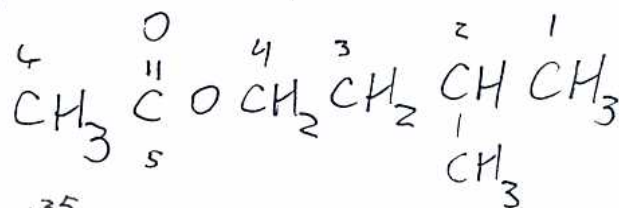


Advanced NMR techniques

* We won't discuss theory or instrumentation
 , You should understand application and be able to interpret easier spectra

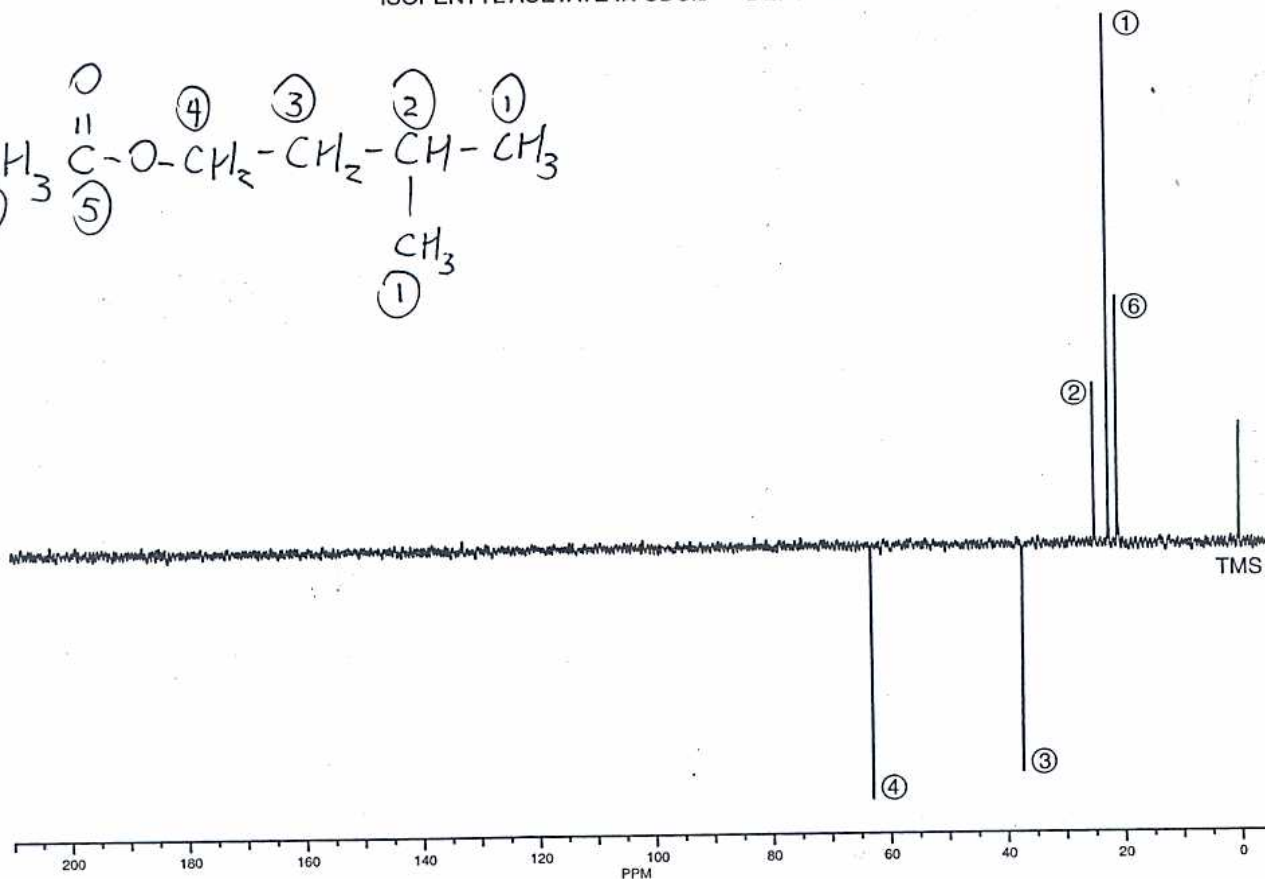
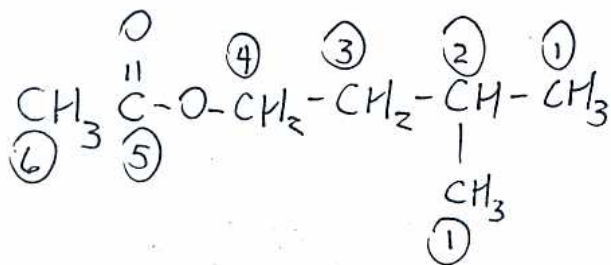
① Distortionless Enhancement by Polarization Transfer (DEPT)

- Distinguishes ^{13}C by # of H's attached



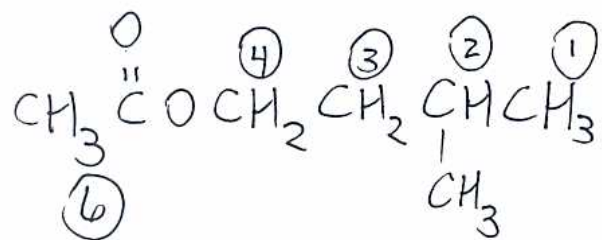
- DEPT- 135 : CH + CH₃ up CH₂ down $^{\circ}\text{C}$ disappears

ISOPENTYLACETATE IN CDCl₃ — DEPT-135



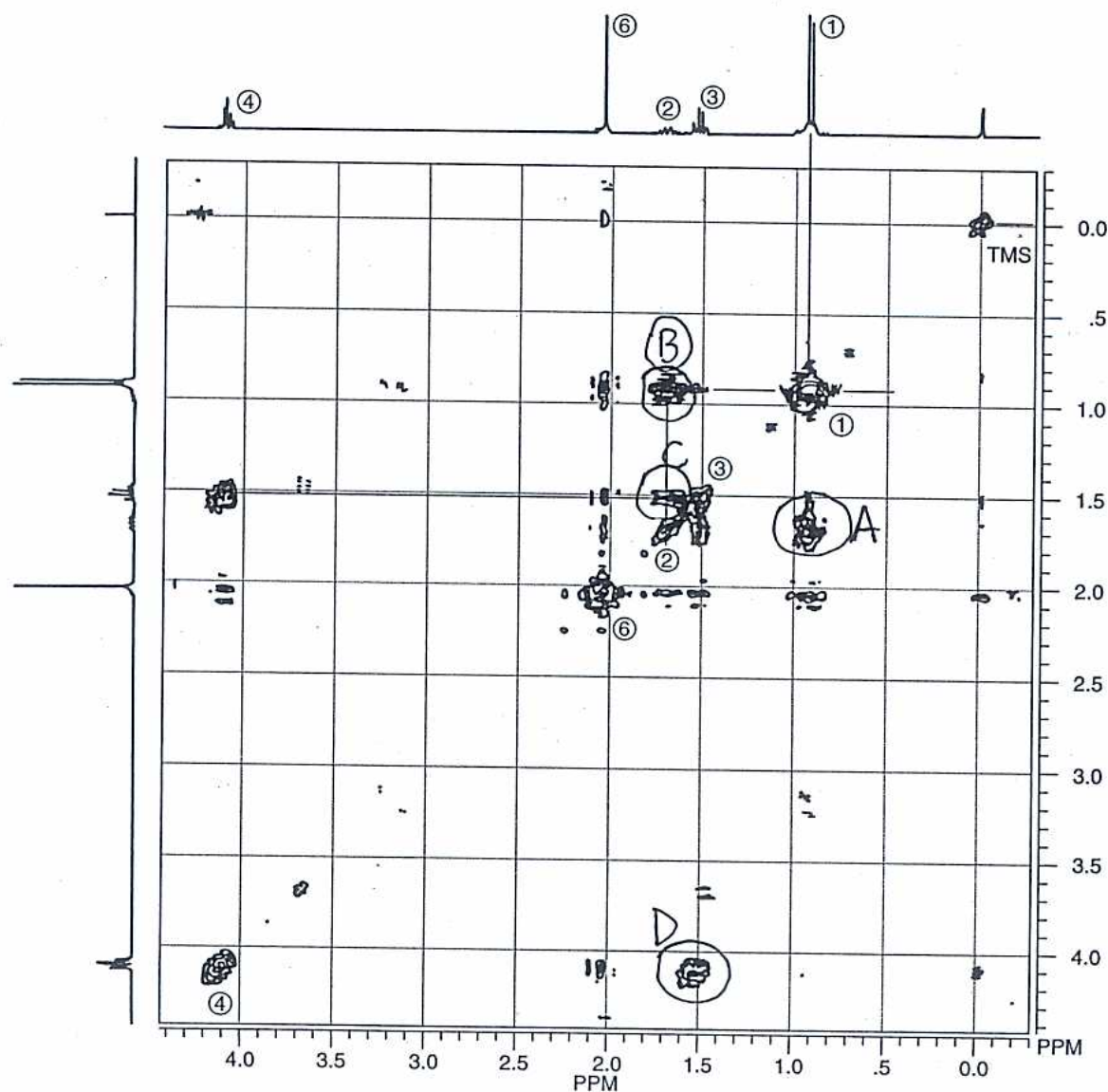
* DEPT(90) - only CH

② H-H Correlation Spectroscopy (COSY)

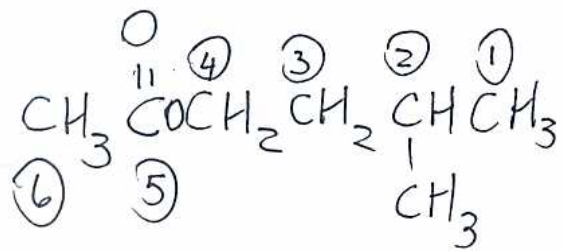


off diagonal peaks
(crosspeaks)

- Ⓐ 1-2 } same
- Ⓑ 2-1 } same
- Ⓒ 2-3
- Ⓓ 3-4



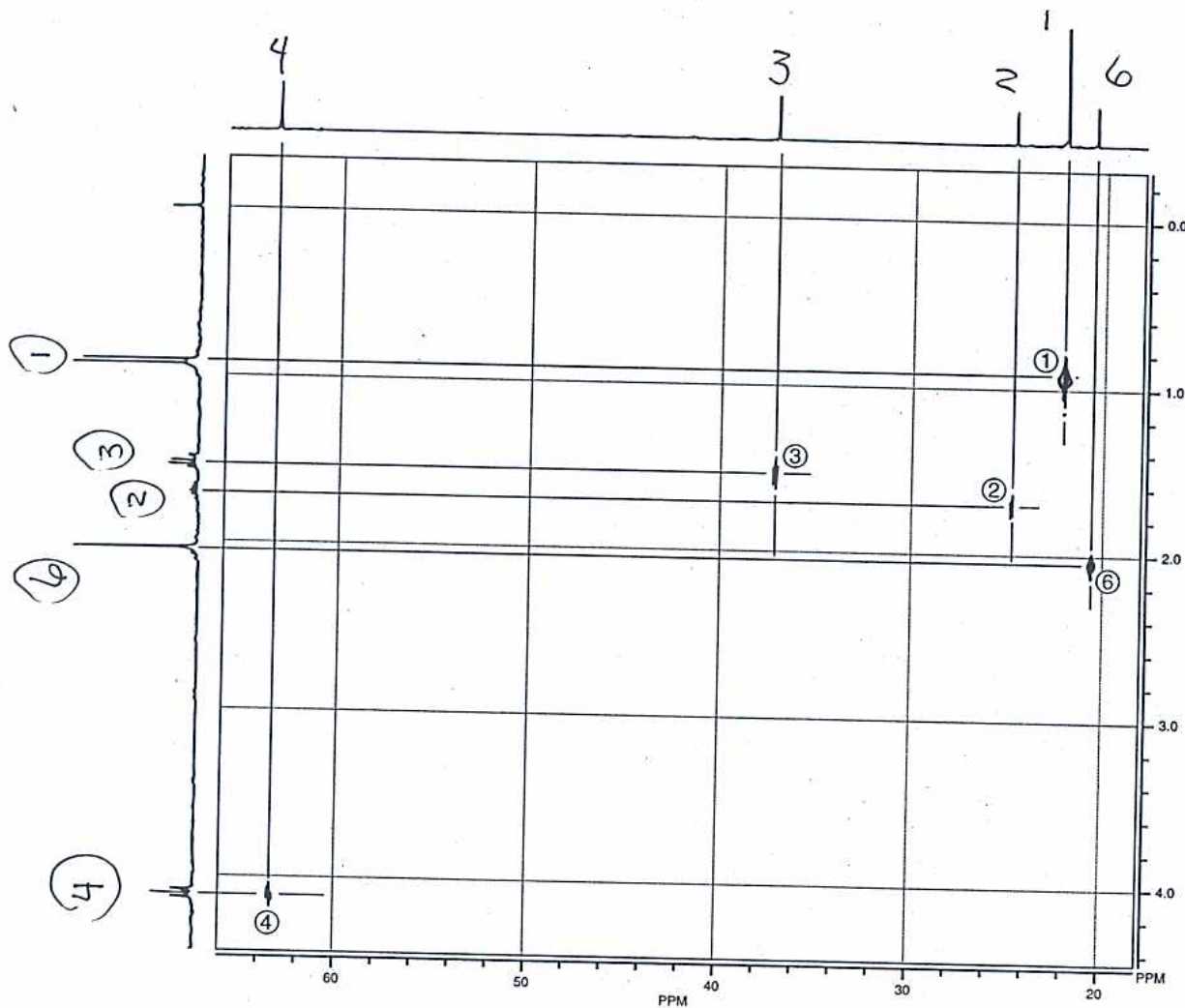
③ Heteronuclear Correlation Spectroscopy (HETCOR)



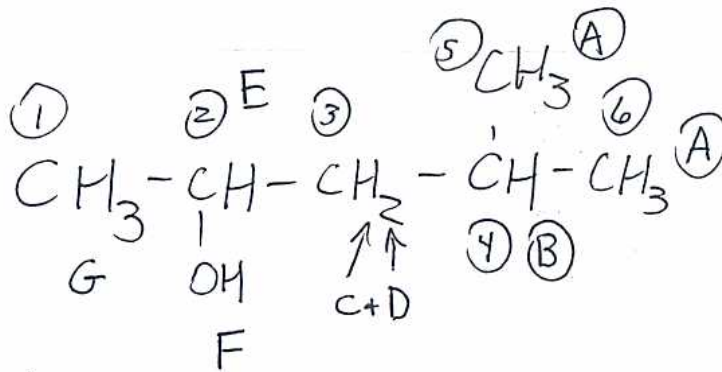
* Match C to attached H

* Very useful for overlapping protons

* Also good for diastereotopic 'H



Example



* Diastereotopic H's - C+D

* Diastereotopic CH₃'s - 5+6

