



General Certificate of Secondary Education
2011–2012

Science: Single Award (Modular)

Staying Alive
Module 1
Higher Tier
[GSC12]

MONDAY 27 FEBRUARY 2012
9.30 am–10.15 am



Centre Number

71

Candidate Number

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 seven** 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	
7	

Total Marks	
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- 1 The poster below was used in an advertising campaign for 'CCEA' coffee.

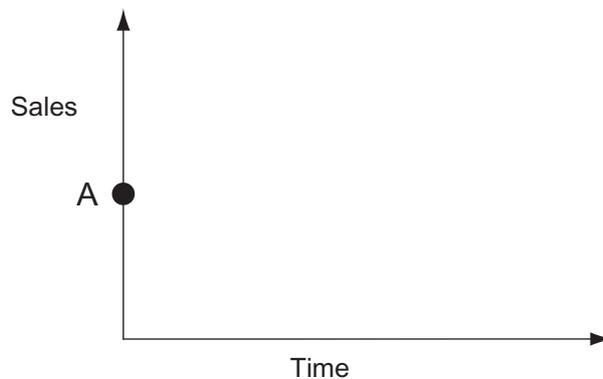


The makers of 'TASTY' coffee complained to the ASA (Advertising Standards Agency) saying that the poster was misleading because the survey was unreliable.

- (a) State **three** pieces of information about the survey that would be needed to decide if it was unreliable.

 [3]

- (b) The ASA ruled that the poster was not misleading. Starting at point A below sketch two lines to suggest what might happen to the sales of each coffee after this ruling was made public. Label each line with the name of the coffee.



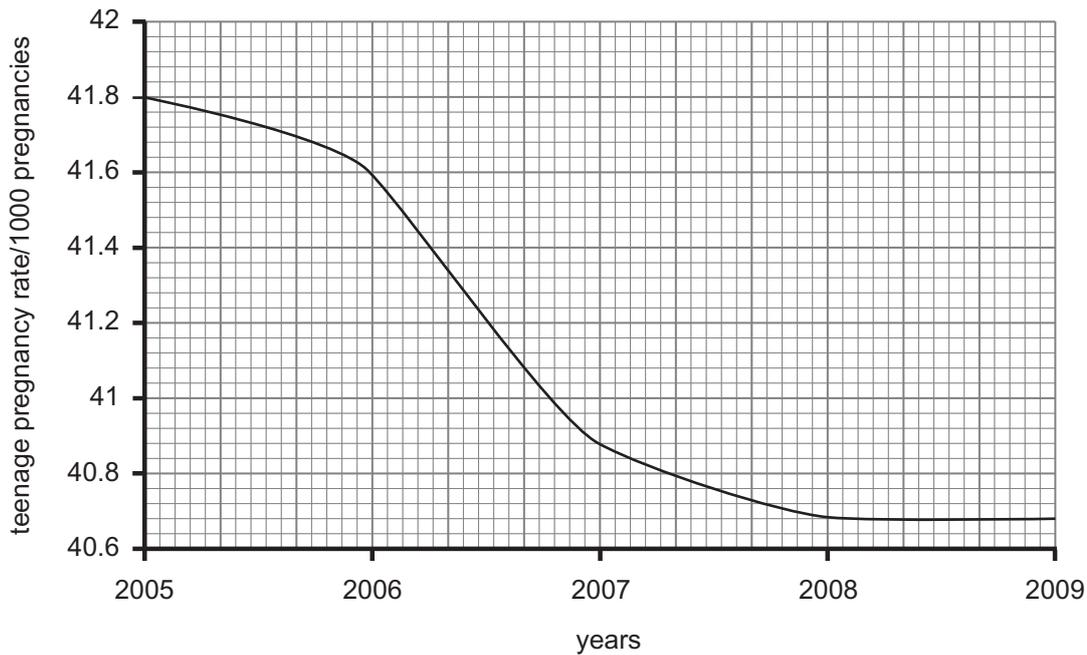
[2]

- (c) A cup of coffee is mostly water. State **one** function of water in the diet.

 [1]

Examiner Only	
Marks	Remark

- 2 The graph below shows the rate of teenage pregnancies in a city from 2005 to 2009.



The government introduced measures in 2005 aimed at reducing the rate of teenage pregnancies.

- (a) Using data from the graph describe the evidence which would suggest that these measures are:

1. working.

_____ [1]

2. not working as well as hoped.

 _____ [2]

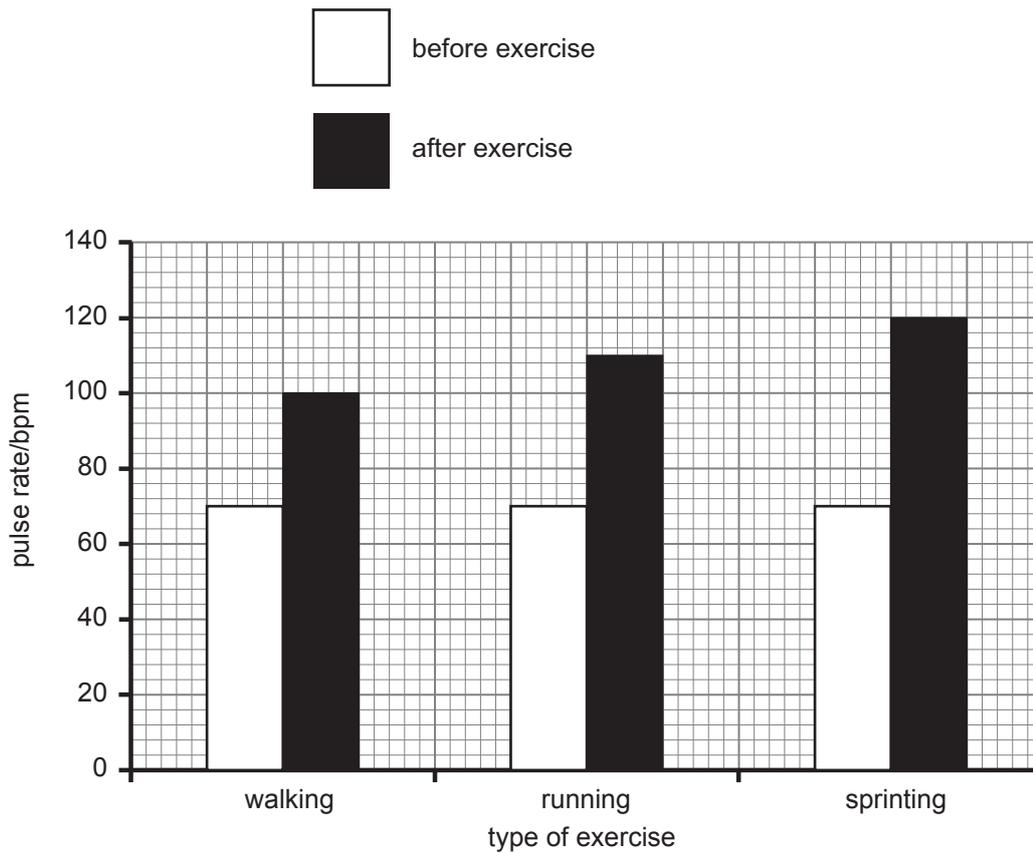
- (b) It has been suggested that there is a higher rate of teenage pregnancies in England than in Northern Ireland. How could you prove that this suggestion is correct?

 _____ [3]

Examiner Only

Marks Remark

- 3 Simon is in a football team and trains three times a week. The bar chart shows the effect of three types of exercise on Simon's pulse rate.



- (a) Use the data in the bar chart to describe how the pulse rate changes with different types of exercises. Explain why these changes occur.

[3]

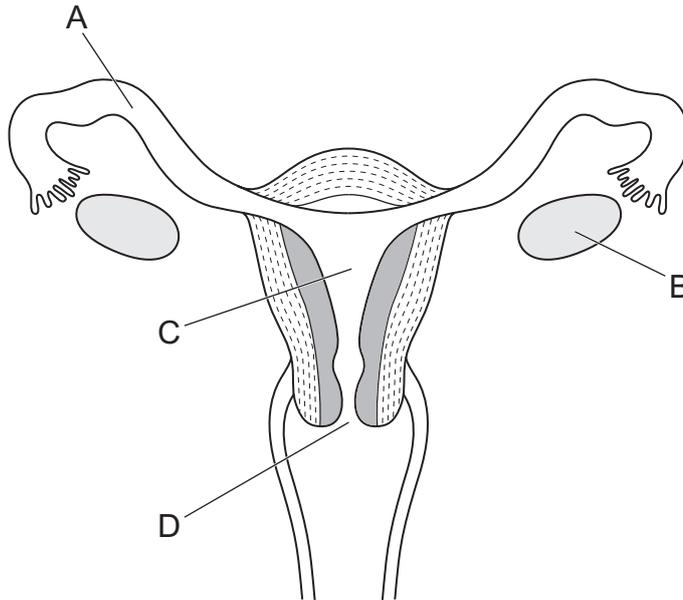
- (b) Simon left the football team and stopped training for a year. Describe and explain the differences to his 'before' and 'after' pulse rates when he first returns to training.

[3]

Examiner Only	
Marks	Remark

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(Questions continue overleaf)

4 (a) The diagram shows the female reproductive system.



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(i) Name parts labelled A, B, C and D.

A _____ C _____

B _____ D _____ [2]

(ii) Describe the role of oestrogen in:

1. preparing the female body for reproduction.

 _____ [2]

2. controlling the menstrual cycle.

 _____ [2]

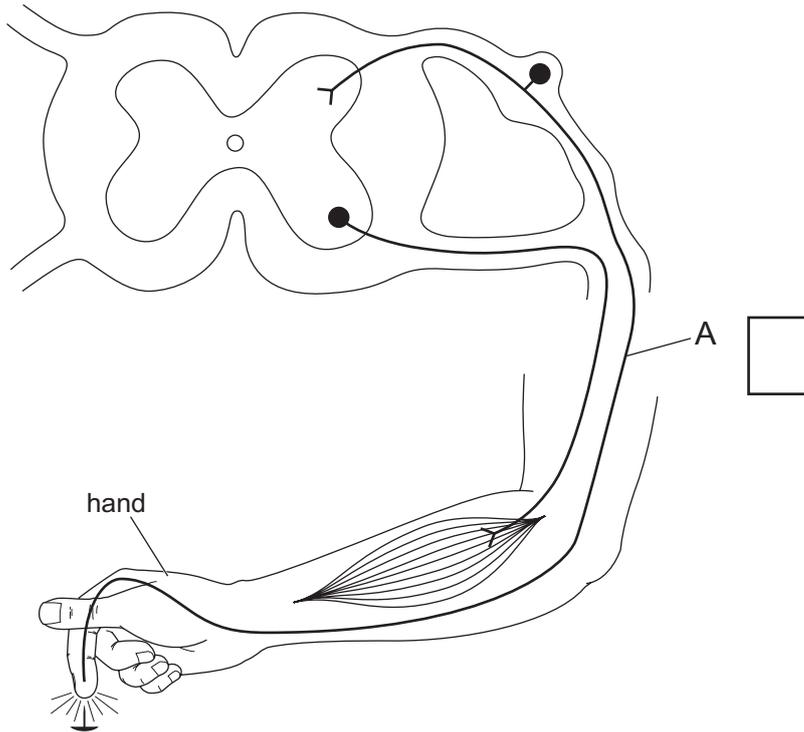
Examiner Only	
Marks	Remark

(b) Describe fully the pathway of a sperm from where it is produced to where it leaves the male body.

[3]

Examiner Only	
Marks	Remark

5 The diagram shows part of the pathway of a reflex action.



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(a) Complete the diagram by drawing and labelling the missing neurone. [2]

(b) Name the effector in this reflex action. [1]

(c) Draw an arrow in the box to show the direction of travel of the impulse in neurone A. [1]

(d) State **two** differences between a reflex and a voluntary action. [2]

(e) Suggest a reason why our knowledge of the brain has dramatically increased over the last 50 years. [1]

Examiner Only	
Marks	Remark

- 6 (a) (i) The ability to roll the tongue is caused by a dominant gene (T).

Draw a genetic diagram below to show the possible genotypes of the children of parents who are both heterozygous for tongue rolling.

Circle any genotype of an individual who cannot roll their tongue.

[3]

- (ii) Define the term 'phenotype'.

_____ [1]

- (iii) If the gene for tongue rolling codes for ninety amino acids how many bases must it contain? Explain your answer.

 _____ [2]

- (b) What term is given to the shape of DNA?

_____ [1]

Examiner Only	
Marks	Remark

7 It is hoped that individuals affected by some genetic diseases such as cystic fibrosis can have a better quality of life with the development of gene therapy.

Describe the process of 'gene therapy' and outline some benefits and disadvantages of it.

[4]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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