Assignment 6

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

1) Which of the following techniques can be used for determining three dimensional structures in a native and dynamic phase of a sample? 1 point:
   1. X-ray crystallography
   2. Cryo-EM
   3. NMR

   No, the answer is incorrect.
   Accepted Answer: NMR

2) What is the net spin value of a nucleus comprising six protons and six neutrons? 1 point:
   0
   1
   2
   3

   No, the answer is incorrect.
   Accepted Answer: 0

3) Which of the following combinations of atomic mass and atomic number results in a stable isotope spin value? 1 point:
   - Even atomic mass and even atomic number
   - Odd atomic mass and odd atomic number
   - Even atomic mass and odd atomic number
   - Odd atomic mass and even atomic number

   No, the answer is incorrect.
   Accepted Answer: Even atomic mass and even atomic number

4) If all the other factors are constant, then, exchange entropy value changes in which of the following spin states of a proton? 1 point:
   - 1/2
   - 0
   - 1
   - 3/2

   No, the answer is incorrect.
   Accepted Answer: 1/2

5) What is the term used for the hydrogen atom present in Bromomethane? 1 point:
   - Chloral hydrate
   - Enantiomer hydrate
   - Hemiacetal hydrate
   - Diastereomylhydride

   No, the answer is incorrect.
   Accepted Answer: Enantiomer hydrate

6) From the various types of hydrogen and peaks observed in NMR spectra of methyl bromide (CH₃Br)? 1 point:
   - Three hydrogens and three peaks
   - One hydrogen and one peak
   - Four hydrogens and three peaks
   - Three hydrogens and three peaks

   No, the answer is incorrect.
   Accepted Answer: One hydrogen and one peak

7) Identify the deshielding effect of an ortho carbon shift of the hydrogen with increased electronegativity effect. 1 point:

   - C₆H₅CH₂CH₂CO₂H
   - C₆H₅CH₂CH₂CO₂H
   - C₆H₅CH₂CH₂CO₂H
   - C₆H₅CH₂CH₂CO₂H

   No, the answer is incorrect.
   Accepted Answer: C₆H₅CH₂CH₂CO₂H

8) How many coupling numbers observed in a proton when influenced by two hydrogen atoms on the same carbon? 1 point:
   - One (split)
   - Two (doublet)
   - Triple (triplet)
   - Four (quartet)

   No, the answer is incorrect.
   Accepted Answer: Two (doublet)

9) If you look at Propyl Bromide, how many types of hydrogen atoms are present in Propyl Bromide, and how many splitting lines can be observed if we consider the protons in aromatic regions? 1 point:

   Propyl Bromide: CH₃CH₂CH₂Br
   - Three hydrogens and hybridized
   - Seven hydrogens and super
   - One hydrogen and isolated
   - One hydrogen and hybridized

   No, the answer is incorrect.
   Accepted Answer: Three hydrogens and hybridized

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10) Identify the correct molecule from the above NMR spectrum? 1 point:

   - CH₃Cl
   - CH₃OH
   - CH₃CH₂OH
   - CH₃CH₂Cl

   No, the answer is incorrect.
   Accepted Answer: CH₃Cl