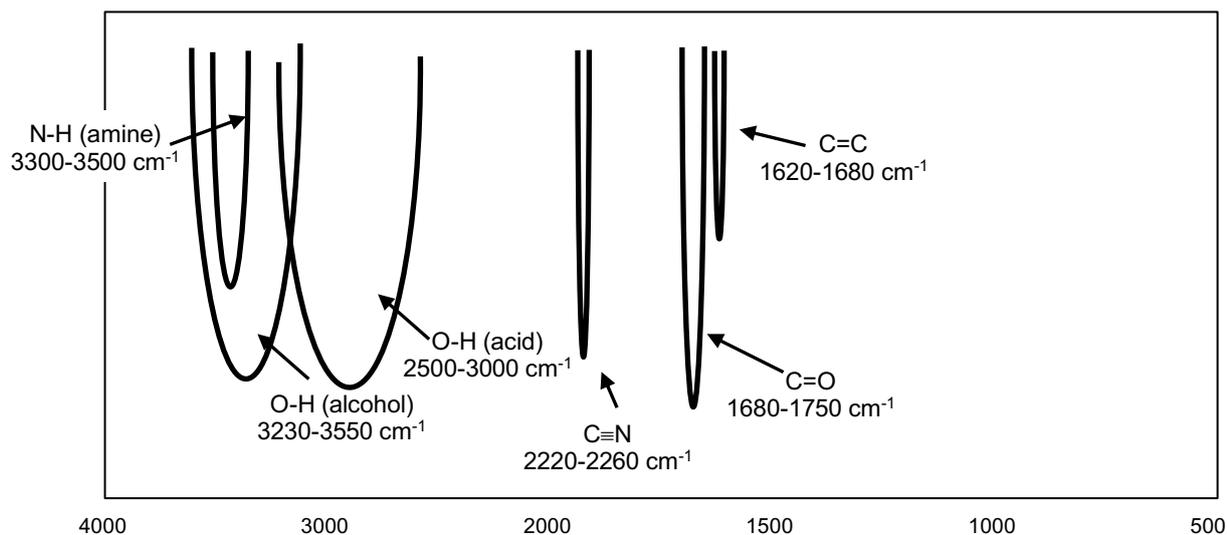




IR FUNCTIONAL GROUPS

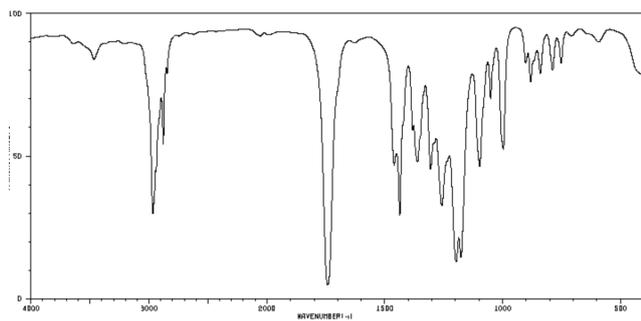
- This region above 1500 cm^{-1} is used to spot functional groups (there are some below 1500 cm^{-1} but they are usually difficult to identify due to the high number of signals in that region of the spectrum).
- It is also useful to remember that C-H bonds are all around 3000 cm^{-1} , but are C-H bonds on saturated C atoms are below 3000 cm^{-1} and those on unsaturated C atoms are above 3000 cm^{-1}
- However, there are some useful signals to look out for.



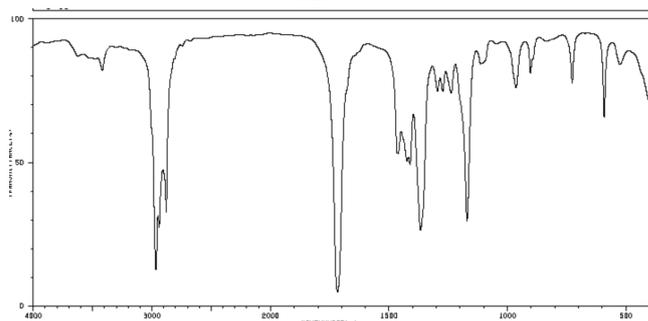
Bond	Wavenumber / cm^{-1}
N-H (amines)	3300 – 3500
O-H (alcohols)	3230 – 3550
C-H	2850 – 3300
O-H (acids)	2500 – 3000
C≡N	2220 – 2260
C=O	1680 – 1750
C=C	1620 – 1680
C-O	1000 – 1300
C-C	850 – 1100

Which of these compounds contain a C=O bond?

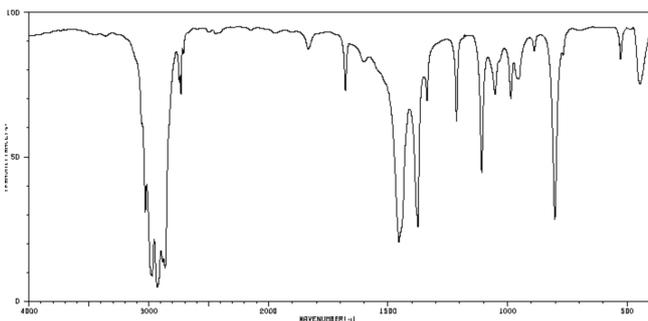
A1 ✓



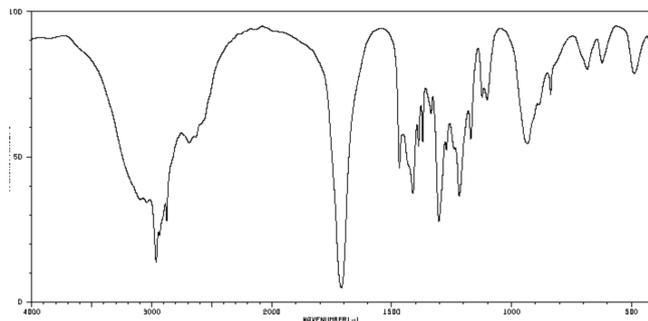
A2 ✓



A3 ✗

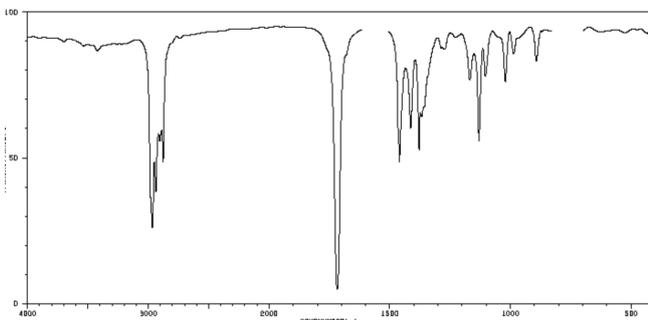


A4 ✓

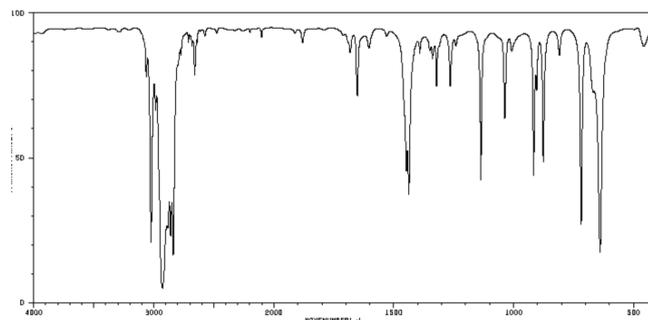


Which of these compounds contain a C=C bond?

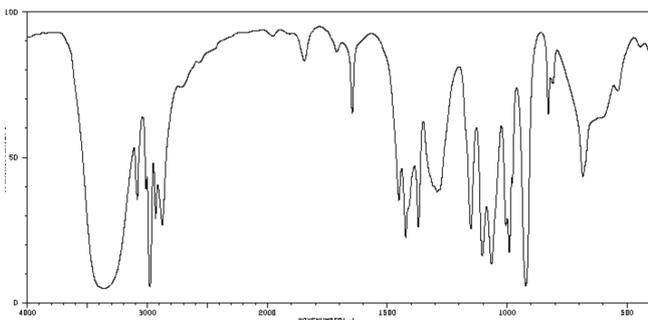
B1 ✗



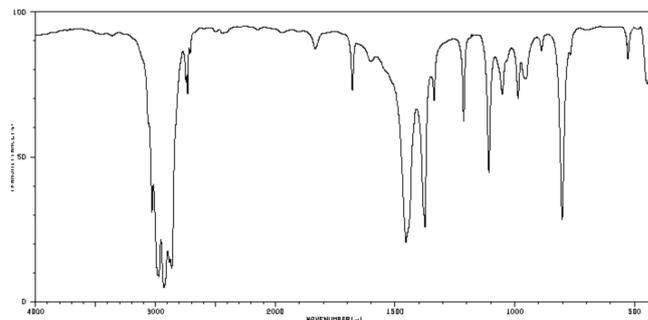
B2 ✓



B3 ✓

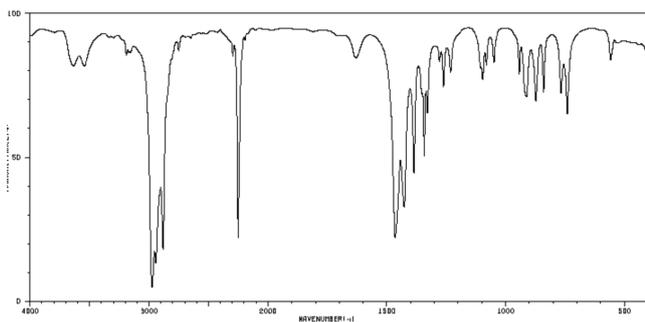


B4 ✓

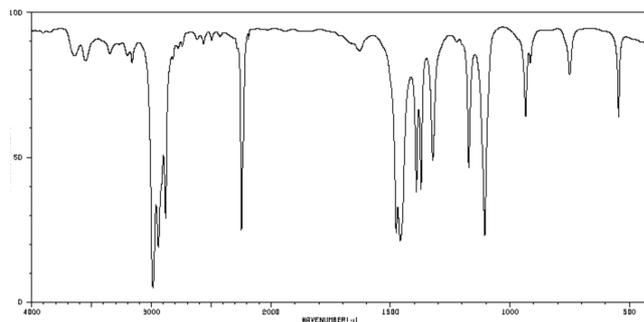


Which of these compounds contain a C≡N bond?

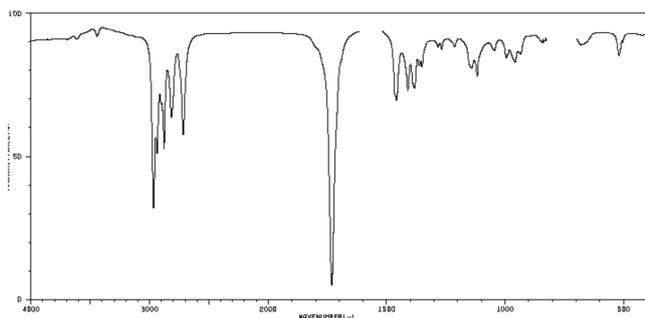
C1 ✓



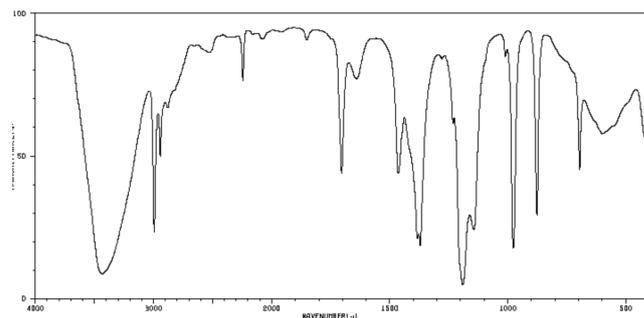
C2 ✓



C3 ✗

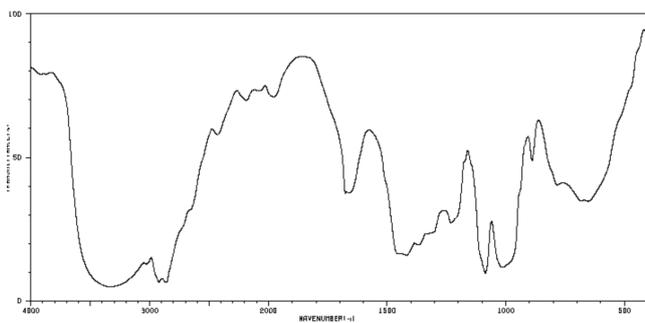


C4 ✓

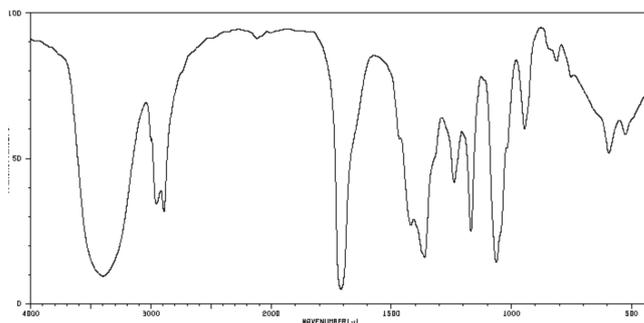


Which of these compounds contain an O-H (acid) bond?

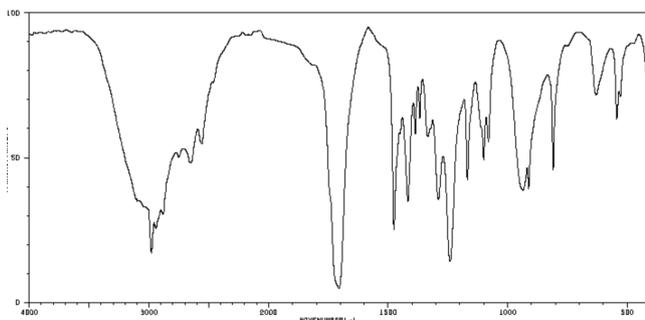
D1 ✗



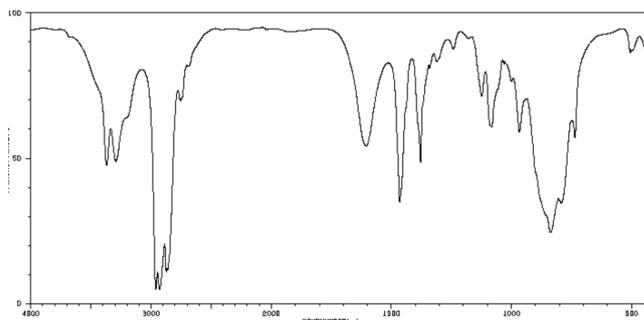
D2 ✗



D3 ✓

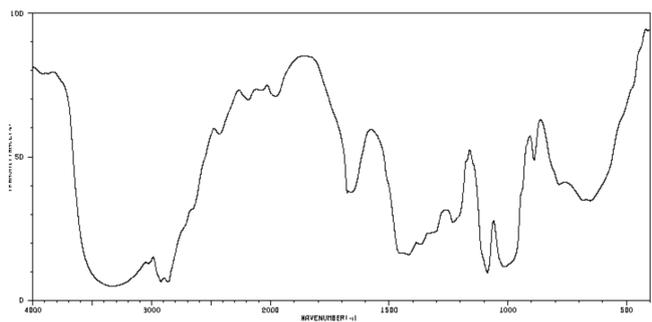


D4 ✗

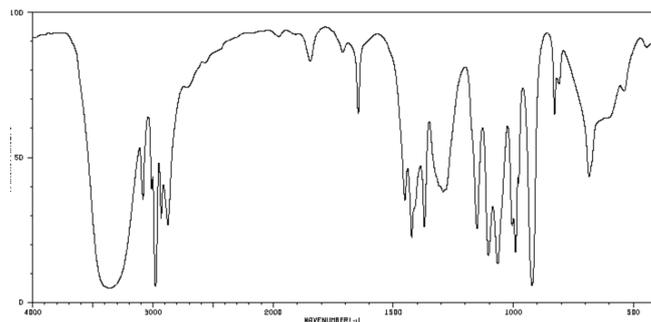


Which of these compounds contain an O–H (alcohol) bond?

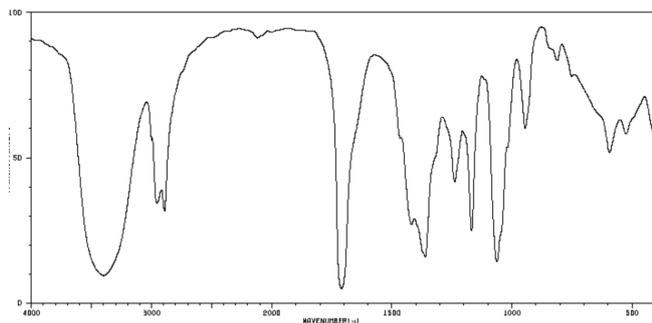
E1 ✓



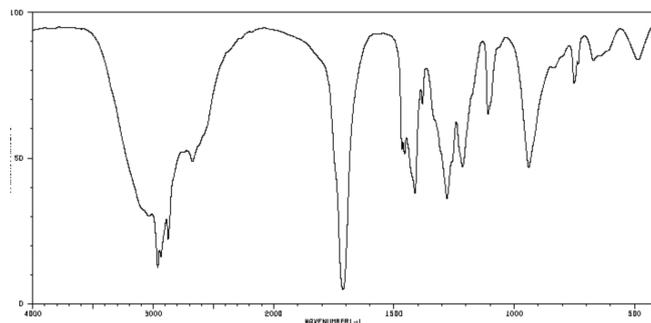
E2 ✓



E3 ✓

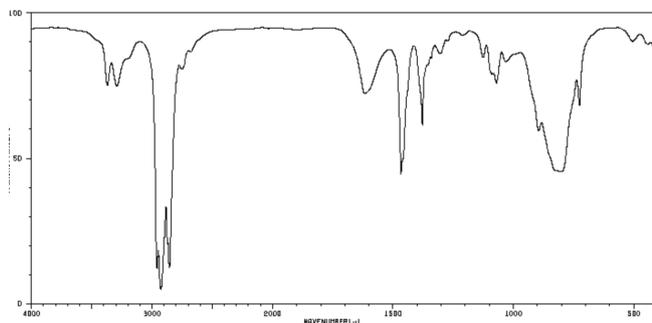


E4 ✗

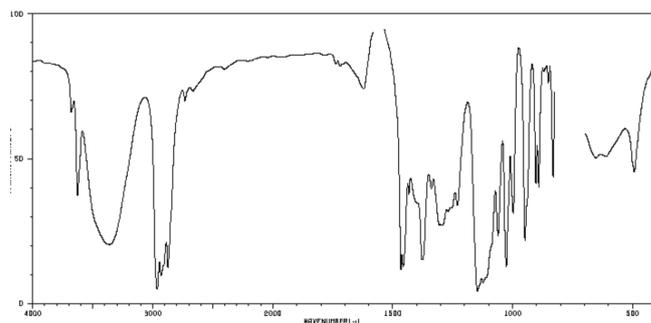


Which of these compounds contain an N–H (amine) bond?

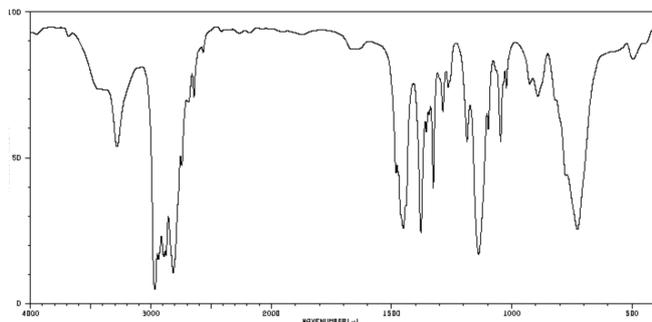
F1 ✓



F2 ✗



F3 ✓



F4 ✓

