

Centre Number		
71		

**Candidate Number** 

General Certificate of Secondary Education 2010–2011

Science: Single Award (Modular)

Staying Alive Module 1
Higher Tier

[GSC12]



WEDNESDAY 23 FEBRUARY 2011, MORNING

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	



(a)	(i)	Describe the roles the pancreas and the liver play in keeping blood glucose levels constant.	Examiner Marks F
			_
			_ [3]
	(ii)	Name the condition which results in the loss of the control of blood glucose levels.	
			[1]
(b)	Cys	tic fibrosis is an inherited disease.	
	The	gene which causes it (f), is recessive to the normal gene (F).	
		nplete the genetic diagram below to show how two parents wh	0
	uo i	not suffer from cystic fibrosis can have a child who does.	
		f	
		F	
			[3]
(c)	dan	entists are trying to clone lungs which would replace lungs naged by cystic fibrosis. Some people do not agree with clonin gest <b>one</b> reason for this.	g.
			_ [1]

**2 (a)** The table below shows the cost of treating patients for some medical conditions.

Examiner Only		
Marks	Remark	

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

Condition	Cost/£
Diabetes type 1	4000
Knee cartilage operation	2000
Heart attack	20000
Cystic fibrosis	5000

(1)	people with diabetes type 1.

(11)	Suggest <b>three</b> reasons why a knee cartilage condition is the cheapest to treat.

\_\_\_\_\_[3]

(b)	Apart from the cost of treating heart attacks suggest <b>two</b> other ways that they can affect society.

		[2]
(c)	Explain how regular exercise benefits the circulatory system.	

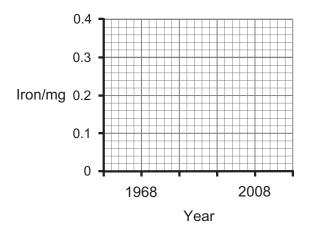
Explain how regular exercise benefits the circulatory system.		
	[2	

3 According to some nutritionists, the mineral content of cheese is less today than it was forty years ago. The table below shows their analysis of two cheeses.

Examiner Only		
Marks	Remark	

Mineral	Year	Cheddar	Mozzarella
Iron/ma	1968	0.21	0.24
Iron/mg	2008	0.10	0.07
O a la issues / sa as	1968	210	212
Calcium/mg	2008	189	120

(a) (i) Draw a bar chart on the grid below to show how the iron content of both cheeses has changed.



[3]

(ii) Calculate the reduction in iron content for mozzarella cheese between 1968 and 2008.

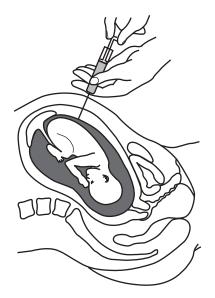
\_ mg [1]

(b)	(i)	For each mineral suggest one way that a low intake may affect human health.	Exam Marks	iner Only Remark
		Iron	[1]	
		Calcium	[1]	
		e nutritionists who produced these results make and sell mineral oplements.		
	(ii)	Explain why this might make you question their results.		

(	Give <b>two</b> ways in which they are similar and <b>two</b> ways in which the	ey N	
	are different.		
		[4]	
,	Suggest <b>one</b> occupation that might have a higher than average		
ı	number of people suffering from bulimia and suggest one reason f	or	
1	this.		
		[2]	
		. [-]	
(	People who suffer with anorexia and bulimia do not follow government guidelines. Name one other medical condition which means on boothy cating	nay	
(			
(	government guidelines. Name one other medical condition which m	nay . [1]	
(	government guidelines. Name one other medical condition which m		
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5	Jane and Tom are going to become parents for the first time and have
	decided that Jane should have an amniocentesis test.

Examiner Only			
Marks	Remark		



(a)	Suggest a	reason for	or wanting	the test.
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\_\_\_\_\_[1]

(b) Describe the process of amniocentesis.

\_\_\_\_\_[3]

(c) Sometimes the results of genetic screening lead to genetic counselling. Explain why this is necessary.

(a)	Below is a partially completed diagram of the structure of DNA.	Examiner O
	(i) Complete the diagram by drawing in the missing bases.	[1]
	sugar and phosphate backbone	
	(ii) How many different bases does your completed diagram show	u2
	(ii) Flow many different bases does your completed diagram show	[1]
	(iii) State <b>one</b> fact that Watson and Crick discovered about these bases.	_ [1]
	(iv) Name one other scientist who researched the bases in DNA.	[4]
		[1]
(b)	State how the <b>base triplet hypothesis</b> explains the link between to DNA code and the formation of proteins.	he
		_ [3]
_		
	THIS IS THE END OF THE QUESTION PAPER	

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