Coordination and Response

Question Paper

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Coordination and Response
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Question Paper

Time Allowed: **42 minutes**

Score: **/35**

Percentage: **/100**

1 Humans and other mammals are able to maintain a relatively constant body temperature, despite widely ranging environmental temperatures. Mammals, unless adapted to living in water, seem to prefer not to get wet.

Three flasks were set up as shown in Fig. 1.1. Each flask represents a hot mammal cooling down.

Flask **A** had nothing around the flask. This represents a hairless mammal.

Flask **B** had a dry covering of cotton cool around the flask. This represents a mammal with dry fur.

Flask **C** had a wet covering of cotton wool soaked in water around the flask. This represents a mammal with wet fur.

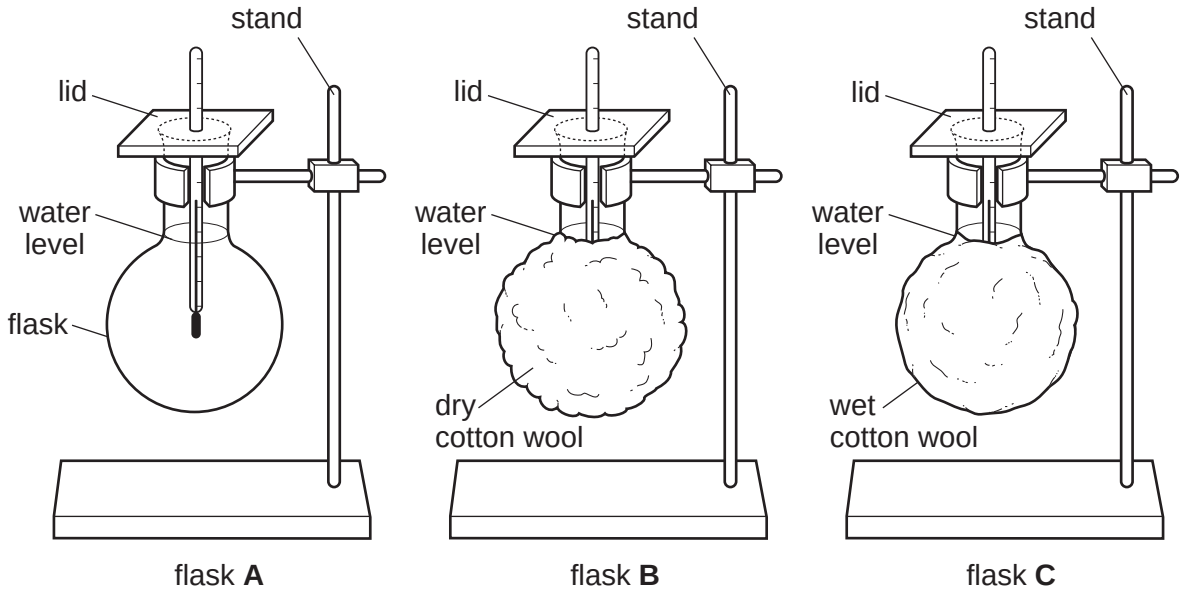


Fig. 1.1

Each flask was covered with a lid through which a thermometer was suspended. The bulb of the thermometer was immersed in the water, but did not touch the sides of the flask. Each flask was filled with an equal volume of hot water.

The temperature of the water in each flask was measured as it cooled.

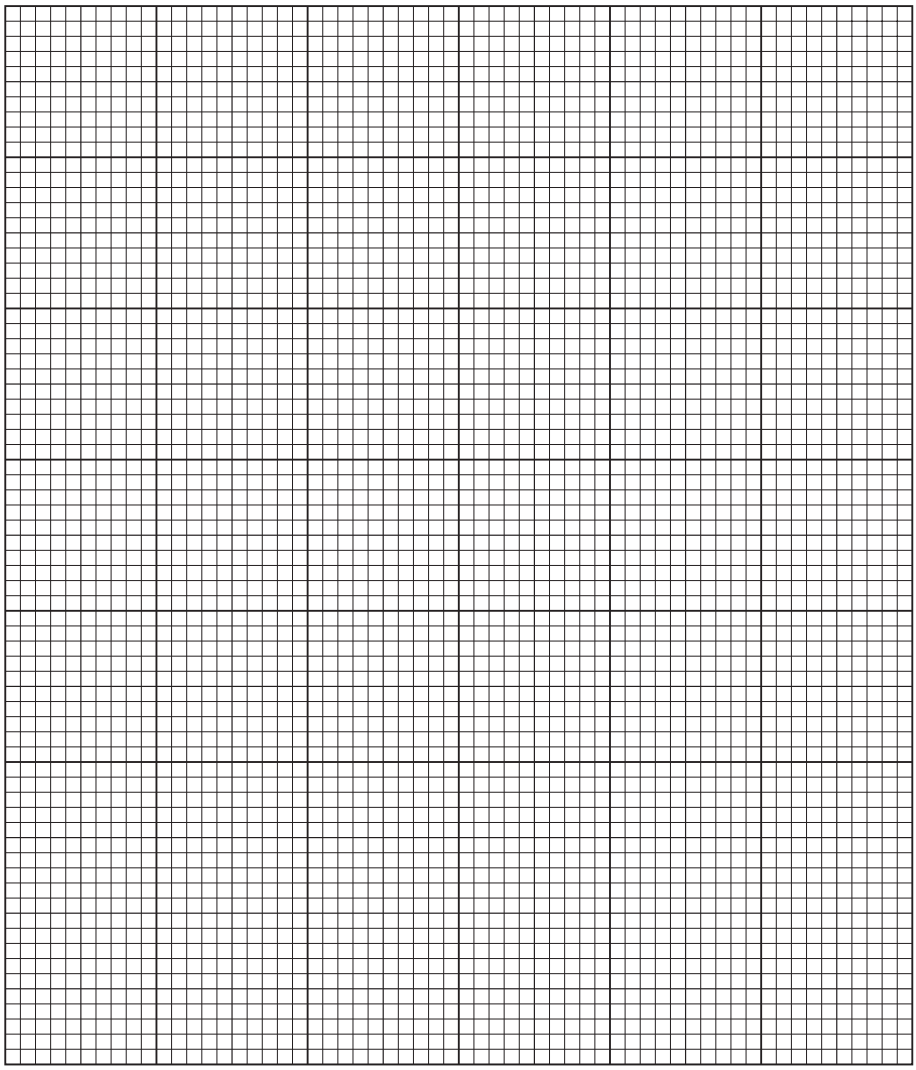
Readings were taken every 2 minutes and recorded in Table 1.1.

A laboratory clock was used to check the time.

Table 1.1

temperature / °C			
time / min	flask **A**	flask **B**	flask **C**
0	70	70	70
2	66	68	64
4	61	67	58
6	58	65	52
8	50	61	42
10	45	60	40

(a) (i) On the same axes plot a graph of the three sets of results.



[5]

(ii) Compare cooling of the water in the three flasks.

flask **A** compared with flask **B**.

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flask **B** compared with flask **C**.

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flask **C** compared with flask **A**.

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..... [3]

(iii) Explain what has happened to produce these results.

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..... [3]

(b) **(i)** Describe **three** ways in which this investigation was a fair test.

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..... [3]

(ii) Describe **two** improvements which would increase the accuracy and reliability of this investigation.

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..... [2]

[Total: 16]

2 Fig. 2.1 shows a young bean seedling which had been grown in the dark and then placed horizontally on the surface of some damp soil.

The seedling was kept well watered and exposed to the light for 2 days.
Fig. 2.2 shows the seedling after 2 days.

Fig. 2.1

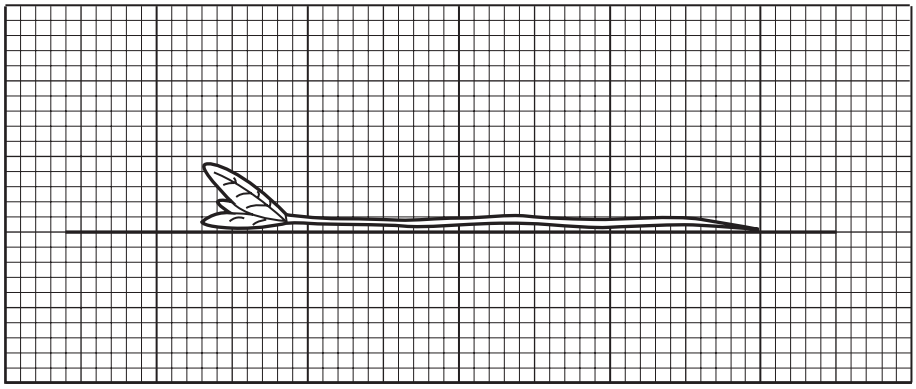
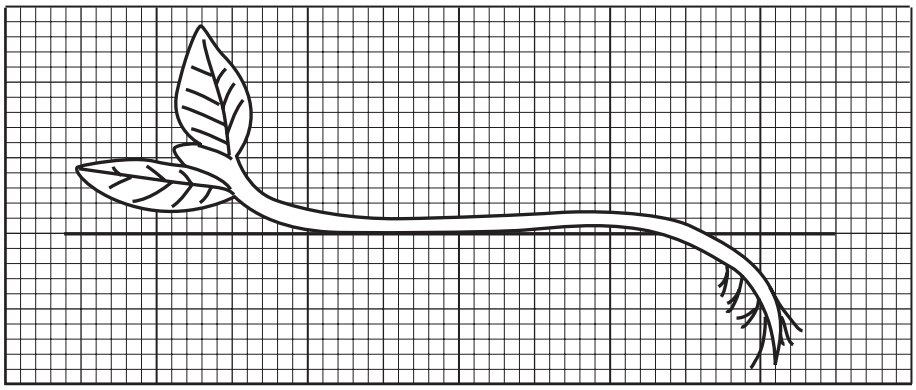


Fig. 2.2



(a) Describe the changes in appearance of the shoot and the root of the seedling after 2 days.

(i) shoot .....

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..... [2]

(ii) root .....

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..... [2]

(b) Describe the processes involved in the changes of directional growth of the shoot of the seedling.

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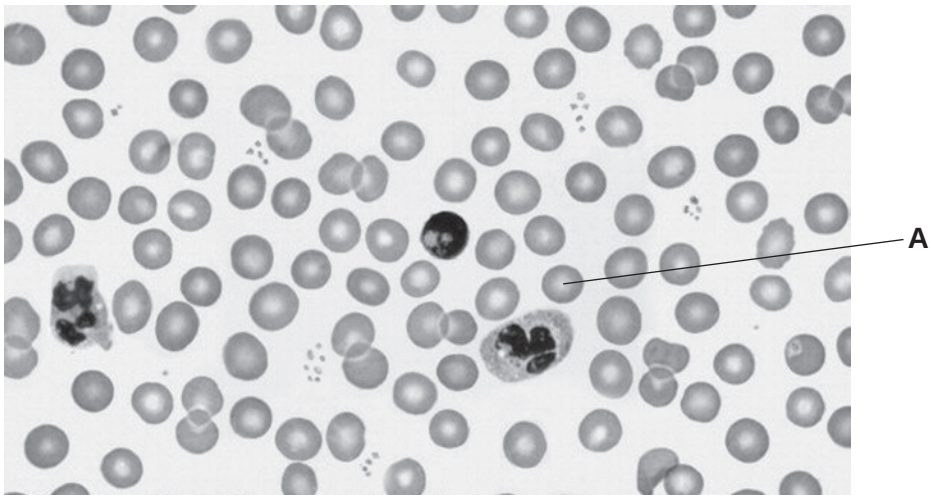
..... [6]

[Total : 10]

3 Fig. 3.1 shows a photomicrograph of a human blood smear.



Magnification ×800

Fig. 3.1

(a) (i) On Fig. 3.1, draw label lines and name **three** different types of blood cell. [3]

(ii) Name **two** parts of the blood that can pass through the capillary walls.

1. .....

2. ..... [2]

(b) (i) Measure the diameter of the blood cell labelled **A**.

..... mm [1]

(ii) The photomicrograph has been enlarged by x 800, calculate the actual size of cell **A**.

show your working

actual size of cell **A** ..... [2]

(iii) State the function of cell **A**.

.....

..... [1]

[Total: 9]