

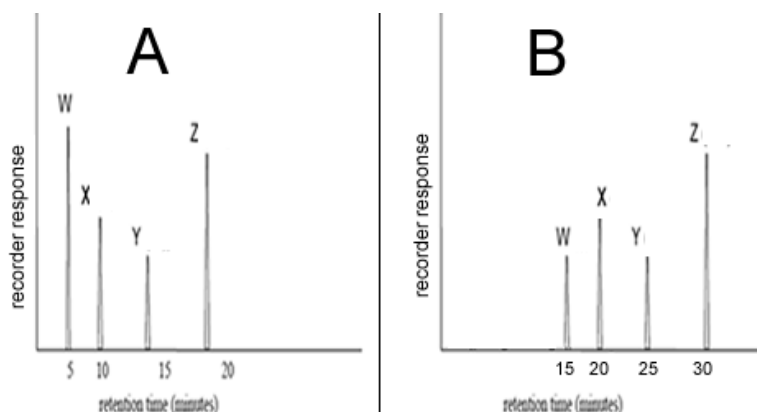
**Friday Worksheet**  
**Chromatography 6**

Name: .....

- 1) Chromatogram A was obtained by analysis of a sample of a mixture of 4 esters, W, X, Y and Z, using high performance liquid chromatography (HPLC). Chromatogram B was obtained by analysing another sample of the same mixture, left in an unsealed bottle overnight, by HPLC under different conditions.

Consider the following changes which could be made to the operating conditions for HPLC.

- I) decreasing the pressure of the mobile phase
- II) decreasing the temperature
- III) using a less tightly packed column

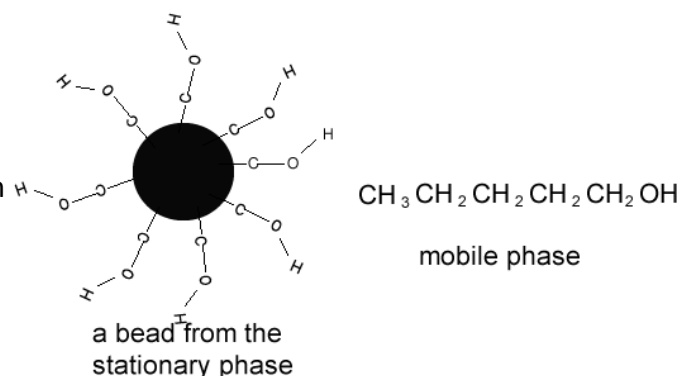


- a) Suggest, with reasons, how each of the changes above could affect the appearance of the chromatogram, hence suggest what could have changed to produce chromatogram "B"
- b) Looking at the data provided suggest which ester is likely to have the lowest melting point. Give a reason.

- 2) A column is set up with a stationary and mobile phase as shown on the right.

- a) Place the following in order of retention time.

- a) ethanol ( $\text{CH}_3\text{CH}_2\text{OH}$ )
- b) ethanoic acid ( $\text{CH}_3\text{COOH}$ )
- c) 2-propanol ( $\text{CH}_3\text{CHOHCH}_3$ )
- d) Propane



- b) Give a reason for your choices.