

Biological Molecules

Question Paper 1

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Biological Molecules
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Question Paper 1

Time Allowed: 47 minutes

Score: /39

Percentage: /100

- 1 Fig. 2.1 shows two halves of a fresh strawberry fruit. This is a false fruit as the edible part has developed from a swollen receptacle and the seeds are found in structures called achenes on the surface of the strawberry.



Fig. 2.1

- (a) (i) Make a large, labelled drawing of this fruit to show the cut surface. Make a second large, labelled drawing to show the outer surface. The second drawing should show the arrangement of the seeds.

cut surface

out surface

(ii) Suggest how the fruit may be dispersed to spread the seeds to new areas.

.....
.....
.....
.....
..... [2]

(b) (i) Describe how you would safely test this fruit to show the presence of reducing sugar.

.....
.....
.....
.....
.....
.....
.....
.....
..... [4]

(ii) Describe how you would test this fruit to show the presence of protein.

.....
.....
.....
..... [2]

(c) Fig. 2.2 shows two different strawberry fruits, **S** and **T**, from species of strawberry plants that grow in different habitats.

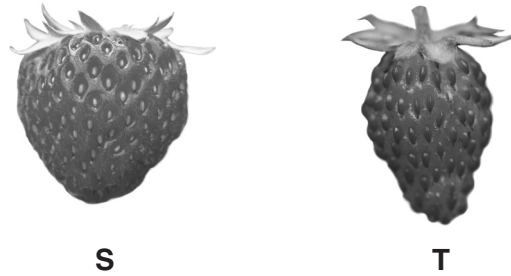


Fig. 2.2

(i) Describe **two similarities**, visible in Fig. 2.2, between the two fruits.

.....
.....
.....
.....
..... [2]

(ii) Complete Table 2.1 to describe **two differences**, visible in Fig. 2.2, between the two fruits.

Table 2.1

feature	S	T
seeds		
shape		

[2]

[Total: 17]

2 Fig. 1.1 shows a bird's egg. Part of the shell has been removed.

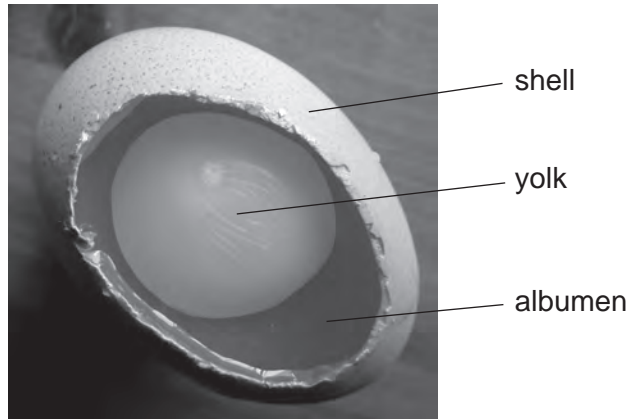


Fig. 1.1

Approximately 90 % of albumen is water. The remaining 10 % is made up of other substances such as reducing sugar.

(a) Describe how you could safely test a sample of albumen for reducing sugar.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) A student tested some albumen for the presence of protein using Biuret reagent. The solution changed colour. It was a positive result.

Describe this colour change.

.....

.....

..... [1]

(c) Fig. 1.2 shows an experiment to investigate the effect of acid on albumen.

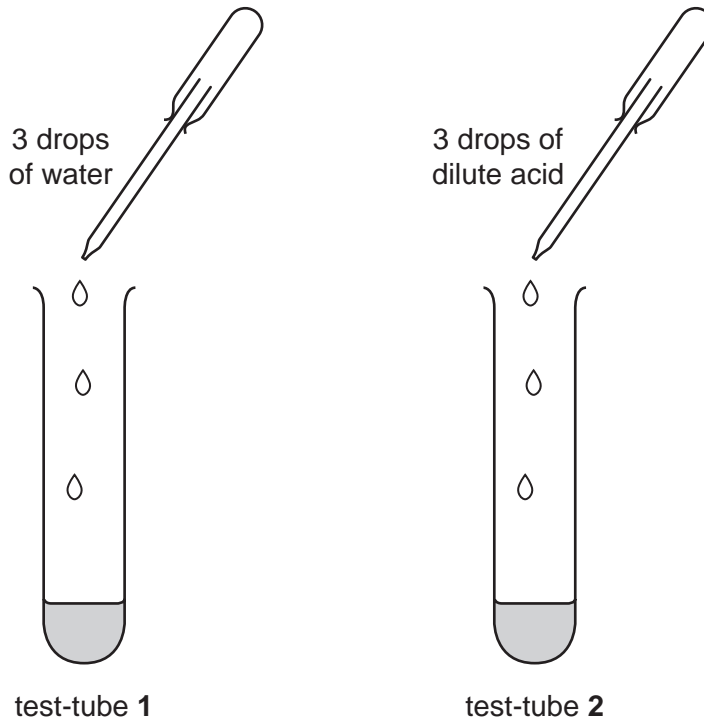


Fig. 1.2

The test-tubes were observed after five minutes.
The results are shown in Table 1.1.

Table 1.1

test-tube	observation
1	stayed as a clear liquid
2	changed from a clear liquid to a white solid

(i) State a conclusion that can be made from these results.

.....
.....
..... [1]

(ii) State why water was added to test-tube 1.

.....
..... [1]

- (d) Fat is present in the yolk.
A student carried out the emulsion test on a sample of yolk and it gave a positive result.
State what the student would observe.

.....
..... [1]

- (e) Two students wanted to investigate the effect of concentration of acid on albumen.

For this investigation, suggest a suitable:

variable to change;

variable to measure or observe;

variable to control. [3]

[Total: 11]

- 3 The sweet potato, *Ipomoea batatas*, is a different species to the Irish potato, *Solanum tuberosum*.

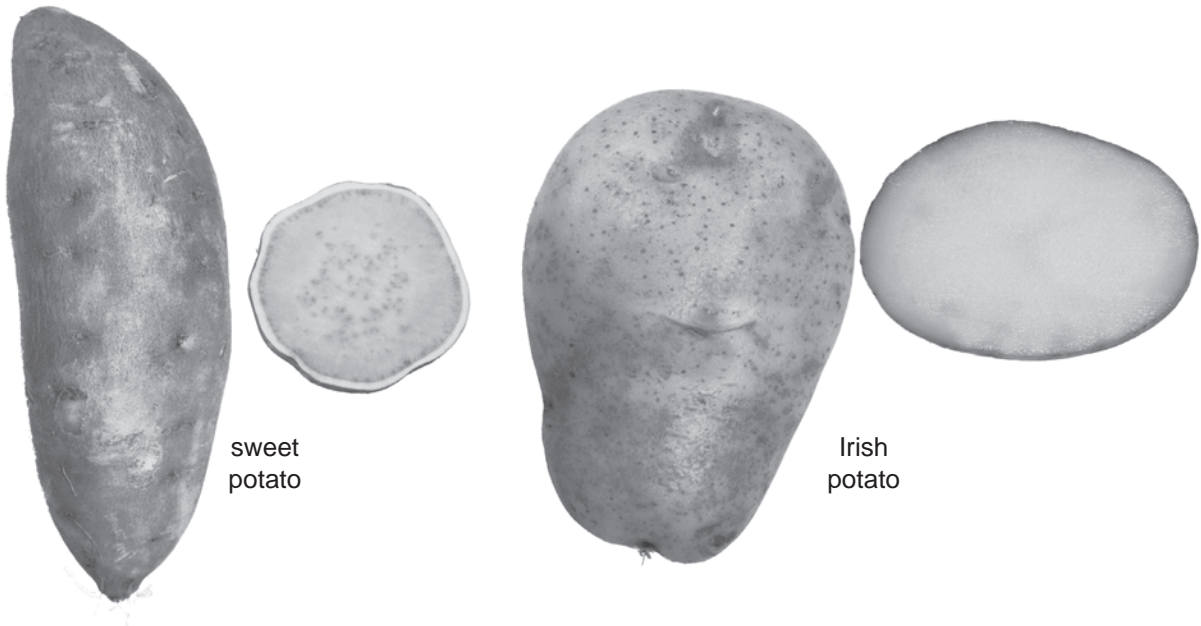


Fig. 2.1

- (a) (i) Describe **one** similarity, visible in Fig.2.1, between the two species of potato.

.....
..... [1]

- (ii) Complete Table 2.1 to show two differences, visible in Fig 2.1, between the two species of potato.

Table 2.1

	sweet potato	Irish potato
difference 1		
difference 2		

[2]

(b) Potato crops are grown for their carbohydrate content.

Describe how you could safely test the two species of potato to compare their carbohydrate content.

test for starch

.....

.....

.....

.....

test for reducing sugar

.....

.....

.....

.....

.....

.....

.....

.....

..... [8]

[Total: 11]