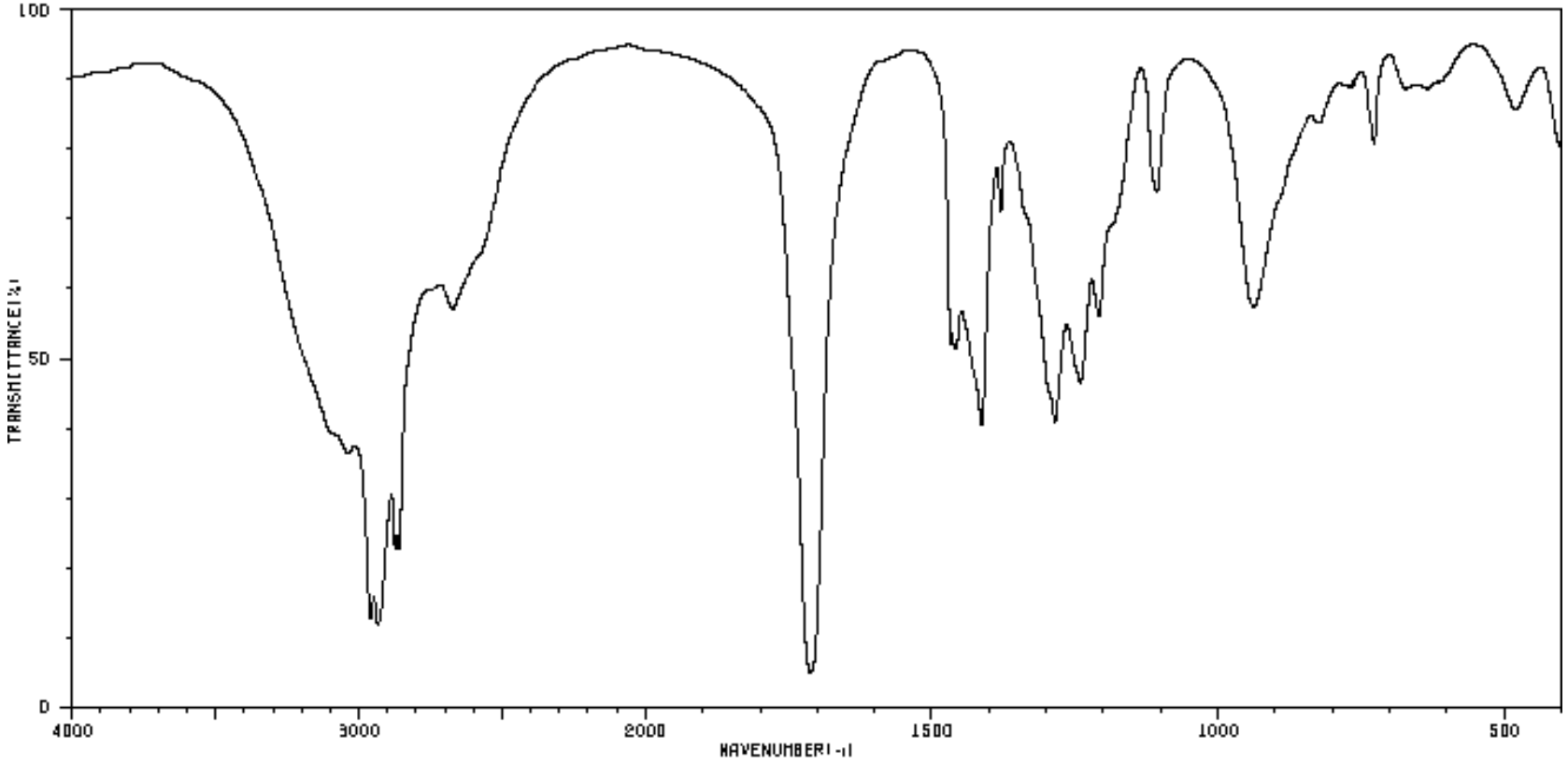
Cyclohexanone



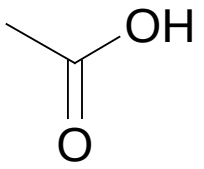


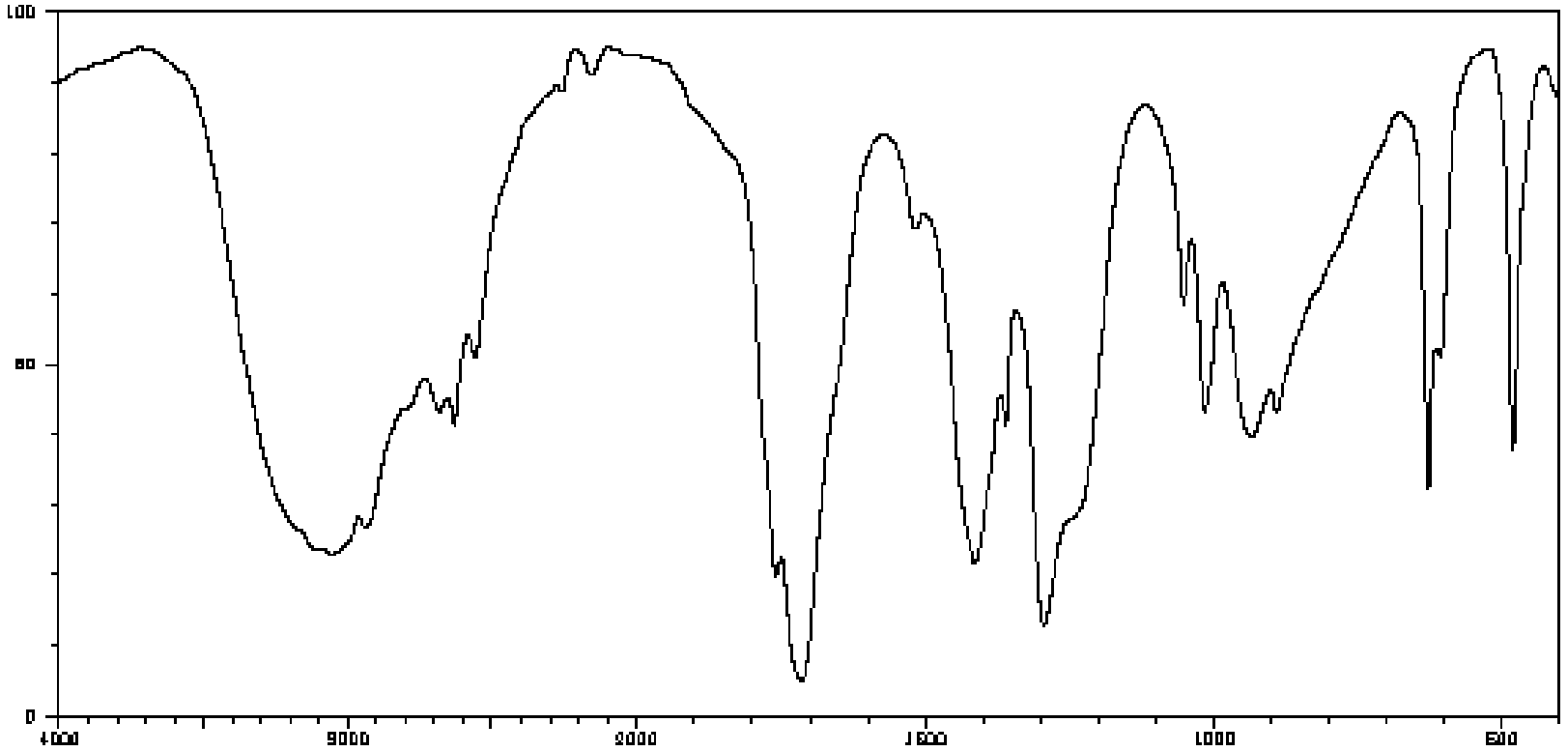
Heptanoic acid



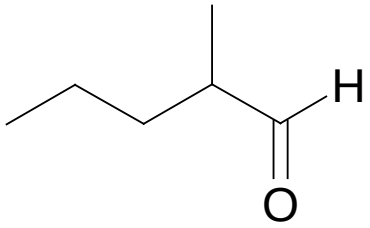


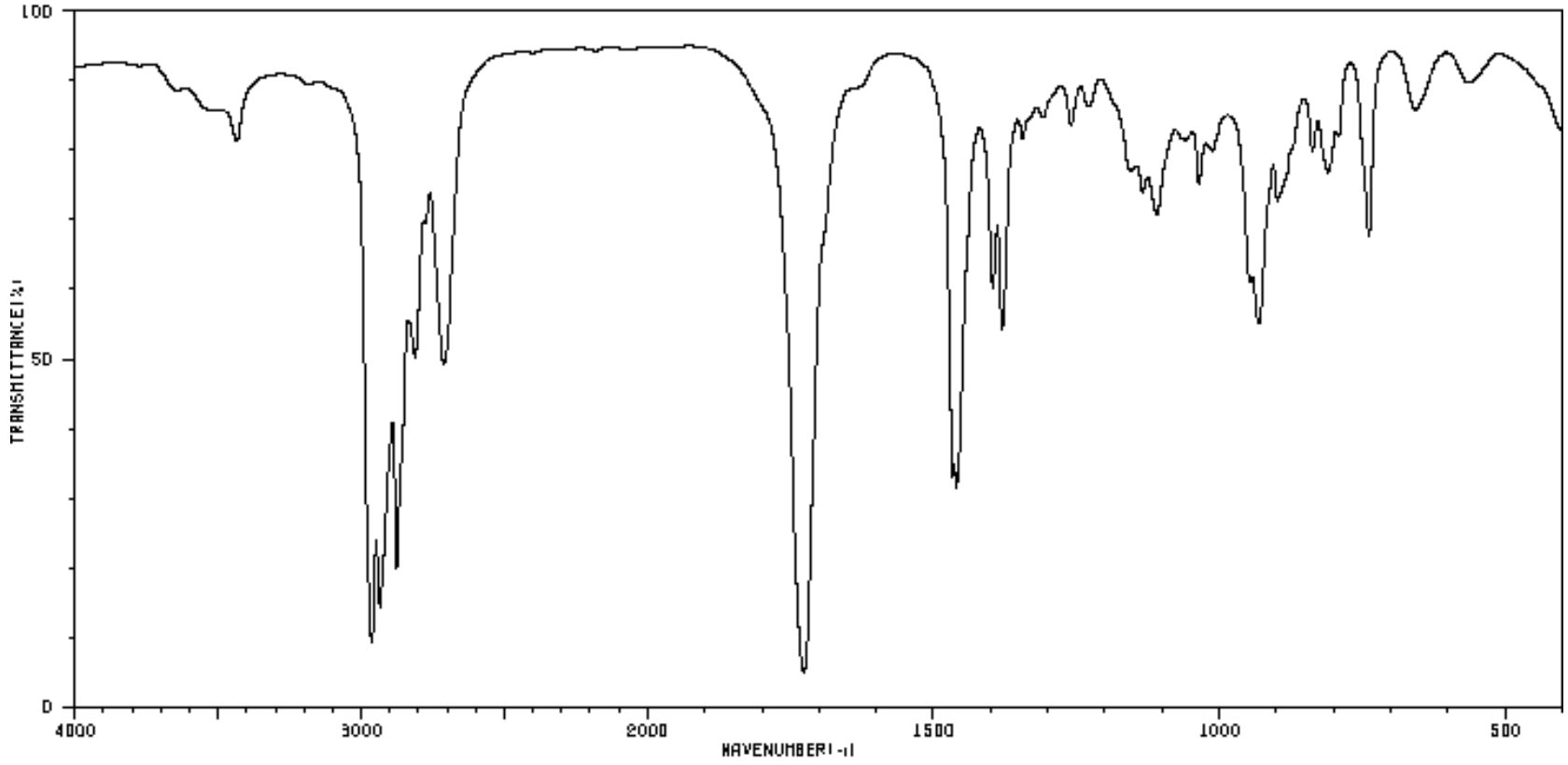
Ethanoic acid



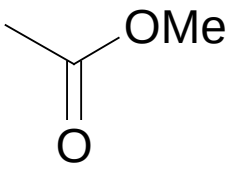


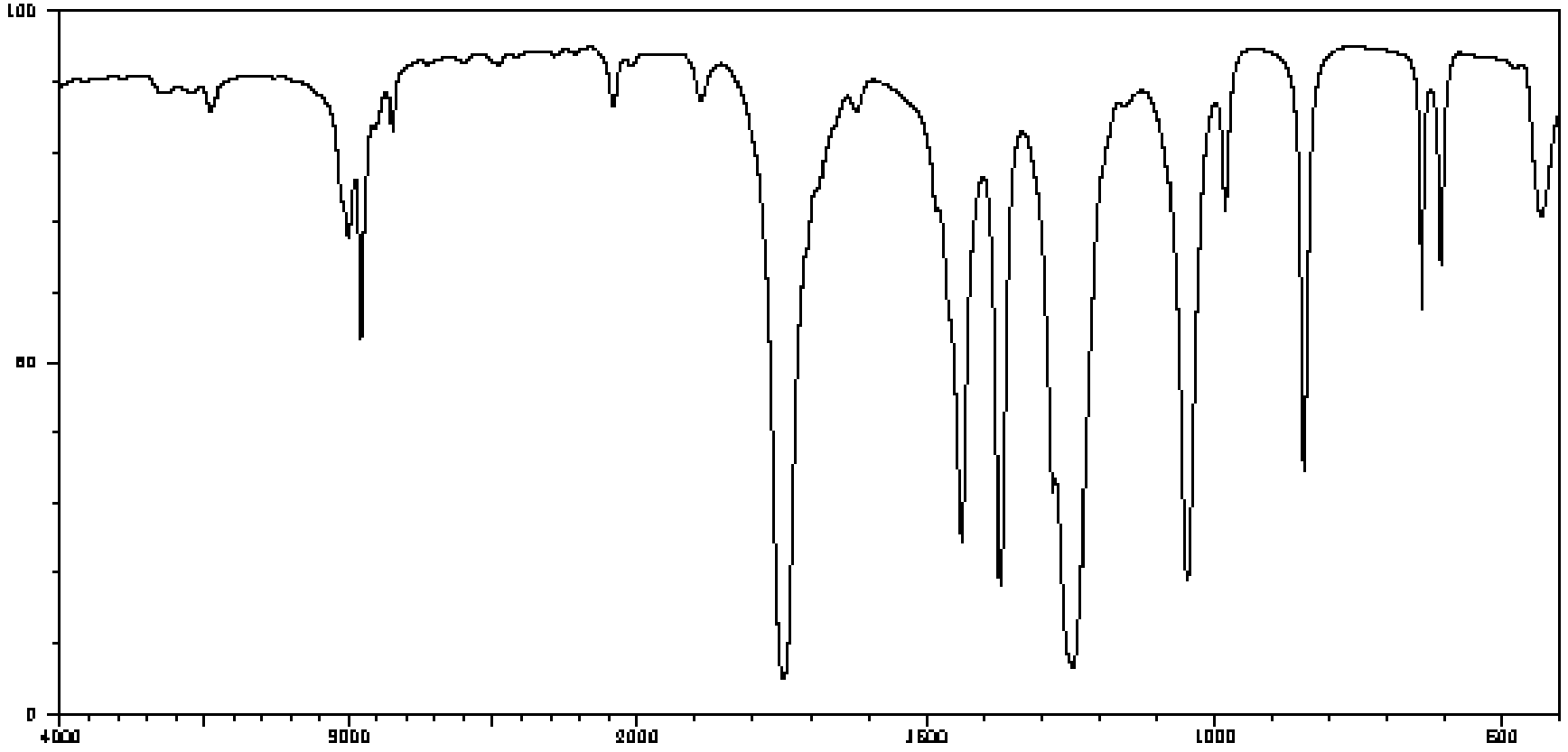
2-Methylpentanal



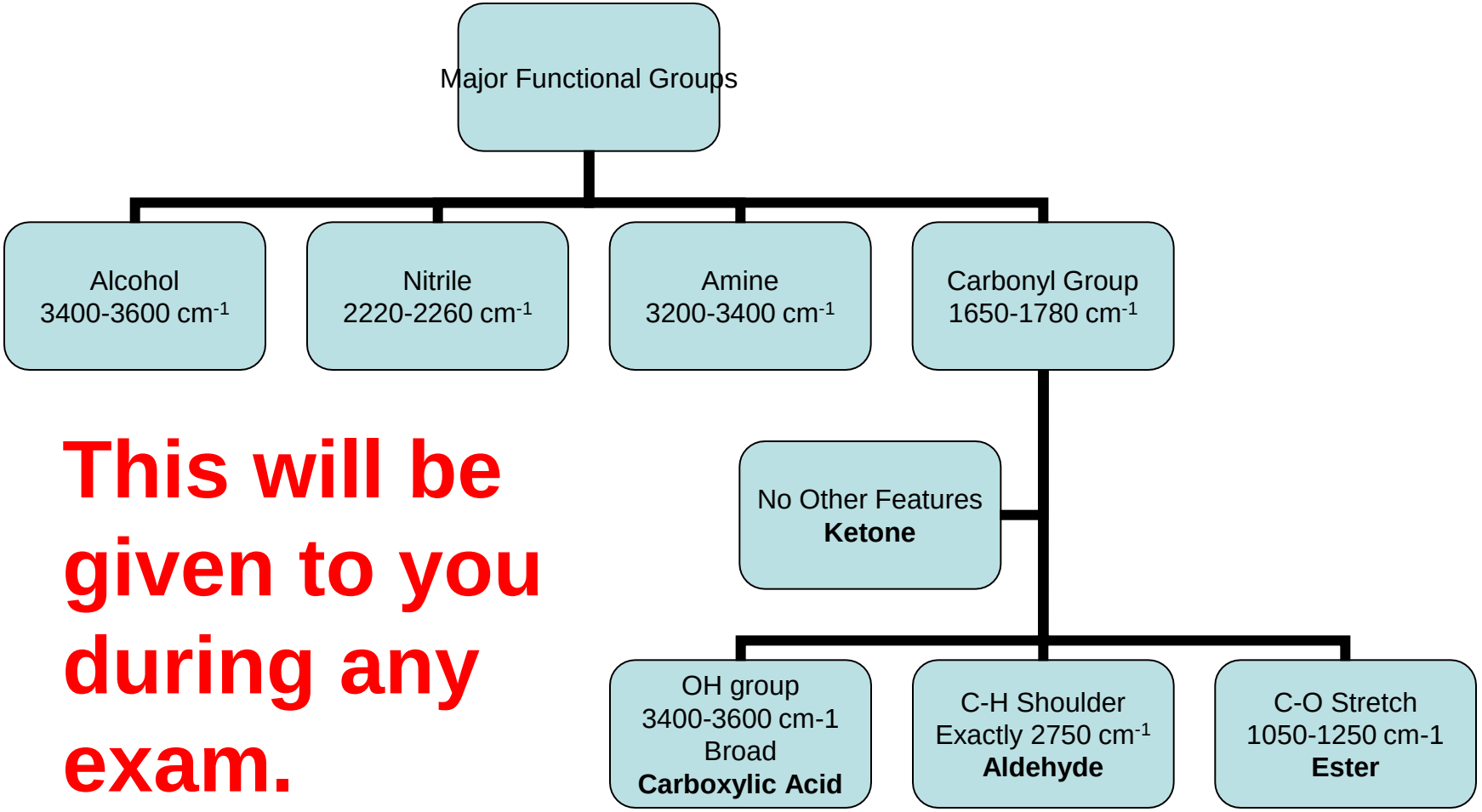


Methyl Ethanoate



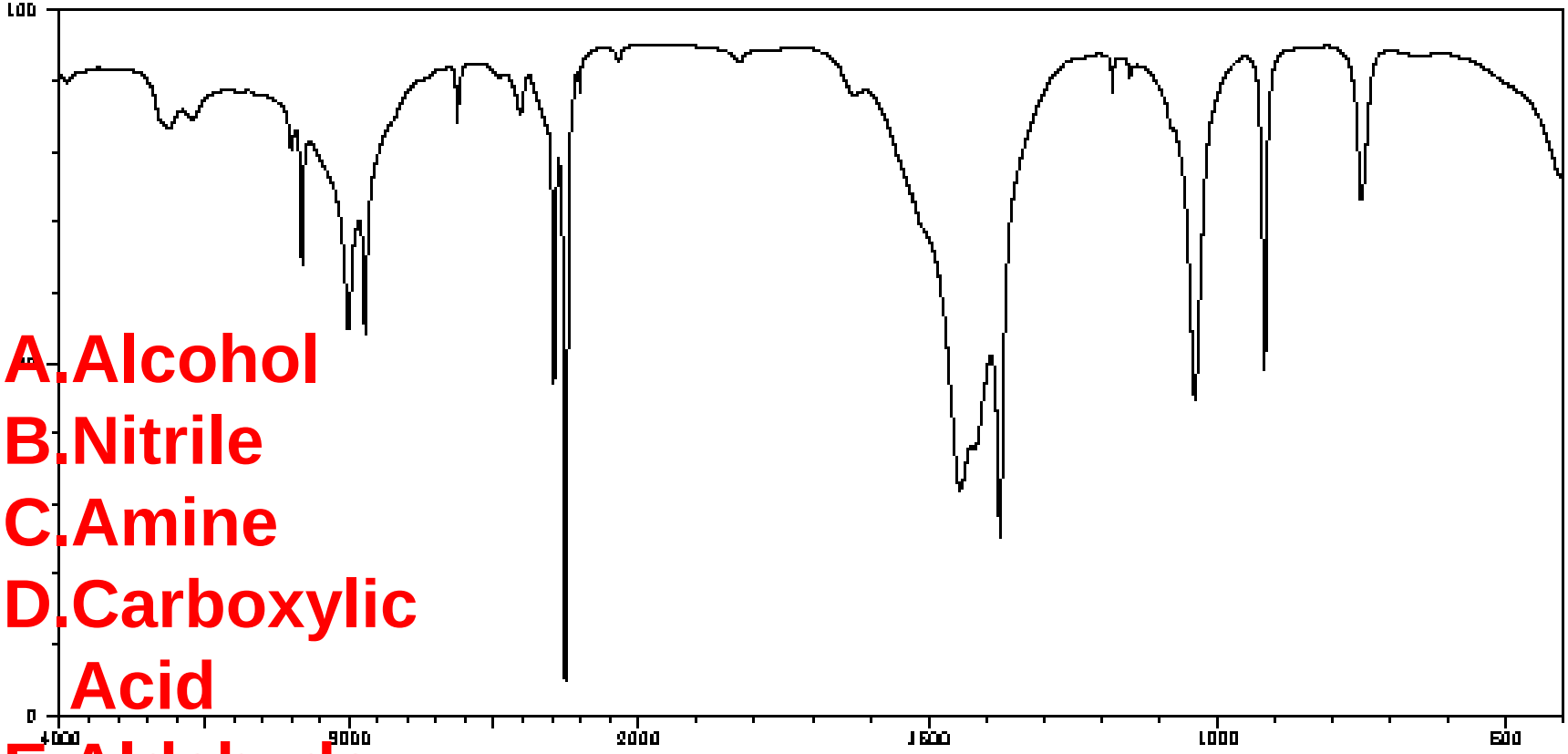


Interpreting IR Spectra



This will be given to you during any exam.

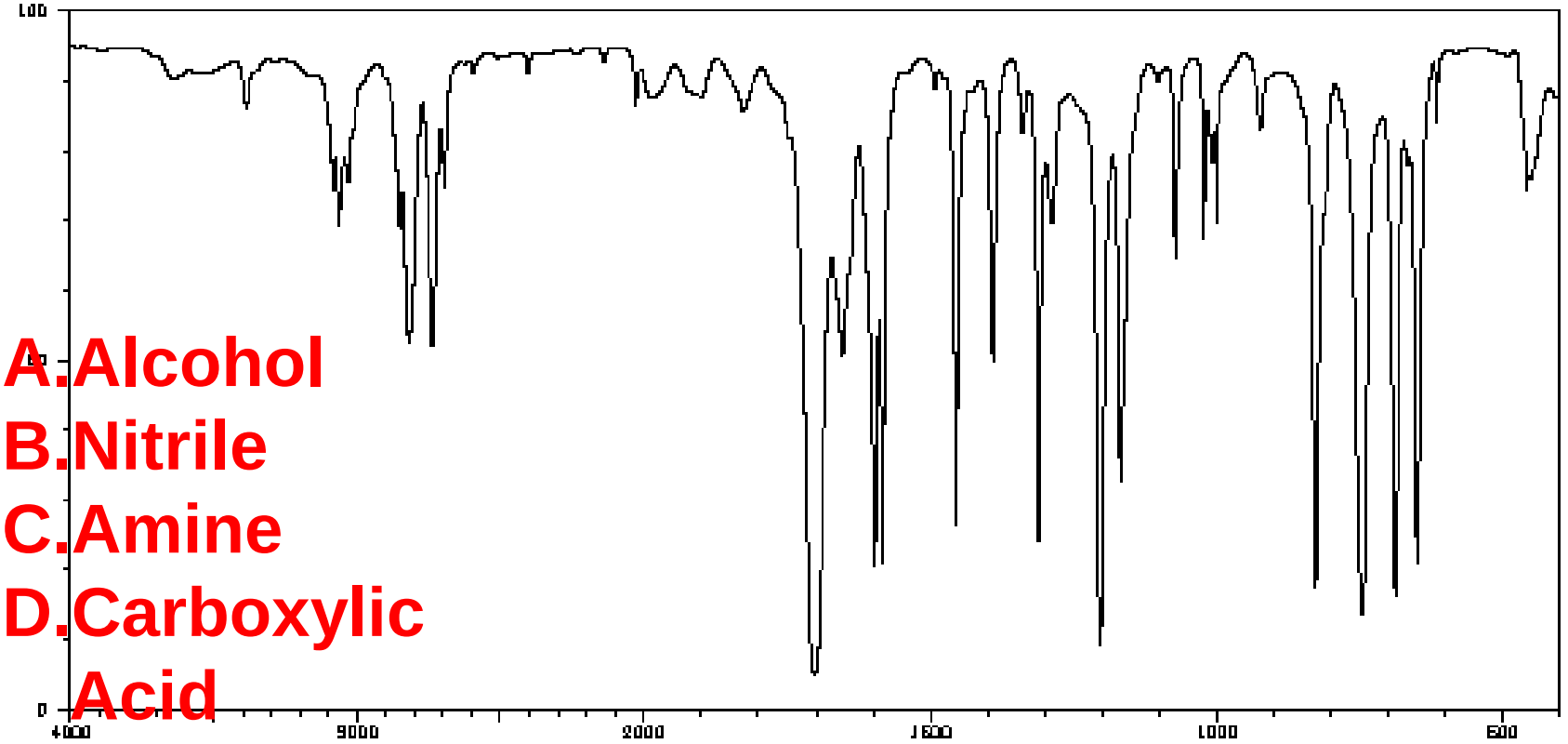
What functional groups?



A. Alcohol
B. Nitrile
C. Amine
D. Carboxylic Acid
E. Aldehyde
F. Ester
G. Ketone

2014-08-20 Q2

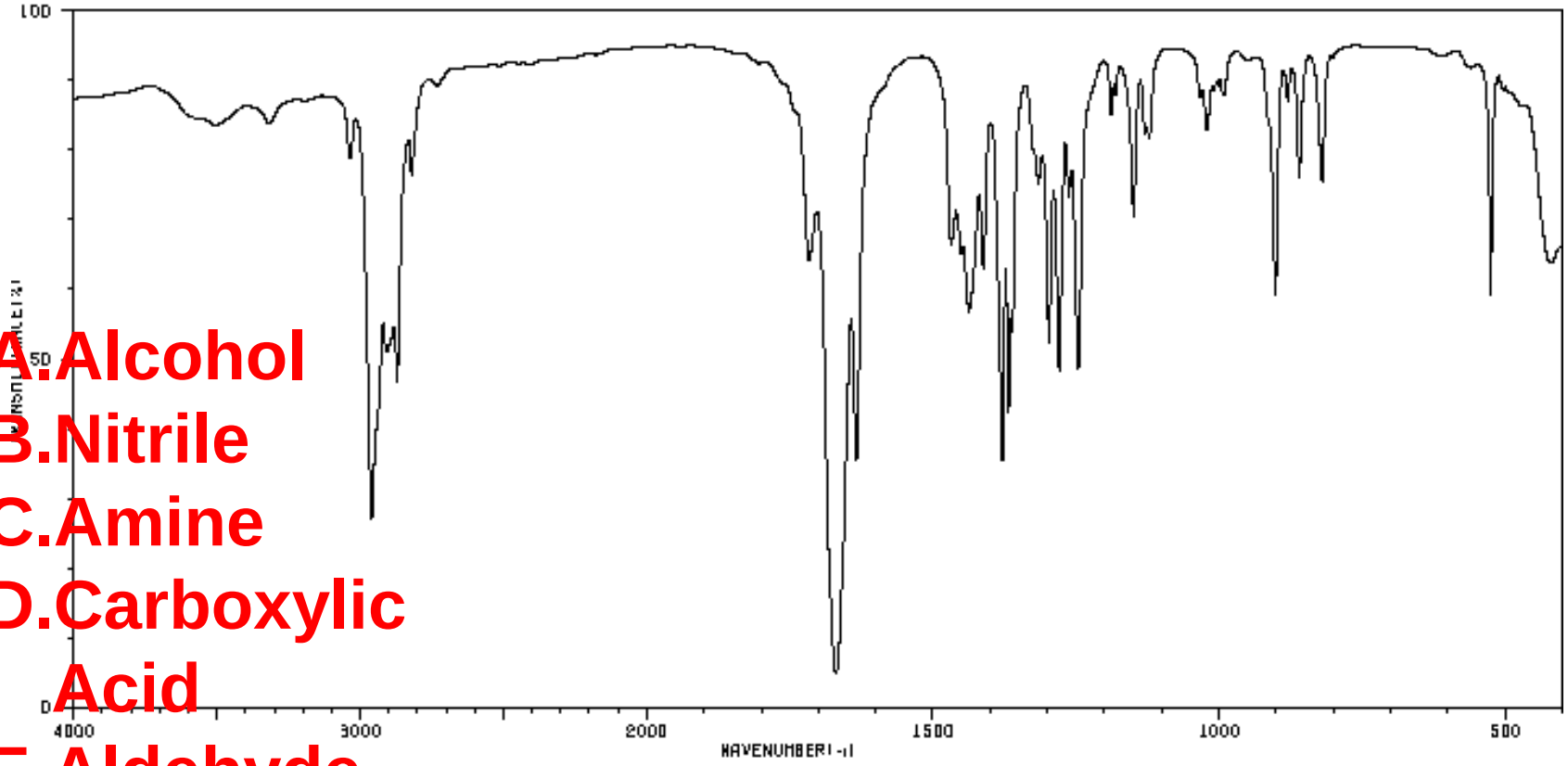
What functional groups?



A. Alcohol
B. Nitrile
C. Amine
D. Carboxylic Acid
E. Aldehyde
F. Ester
G. Ketone

2014-08-20 Q3

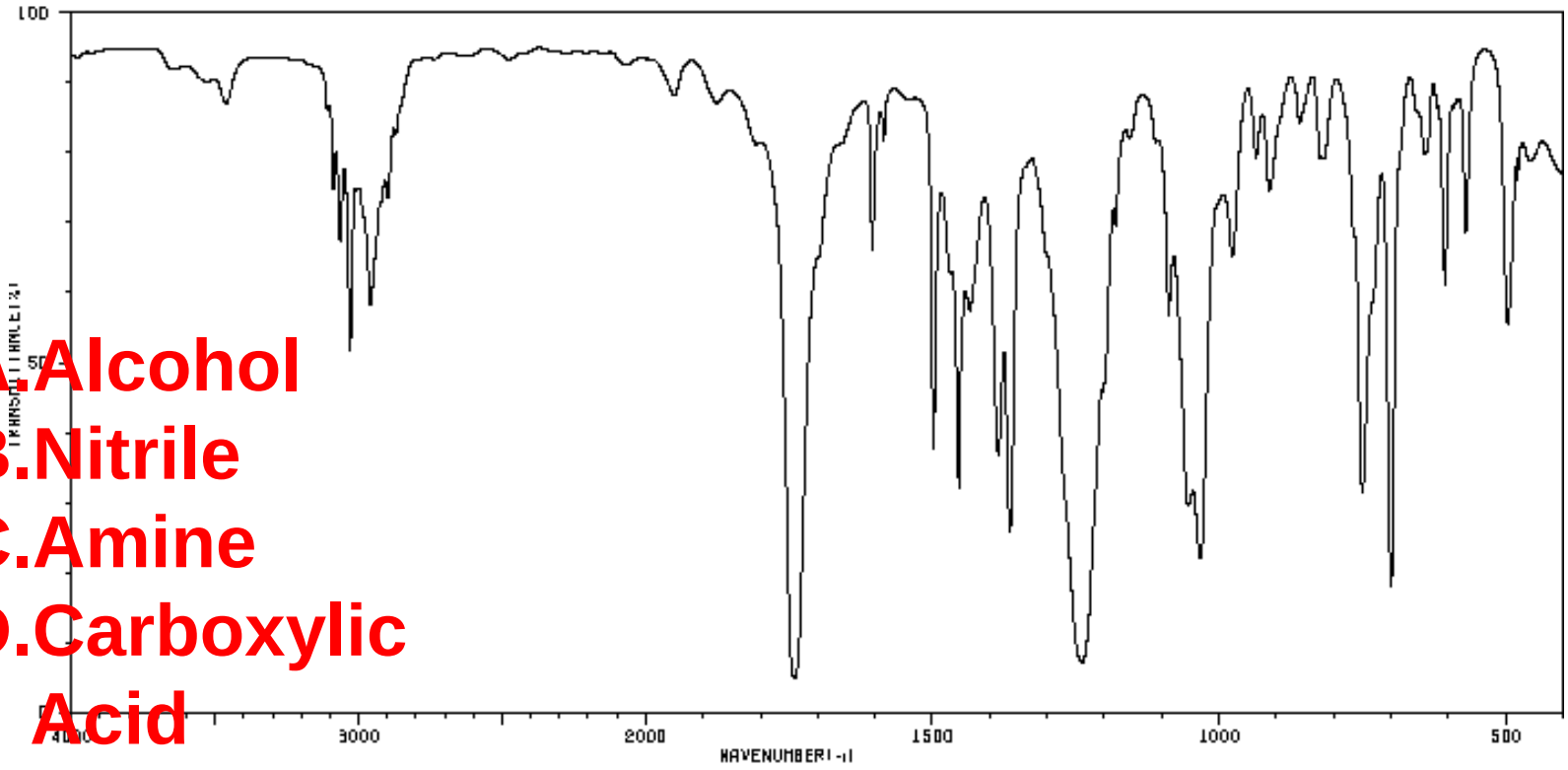
What functional groups?



A. Alcohol
B. Nitrile
C. Amine
D. Carboxylic Acid
E. Aldehyde
F. Ester
G. Ketone

2014-08-20 Q4

What functional groups?



A. Alcohol
B. Nitrile
C. Amine
D. Carboxylic Acid
E. Aldehyde
F. Ester
G. Ketone

2014-08-20 Q5