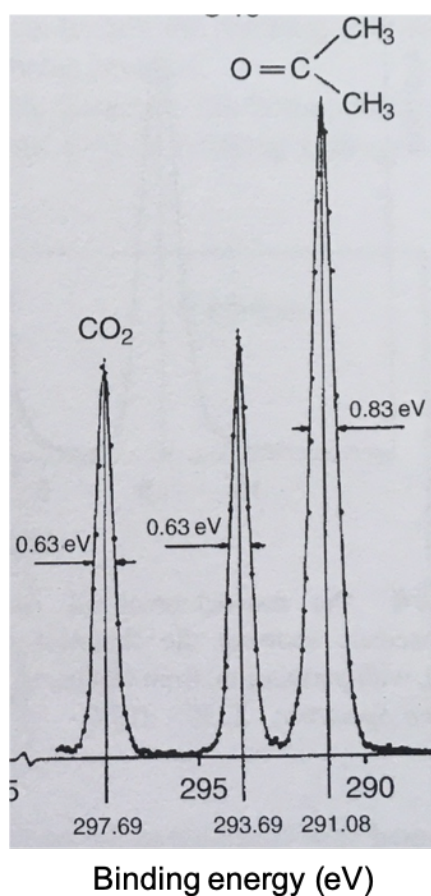


CH314 – Structural Analysis

Part III : X-ray Tools

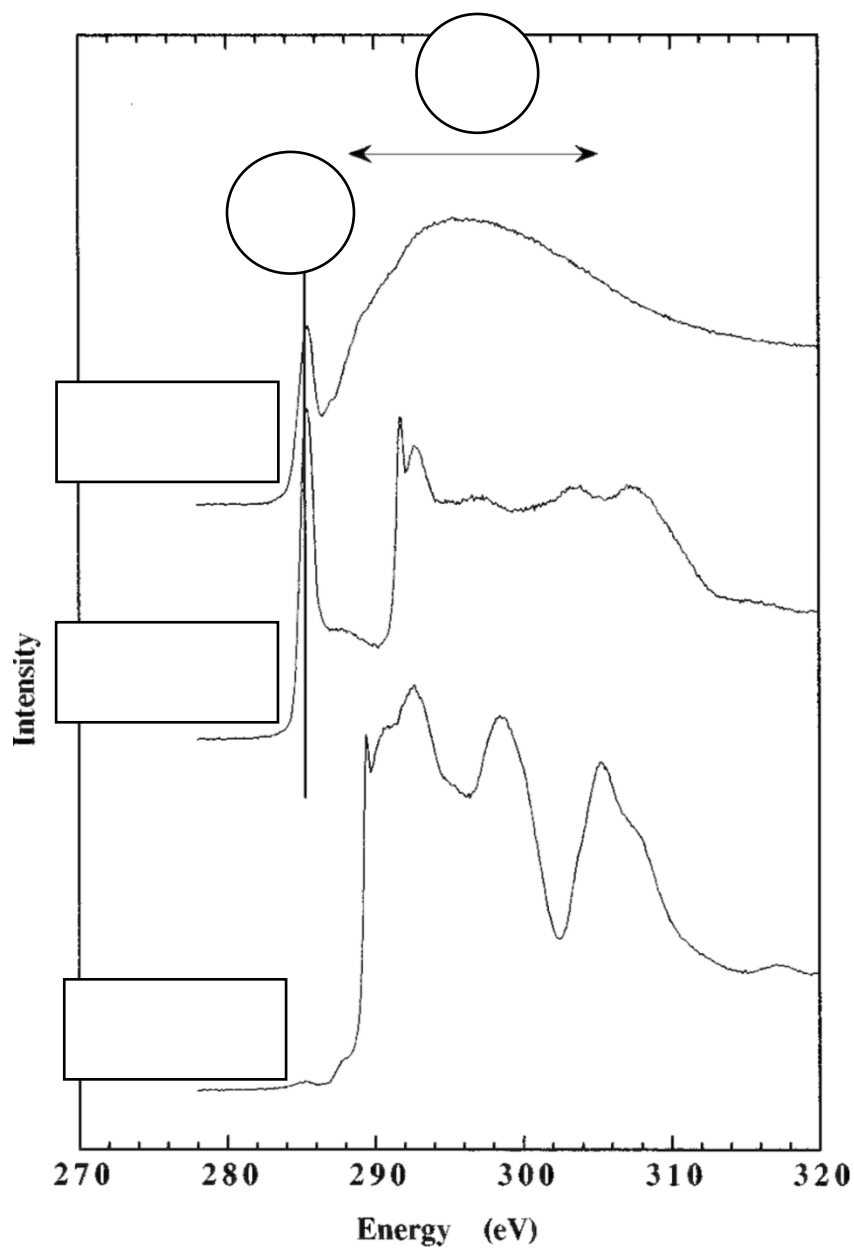
Exercise 4

1) Below you see a photoelectron spectrum of a carbon dioxide / acetone gas mix converted to binding energies.



- To which element does the spectrum belong? Which core level is targeted?
- Which peaks belong to which gas? Explain the middle peak.
- Describe the peaks from the right to the left in terms of their chemical shift.

2) The figure below displays the X-ray absorption near-edge (XANES) spectra of fully sp^3 hybridized diamond, sp^2 hybridized graphite, and amorphous carbon.



- Which electronic transitions are we observing?
- Assign the resonances and fill in the circles.
- Which spectra belongs to which form of carbon? Fill in the boxes and explain.