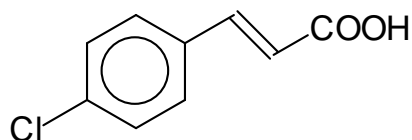


MARK ONE ANSWER FOR EACH QUESTION ON BOTH THE EXAM AND YOUR SCANTRON!

1. What is the main advantage of Fourier Transform (FT) NMR spectroscopy over continuous wave (CW) NMR spectroscopy?

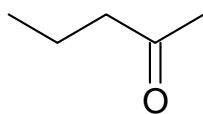
- A. Nuclei with spin quantum number 0 can be seen by FT, but not by CW.
- B. FT offers an improved signal-to-noise ratio when compared to CW.
- C. FT NMR instruments do not require a magnet.
- D. FT NMR spectroscopy can handle both solids and liquids while CW can only handle liquids.
- E. CW NMR instruments require advanced computers, FT instruments don't.

2. How many non-equivalent types of protons (protons distinguishable by NMR) does the compound below have?



- A. 2 B. 3 C. 4 D. 5 E. more than 5

3. 2-Pentanone, shown below, generates a characteristic cation radical resulting from McLafferty rearrangement. What m/z value would you expect this cation radical to have? (Hint: it might help if you sketch out the rearrangement of this ketone. Assume the atomic masses of C, H, and O are 12, 1, and 16, respectively)



- A. 28 B. 41 C. 42 D. 58 E. 71

4. **This is version A. Please circle 4 A on your scantron!**

Key qu232-01_1_101

1. B
2. D
3. D