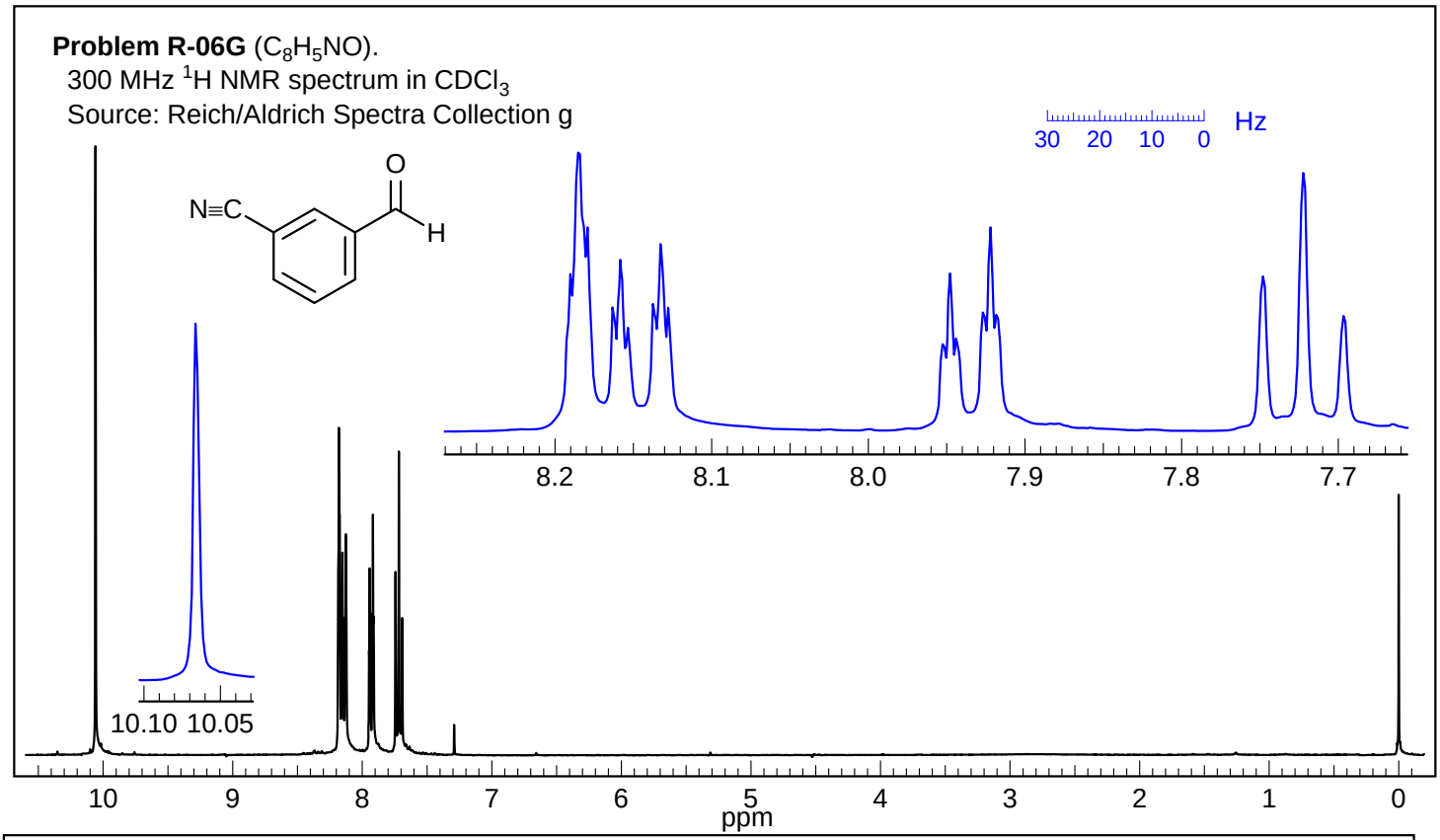
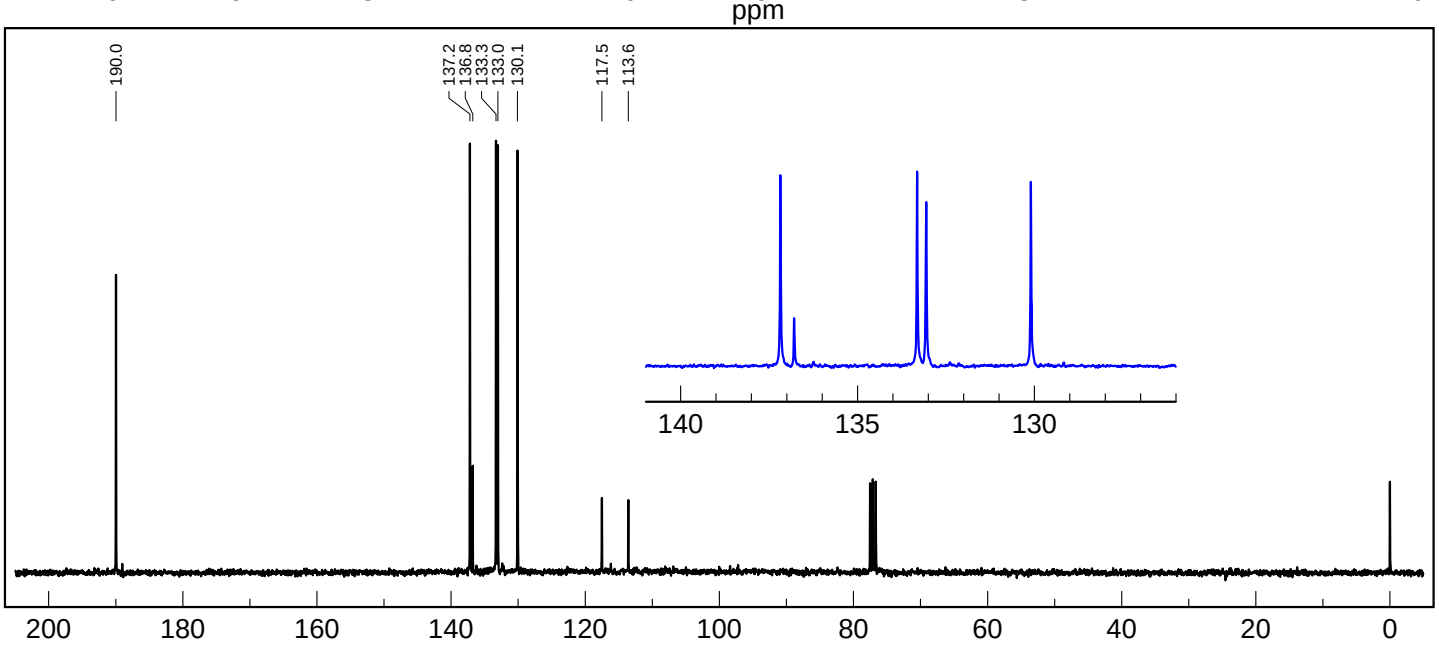
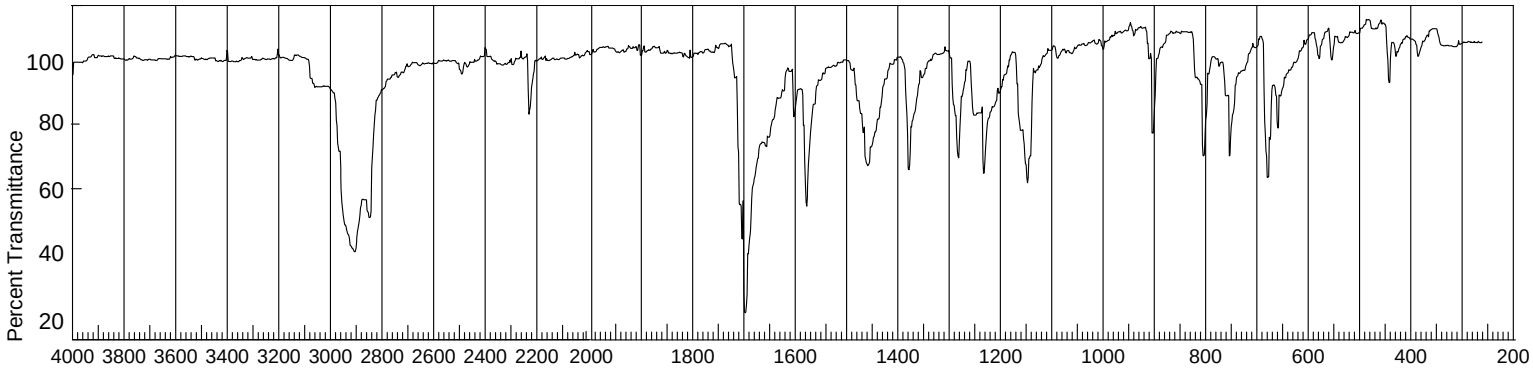
Problem R-06G (C_8H_5NO).
300 MHz ^{1}H NMR spectrum in $CDCl_3$
Source: Reich/Aldrich Spectra Collection g





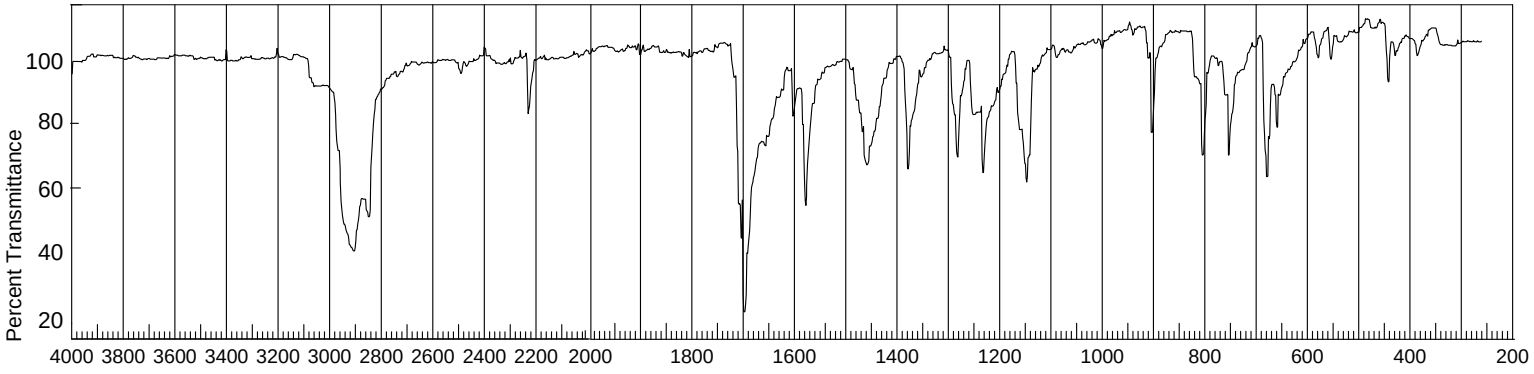


PLT ex-1-2006-07-gq.plt

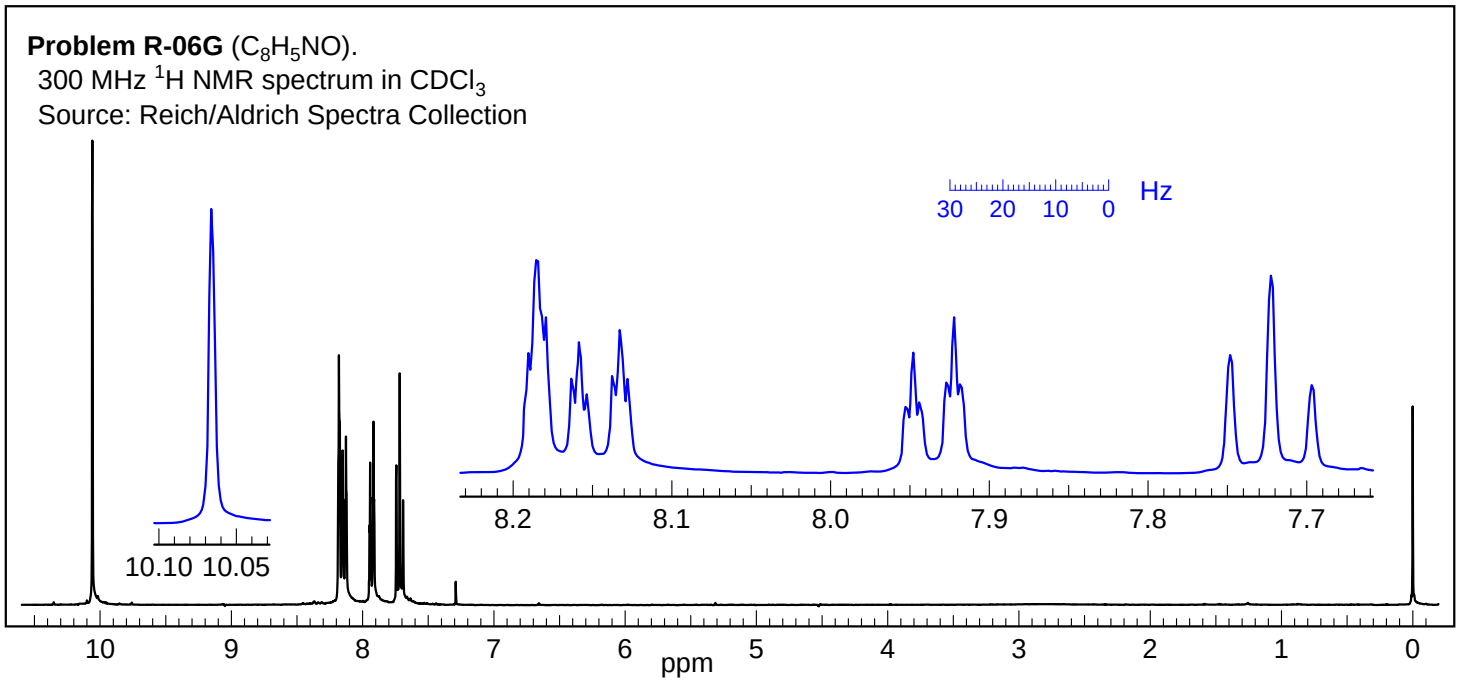
Problem R-06G. You are given the 300 MHz ^{1}H NMR spectrum and infrared spectrum.

(a) DBE_____

(b) Interpret the IR spectrum. Identify significant peaks, and give potential functional groups.



(c) Interpret the ^{1}H NMR spectrum. Write the structure, and place chemical shifts and couplings on the structure.



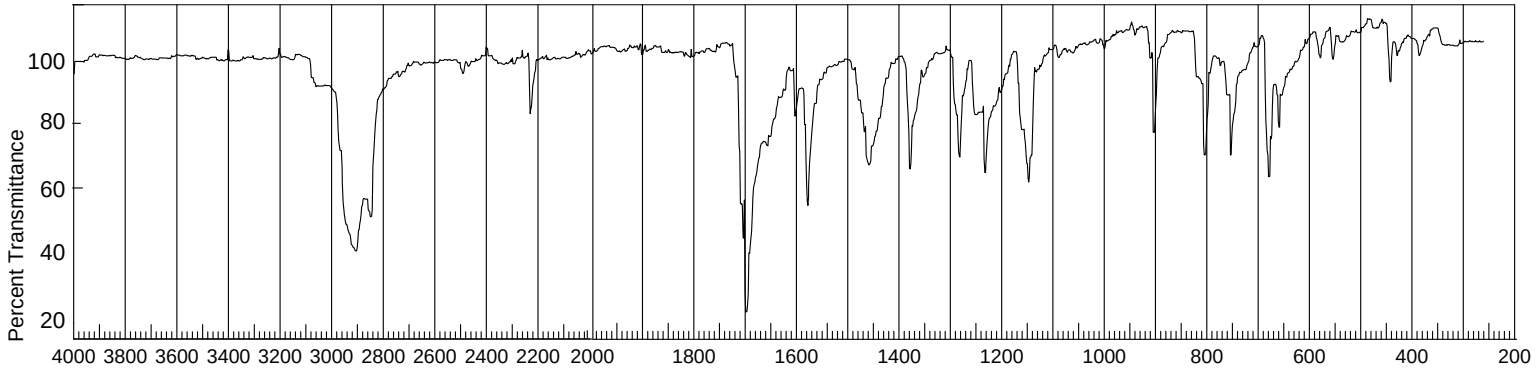
PLT ex-1-2006-07-gq.plt

Problem R-06G. You are given the 300 MHz ^{1}H NMR spectrum and infrared spectrum.

2

(a) DBE 7 A number missed DBE due to N

(b) Interpret the IR spectrum. Identify significant peaks, and give potential functional groups.

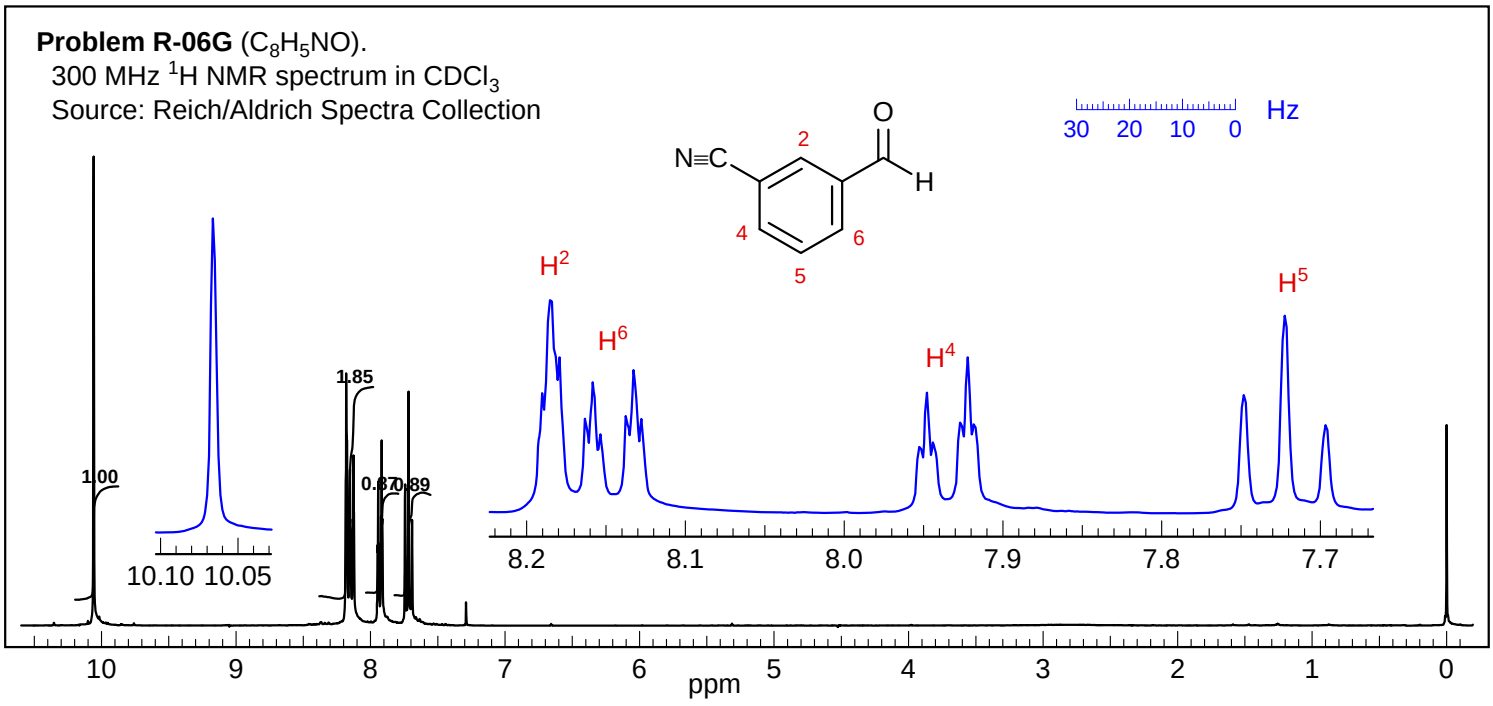


5

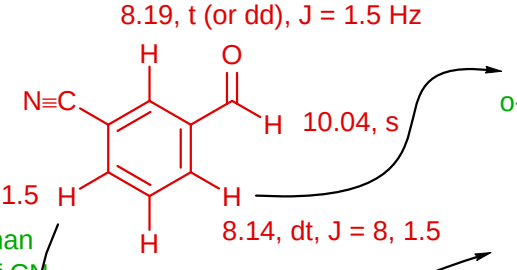
2220 cm^{-1} Could be C≡N or C≡C

1690 cm^{-1} C=O possible conjugated ketone or aldehyde

(c) Interpret the ^{1}H NMR spectrum. Write the structure, and place chemical shifts and couplings on the structure.



9



(ortho-shift of CHO is larger than p-shift of CHO or ortho shift of CN - shift calculations are right on the nose)

Base: 7.36
o-CHO: 0.53
p-CN: 0.25
Calc: 8.14 Obs: 8.14

Base: 7.36
o-CN: 0.29
p-CHO: 0.28
Calc: 7.93 Obs: 7.93

4 pt structure, 5 pts assignments

Some missed 8.1-8.2 multiplets