1. Izmailov and Shraiber used a thin layer of aluminium oxide on glass.

   ☐ True ☐ False

2. In GLC, the mobile phase is:

   ☐ a polar solvent

   ☐ water

   ☐ a solid plate

   ☐ an unreactive carrier gas

3. In carbon-13 NMR, the number of peaks tells you:

   ☐ how many different carbon environments there are

   ☐ the boiling point

   ☐ the molar mass

   ☐ the number of hydrogen atoms

4. In proton NMR, the number of groups of peaks tells you:

   ☐ the molar mass of the compound

   ☐ the number of hydrogens on the next carbon

   ☐ the total number of carbon atoms

   ☐ the number of different proton (hydrogen) environments

5. Which are correct when setting up a TLC plate?

   ☐ Cover the tank

   ☐ Draw the baseline in pencil

   ☐ Keep the solvent below the baseline

   ☐ Draw the baseline in ink

   Tick every correct option.

6. A component that interacts more strongly with the stationary phase has a:

   ☐ shorter retention time

   ☐ smaller peak

   ☐ longer retention time

   ☐ larger Rf

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   ☐ the number of peaks

   ☐ the percentage composition

   ☐ the retention time

   ☐ the type of carbon (its environment)

8. In proton NMR, the area under each peak is proportional to the number of _____ in that environment.

   _____

9. A spot moves 3.0 cm and the solvent front 7.5 cm. What is its Rf?

   _____

10. In gas chromatography, the time a component takes to pass through the column is its _____ time.

    _____

1. **True**

   An early TLC.

2. **an unreactive carrier gas**

   A carrier gas moves the components past the liquid stationary phase.

3. **how many different carbon environments there are**

   Each distinct carbon environment gives one peak; equivalent carbons share a peak.

4. **the number of different proton (hydrogen) environments**

   Protons in different environments give peaks at different chemical shifts.

5. **Cover the tank; Draw the baseline in pencil; Keep the solvent below the baseline**

   Ink would run.

6. **longer retention time**

   More interaction slows it down, so it takes longer to pass through (longer retention time).

7. **the type of carbon (its environment)**

   The shift indicates the kind of carbon, helping to deduce the structure.

8. **hydrogens**

   Integration gives the ratio of protons.

9. **0.4**

   3.0 ÷ 7.5.

10. **retention**

    Used to identify components.

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