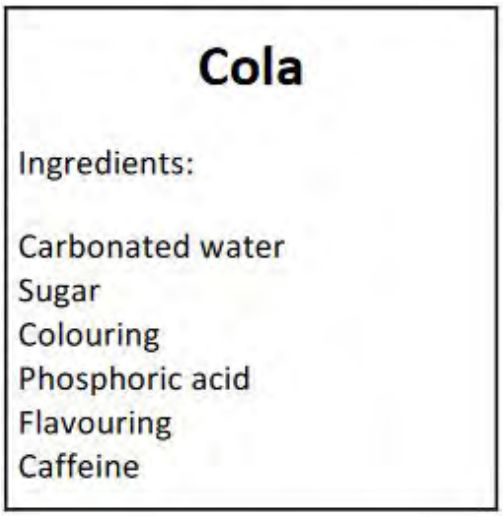
AQA Chemistry GCSE

Required Practical 6 - Chromatography

Past Exam Questions

Q1. The label shows the ingredients in a drink called Cola.



(a) (i) The pH of carbonated water is 4.5.

The pH of Cola is 2.9.

Name the ingredient on the label that lowers the pH of Cola to 2.9.

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(1)

(ii) Which ion causes the pH to be 2.9?

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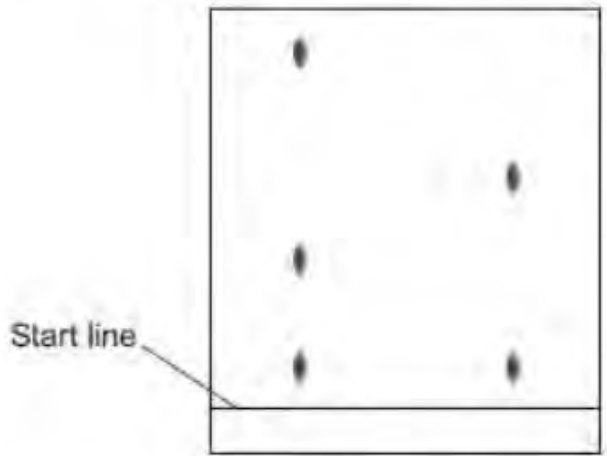
(1)

(b) A student investigated the food colouring in Cola and in a fruit drink using paper chromatography.

The chromatogram in the figure below shows the student's results.



(i) Complete the sentence.

The start line should be drawn with a ruler and ..... .

Give a reason for your answer.

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(2)

(ii) Suggest three conclusions you can make from the student's results.

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(3)

(c) Caffeine can be separated from the other compounds in the drink by gas chromatography.

Why do different compounds separate in a gas chromatography column?

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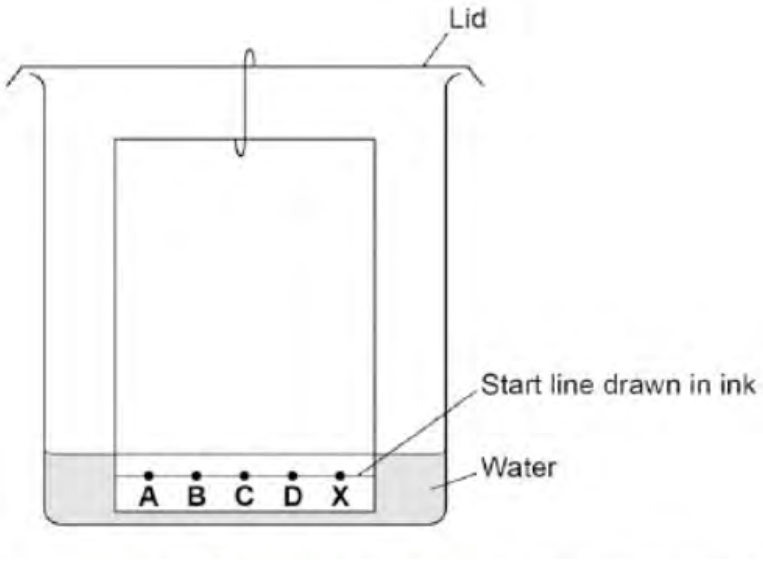
(1)

Q2. A student investigated food dyes using paper chromatography.
This is the method used.
1. Put a spot of food colouring X on the start line.
2. Put spots of four separate dyes, A , B, C and D, on the start line.
3. Place the bottom of the paper in water and leave it for several minutes.
Figure 1 shows the apparatus the student used.

Figure 1



(a) Write down two mistakes the student made in setting up the experiment and explain what problems one of the mistakes would cause.

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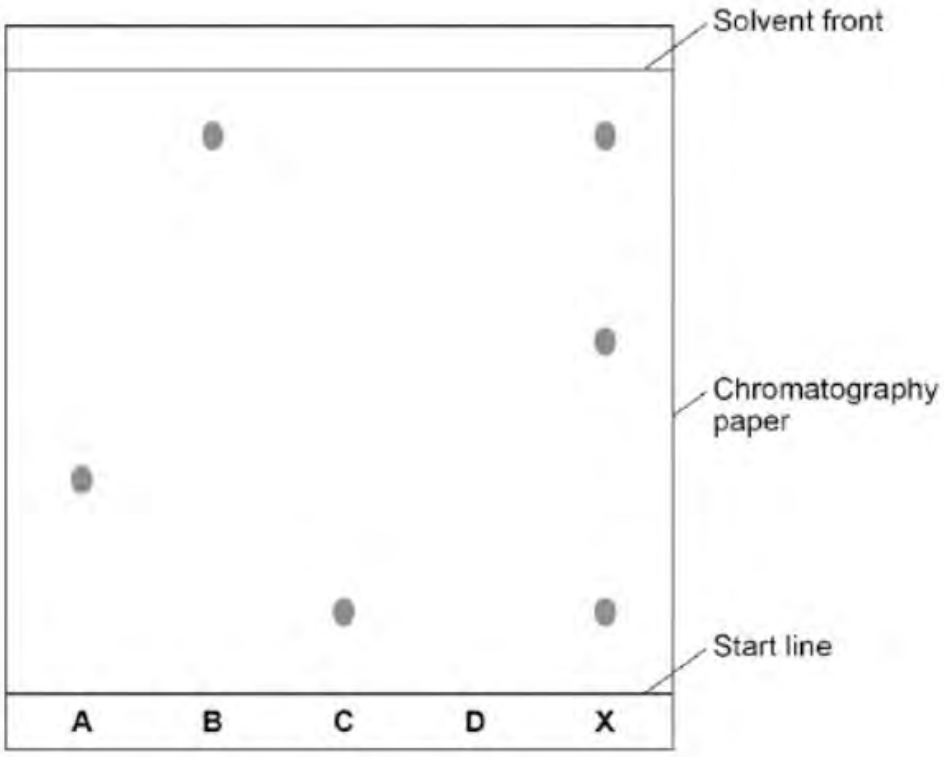
(2)

(b) Another student set up the apparatus correctly.
Figure 2 shows the student's results. The result for dye D is not shown.



Calculate the Rf value of dye A
Give your answer to two significant figures.

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Rf value = ...

(3)

(c) Dye D has an Rf value of 0.80. Calculate the distance that dye D moved on the chromatography paper.

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Distance moved by dye D = ...

(1)

(d) Explain how the different dyes in X are separated by paper chromatography.

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(4)

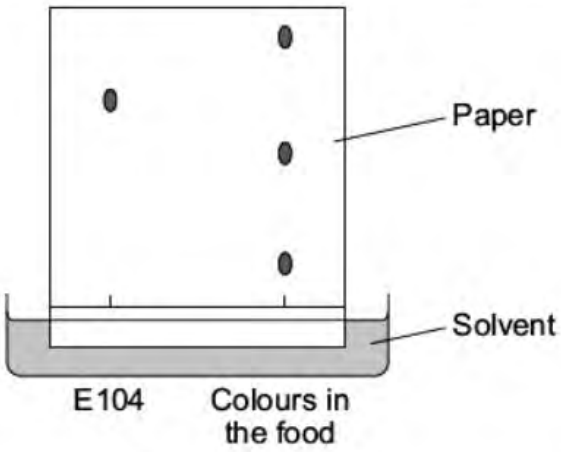
Q3. An article began:

Ban yellow additives

Quinoline yellow (E104) is suspected of causing hyperactivity, asthma and rashes in children.

Quinoline yellow (E104) is suspected of causing hyperactivity, asthma and rashes in children.

(a) A student tested a food to find out if it contained quinoline yellow (E104). The student's results are shown below.



(i) Draw a ring around the correct answer to complete the sentence.

This method of detecting and identifying colours is called

chromatography.

distillation.

electrolysis.

(1)

(ii) Using the student's results, how many different colours are in the food?

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(1)

(iii) Using the student's results, how can you tell that the food does not contain quinoline yellow (E104)?

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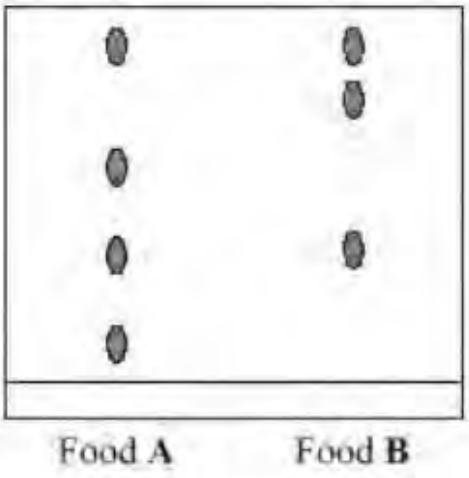
(1)

Q4.The result of a process used to detect and identify the colours in two foods, A and B, is shown.



(i) Describe the differences between the colours used in food A and food B.

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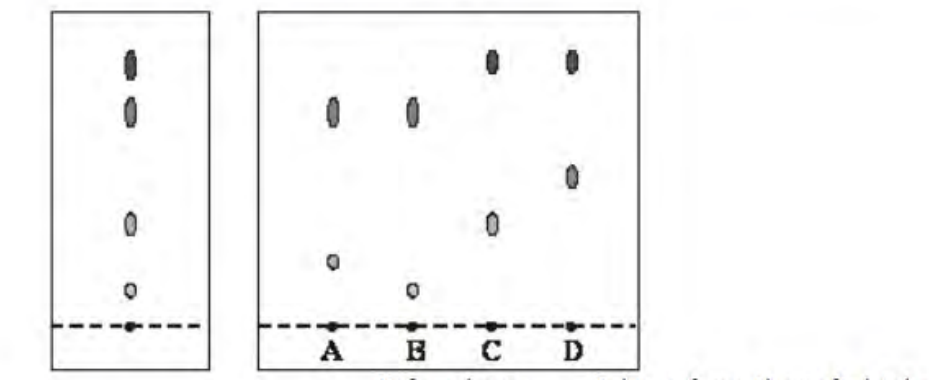
(2)

(ii) Tick (✓) the name of the process used to detect and identify colours in food.

Process	(✓)
chromatography	
extraction	
hardening	

(1)
(Total 3 marks)

Q5. Chromatography was carried out on a sample of soft drinks to check that they contained only colours that were safe. This is the result.



Safe colours Colours from the soft drinks

What conclusions about the safety of the colours in the soft drinks A, B, C and D can be made from the results shown by chromatography?

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(2 ma)