



General Certificate of Secondary Education  
2011–2012

Centre Number

71

Candidate Number

## Science: Single Award (Modular)

Staying Alive

Module 1

Foundation Tier

[GSC11]

TUESDAY 8 NOVEMBER 2011

1.30 pm–2.15 pm



### TIME

45 minutes.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.

Answer **all six** questions.

### INFORMATION FOR CANDIDATES

The total mark for this paper is 45.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's  
use only

Question Number	Marks
1	
2	
3	
4	
5	
6	

Total  
Marks

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- 1 (a) Below are parts of the male reproductive system and their functions. Use lines to link each part with its correct function.

PART	FUNCTION
penis	puts sperm into vagina
testes	adds fluid to sperm
scrotum	keeps sperm cool
	makes sperm

[3]

- (b) The table below describes changes that happen in boys and girls at puberty.

Complete the table by placing a tick (✓) in the correct column.

Changes	Boys only	Girls only	Both
height increase			
sperm produced			
ovulation			
pubic hair grows			
voice deepens			
hips widen			

[3]

- (c) Complete the sentence below.

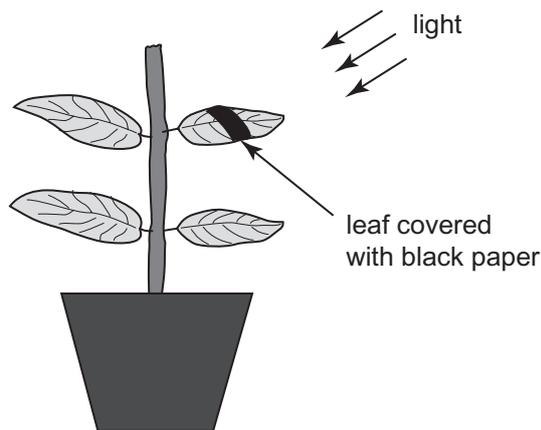
Choose from:

**males    mineral    hormone    females    vitamin**

Testosterone is a \_\_\_\_\_ which triggers physical changes in \_\_\_\_\_ at puberty.

[2]

- 2 (a) Some pupils set up the investigation shown below to show that light is needed for a leaf to make starch.



- (i) Their method is given below but the steps are in the wrong order.

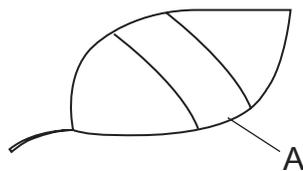
- A** Test the leaf for starch
- B** Fix strips of black paper on both sides of a leaf
- C** Put the plant in bright light for 24 hours
- D** Put in a dark cupboard to destarch the plant

Using the letters **A**, **B**, **C** and **D** put the steps in the correct order.

\_\_\_\_\_

[2]

Shown below is a leaf from the investigation. Part A shows where the black paper was placed.



- (ii) On the diagram above shade the part which has no starch. [1]

- (iii) Name the chemical used to test for starch.

Choose from:

**water**      **Benedicts**      **iodine**

\_\_\_\_\_ [1]

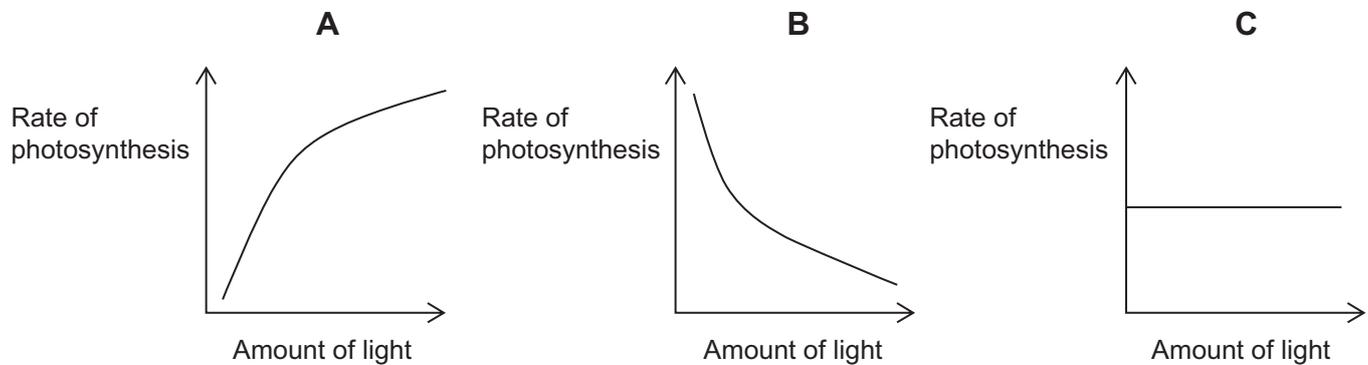
Examiner Only	
Marks	Remark

(b) (i) Complete the word equation for photosynthesis.

carbon dioxide + water  $\longrightarrow$  sugar + \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

One of the graphs below shows how the amount of light affects the rate of photosynthesis.



(ii) Which graph (**A**, **B** or **C**) is correct? Explain your answer.

Graph \_\_\_\_\_

Explanation \_\_\_\_\_ [2]

(iii) Suggest **one** way that a tomato grower could increase the amount of light getting to his plants.

\_\_\_\_\_ [1]

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- 3 (a) The table below shows the daily amount of energy needed by teenage and adult females.

Group	Energy/kCal
adult	2400
teenager	2800

- (i) Calculate how much more energy the teenager needs compared to the adult.

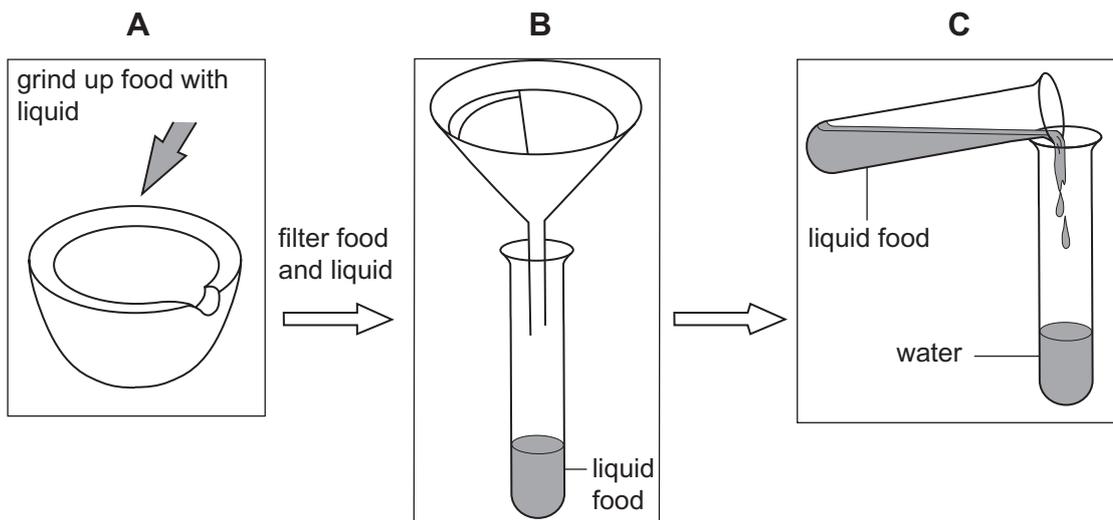
\_\_\_\_\_ kCal [1]

- (ii) Suggest two reasons why the teenager needs more energy than the adult.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

- (b) The diagram below shows three steps (A, B and C) to be done when testing foods for fats.



Examiner Only

Marks Remark

- (i) Name the liquid that is added to the food in step **A**.

Choose from:

**iodine      alcohol      milk**

\_\_\_\_\_ [1]

- (ii) What will be trapped in the filter paper at step **B**?

Choose from:

**food solution    :    liquid food    :    solid food**

\_\_\_\_\_ [1]

- (iii) If the liquid food contains fat what will be seen in the water at step **C**?

\_\_\_\_\_ [1]

- (c) (i) Suggest a reason why this food test could not be used to find out if smoky bacon crisps have a different amount of fat than salt and vinegar crisps.

\_\_\_\_\_ [1]

- (ii) Suggest a reason why it is important to know how much fat is in food.

\_\_\_\_\_ [1]

Examiner Only

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- 4 (a) The table below shows the effect of exercise on heart rate. These results are for Jane who exercises often.

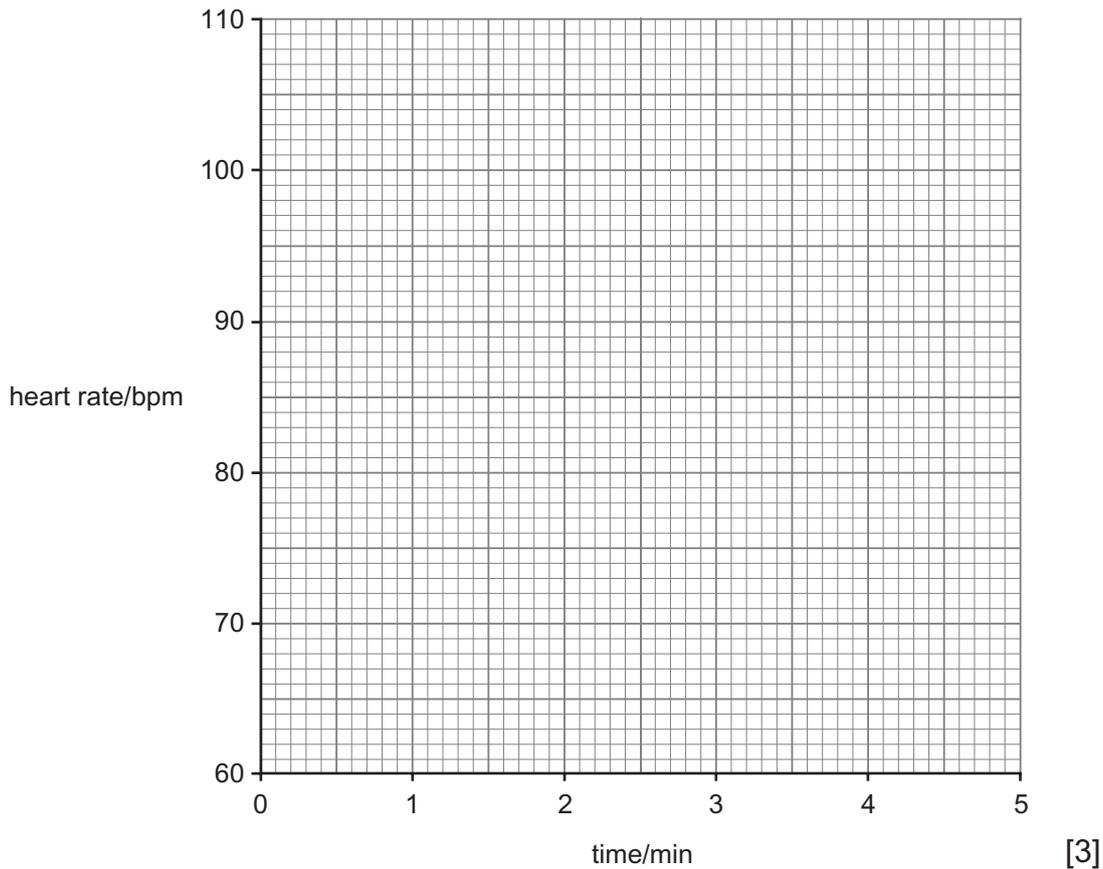
Time/min	Heart rate/ bpm
0	64
1	100
2	108
3	82
4	76
5	64

- (i) Suggest **one** way that these results could have been made more reliable.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

(ii) Plot the points and draw a line graph of Jane's results.



(iii) Jane started exercising at time 0 in the table. Use the information to suggest when she stopped exercising.

\_\_\_\_\_ min [1]

(iv) Calculate Jane's recovery time.

\_\_\_\_\_ min [1]

(v) State how the recovery time would change for a person who didn't exercise.

\_\_\_\_\_ [1]

(b) Suggest **one** way that the Government could encourage people to take more exercise.

\_\_\_\_\_ [1]

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Marks	Remark

- 5 (a) The picture below shows cuttings of plants.



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The statements below give advice on taking cuttings.

- A Select cuttings from a healthy plant.  
 B Quickly insert the cuttings into a pot containing moist compost and place in a large sealed plastic bag.

- (i) For each statement suggest why it is necessary to follow this advice.

A \_\_\_\_\_  
 \_\_\_\_\_

B \_\_\_\_\_  
 \_\_\_\_\_ [2]

- (ii) Taking cuttings is an example of cloning. Name the type of reproduction involved in taking cuttings.

\_\_\_\_\_ [1]

- (iii) State two advantages of growing plants from cuttings.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

- (b) Suggest two reasons why many people find cloning of humans unacceptable.

1. \_\_\_\_\_

2. \_\_\_\_\_ [2]

Examiner Only	
Marks	Remark

- 6 The table below shows the results of the first recorded clinical experiment carried out by James Lind to investigate cures for scurvy.

He divided ten sailors who had scurvy into five groups. They all received the same diet but each group had a different addition as shown.

Group	Added to diet	Effect
1	Apple cider	Some improvement
2	Sulphuric acid	None
3	Vinegar	None
4	Seawater	None
5	2 oranges 1 lemon	Complete recovery

- (a) Describe and explain fully the results of this investigation.

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[3]

- (b) (i) Name the chemical reaction that takes place in all living cells.

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[1]

- (ii) Write the word equation for this reaction.

[2]

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**THIS IS THE END OF THE QUESTION PAPER**

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Examiner Only	
Marks	Remark

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