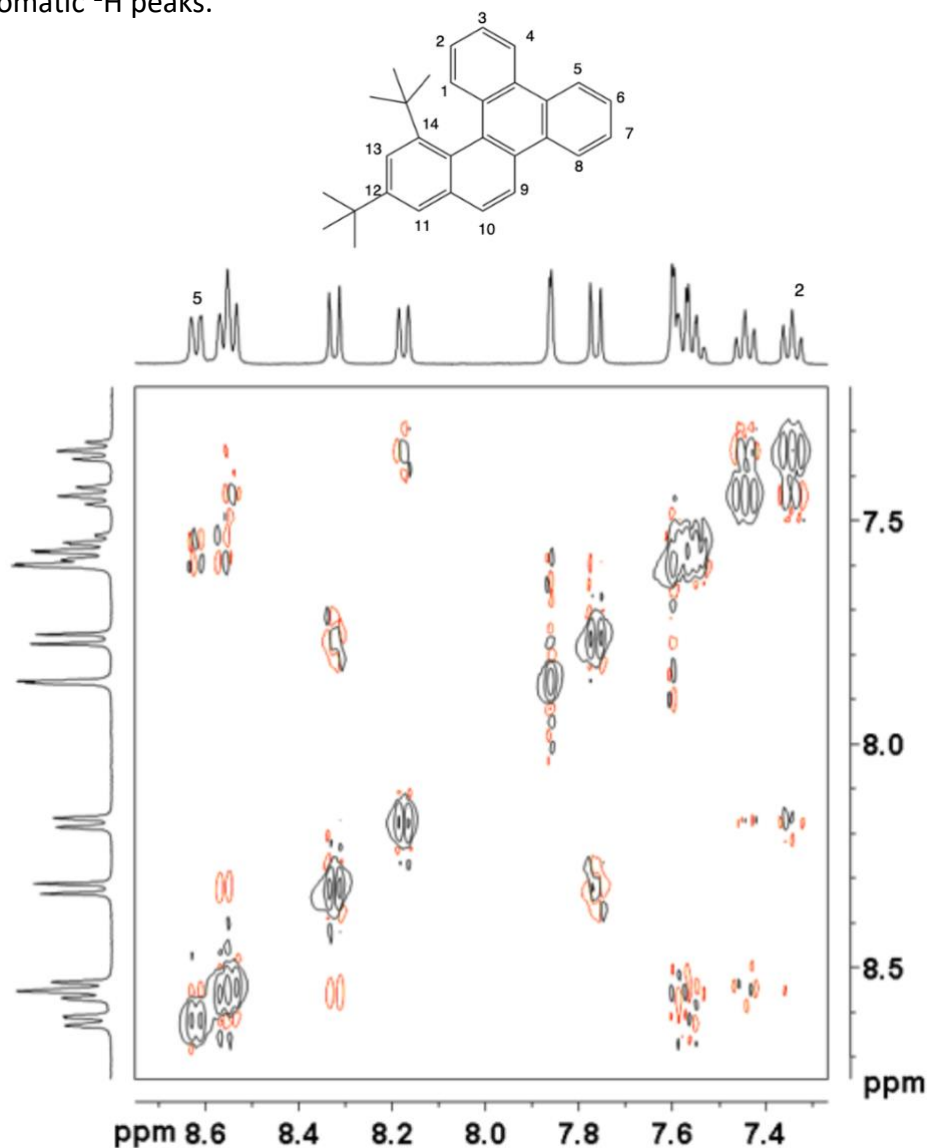


## Jigsaw 4A

1. [Keeler Section 9.7.4] The 2D NOESY (Nuclear Overhauser Effect Spectroscopy) experiment gives information on through-space interactions, which can be used to identify protons which are close in space. Below, you have the aromatic region of the  $^1\text{H}$  2D NOESY spectrum of 12,14-di $t$ -butylbenzo[*g*]chrysene. Assign the different aromatic  $^1\text{H}$  peaks.



2. [Keeler Section 12.2 and Hore Section 3.3] For each of the following compounds determine whether the protons are magnetically or chemically equivalent. Explain why.
- Benzene
  - [From Past Exam] The 2,5 protons in furan