

**A level Biology A**  
**H420/03** Unified biology

**Question Set 1**

1 Fig. 1.1 shows the structure of the amino acid leucine.

(a) (i) On Fig. 1.1, draw a circle around the R group of leucine.

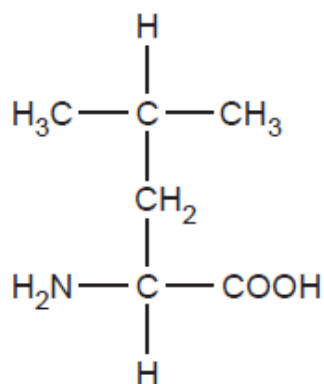


Fig. 1.1

[1]

(ii) Students used thin layer chromatography to separate leucine from other amino acids. The chromatogram they produced is shown in Fig. 1.2.

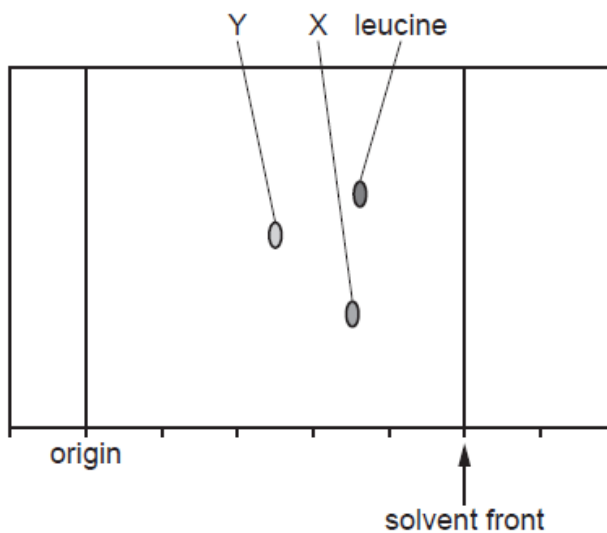


Fig. 1.2

What can you conclude about the chemical properties of leucine and amino acid X?

[1]

(iii) Amino acid Z was in the mixture analysed by the students. It is not shown on the chromatogram in Fig. 1.2. Amino acid Z has an  $R_f$  value that is 0.20 lower than that of amino acid Y.

Place a dot on the chromatogram in Fig. 1.2 to show the distance moved by amino acid Z.

Show your working.

[3]

(b) Thin layer chromatography can also be used to separate photosynthetic pigments.

(i) State a material that can be used as the stationary phase in thin layer chromatography.

[1]

(ii) State the precise location of photosynthetic pigments in a chloroplast.

[2]

(c) When sequencing DNA, fragments of DNA are separated by electrophoresis.

Describe **three** differences between the process of thin layer chromatography and the form of electrophoresis used to sequence DNA.

[3]

**Total Mark for Questions Set 1: 11**



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