

Name:

Date:

C8 - Test 3  
CHEMICAL ANALYSIS  
Intermediate

**GCSE**

CHEMISTRY

AQA - Combined Science

Mark

Grade

---

### Materials

For this paper you must have:

- Ruler
- Pencil and Rubber
- Scientific calculator, which you are expected to use when appropriate

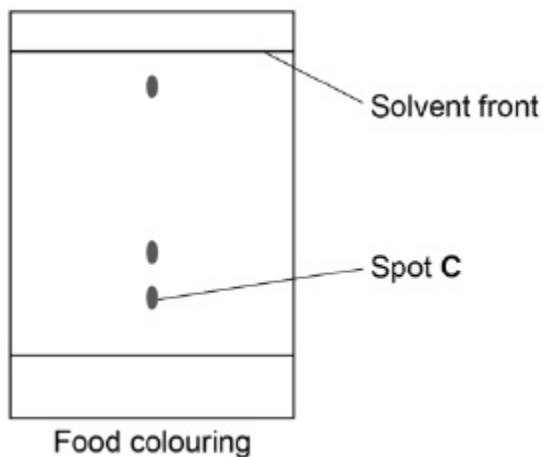
### Instructions

- Answer all questions
- Answer questions in the space provided
- All working must be shown

### Information

- The marks for the questions are shown in brackets

1. The diagram shows a chromatogram for a food colouring.



(a) How does the chromatogram show that the food colouring is a mixture?

---

---

(1)

(b) A student makes measurements for spot C.

The table shows the results.

	Distance in mm
Distance moved by spot C	7
Distance moved by solvent	39

Calculate the  $R_f$  value for spot C.

Give your answer to 2 significant figures.

Use the results in the table.

---

---

---

---

$R_f$  value = \_\_\_\_\_

(3)

(c) Plan a chromatography experiment to investigate the colours in an ink.

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

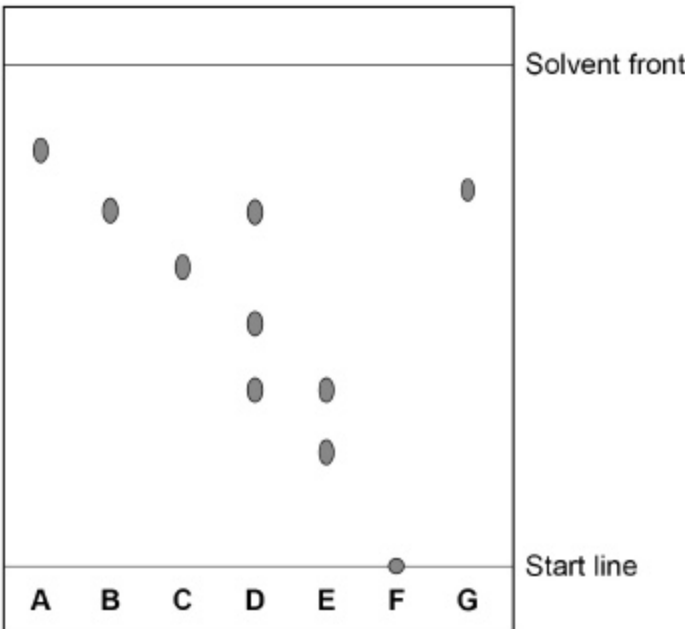
(6)

(Total 10 marks)

2.

Chromatography can be used to find out what substances a drug contains.

The diagram shows a chromatogram for seven different drugs.



(a) Calculate the  $R_f$  value of drug **G**.

---

---

---

---

---

---

---

$R_f$  value = \_\_\_\_\_

**(4)**

(b) Describe what the diagram shows about drug **D**.

---

---

---

---

---

---

---

**(3)**

(c) Which substance is most soluble in the solvent used in this chromatogram?

Give a reason for your answer.

---

---

**(1)**

(d) Explain the result for drug **F**.

---

---

---

---

**(2)**

**(Total 10 marks)**

3.

## Why blue sweets are turning white

A recent study identified a possible harmful effect on children's nervous systems by some artificial colours. Two of these colours are Brilliant Blue (E133) and Quinoline Yellow (E104). Both are artificial colours because they are made from coal. The company is to stop producing the blue sweets because it is removing all artificial colours and there is no natural blue alternative.

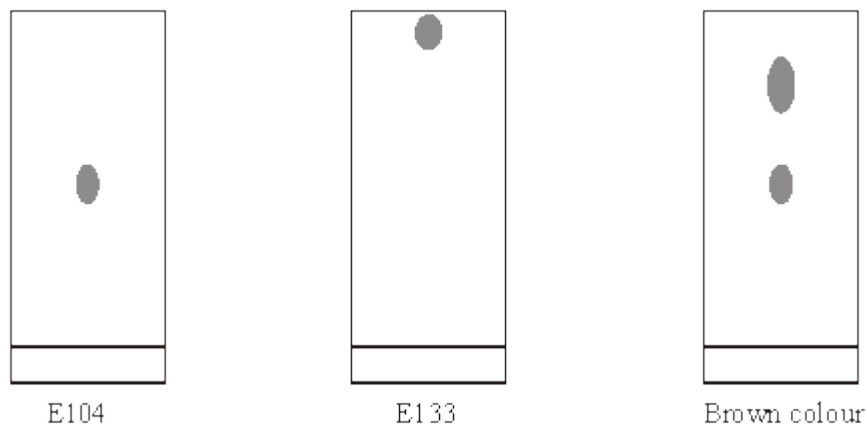
- (a) Suggest why it is important to be able to identify the colour additives in food.

---

---

(1)

- (b) A brown colour used in sweets was analysed using chromatography. The results were compared with those from E104 and E133.



What do the results tell you about the brown colour and its suitability for use in sweets?

---

---

---

---

---

---

(3)

- (c) Once all the unsuitable colours are removed, the company claims that its sweets are now 'free from artificial colours'.

Does this mean that the sweets contain no additives? Explain your answer.

---

---

---

---

**(2)**

**(Total 6 marks)**

**4.**

Some farmed salmon have a coloured additive in the food that they are given. This is a permitted additive that improves the colour of the fish meat.

A sample of the colour is extracted from a salmon.

Explain how paper chromatography could be used to confirm that this is the permitted additive.

---

---

---

---

---

---

---

**(Total 3 marks)**