

A-Level Chemistry

Name: _____ Score: _____

1. In TLC, the stationary and mobile phases are:
 - ☐ two solids
 - ☐ two gases
 - ☐ a carrier gas and a liquid
 - ☐ the plate coating (stationary) and the solvent moving up it (mobile)
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
 - ☐ the boiling point
 - ☐ the number of carbons
 - ☐ the number of different proton (hydrogen) environments
5. The R_f value is:
 - ☐ the retention time
 - ☐ distance moved by the spot ÷ distance moved by the solvent front
 - ☐ distance moved by the solvent ÷ distance moved by the spot
 - ☐ the peak area
6. In gas chromatography, the time a component takes to pass through the column is its _____

7. Equivalent carbons (in the same environment) give a single shared peak.

☐ True ☐ False

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

9. In thin-layer chromatography, the ratio of distances moved by a spot and the solvent is the _____ value.

10. Gas chromatography separates a mixture of volatile substances.

☐ True ☐ False

A-Level Chemistry

1. **the plate coating (stationary) and the solvent moving up it (mobile)**

The plate coating stays still; the solvent (mobile phase) travels up, carrying the spots.

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. **distance moved by the spot $\div$ distance moved by the solvent front**

R_f = spot distance / solvent-front distance; it lies between 0 and 1.

6. **retention**

Used to identify components.

7. **True**

Carbons in identical environments are not distinguished, so they appear as one peak.

8. **hydrogens**

Integration gives the ratio of protons.

9. **R_f**

Always between 0 and 1.

10. **True**

They travel through the column at different speeds.