

Thursday 12 June 2014 – Morning

GCSE ADDITIONAL APPLIED SCIENCE

A191/01 Science in Society (Foundation Tier)



Candidates answer on the Question Paper.
A calculator may be used for this paper.

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)

Duration: 1 hour




Candidate forename		Candidate surname	
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Centre number							Candidate number				
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- Your quality of written communication is assessed in questions marked with a pencil (.
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

Answer **all** the questions.

1 Respiration is important to all living things.

(a) Draw one straight line from **where** respiration takes place to **what is used**. Then draw **only one** more straight line from **what is used** to **what may be produced**.

where	what is used	what may be produced
cells	carbon dioxide and lactic acid	carbon dioxide and lactic acid
	glucose and lactic acid	glucose and lactic acid
	oxygen and carbon dioxide	oxygen and carbon dioxide
	glucose and oxygen	glucose and oxygen

[2]

(b) All living things produce waste.

Which of these organs removes waste produced by respiration?

Put a tick (✓) in the box next to the correct answer.

lungs	
heart	
brain	
muscles	

[1]

3

(c) Another organ that removes waste is the kidney.

Which of the following are removed by the kidney?

Put ticks (✓) in the boxes next to the **two** correct answers.

carbon dioxide	
urea	
lactic acid	
water	
faeces	

[2]

[Total: 5]

Question 2 begins on page 4

2 Reliable scientific evidence must be carefully collected, stored and prepared.

Using an example, describe and explain how a scientist would do this.



The quality of written communication will be assessed in your answer.

..... [6]

[Total: 6]

3 Three patients arrive at an Accident and Emergency department of a hospital at the same time.

Patient A is unconscious and has been injured in a high speed car crash.

Patient B has hit his thumb with a hammer while hammering a nail into a block of wood.

Patient C felt a pain in her back when lifting a heavy box.

(a) A **triage nurse** assesses the three new patients.

Explain using the three examples how she would do this.

.....
.....
.....
..... [3]

(b) A doctor examines **patient A**.

(i) Suggest **two** types of information the doctor should have before treating the patient. Explain why it will be difficult to get this information.

.....
.....
.....
..... [3]

(ii) The doctor needs to perform surgery on **patient A**.

Other than collecting information, suggest reasons why the doctor will want to talk to one of the patient's relatives before performing surgery.

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

[Total: 8]

4 Rashid wants to lose weight. He goes on a diet for six weeks.

(a) He weighs himself on some bathroom scales once a week to show his weight loss.

Rashid is concerned that his measurements may not give him the true value of his weight.

Suggest **three** things that Rashid could do to make sure his weekly measurements are close to the true value of his weight.

.....

.....

.....

..... [3]

(b) The table shows the readings on Rashid’s scales before he started his diet and for the next four weeks.

	scale reading in kg
before start of diet	120
end of week 1	118
end of week 2	117
end of week 3	116
end of week 4	115

(i) Calculate Rashid’s percentage weight loss over the four weeks, correct to **two significant figures**.

Show your working.

percentage weight loss = % [3]

- (ii) Use data in the table to estimate the reading on Rashid's scales at the end of week 5. Explain your answer by describing the trend in the data.

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..... [2]

- (iii) Rashid has lost weight by dieting.

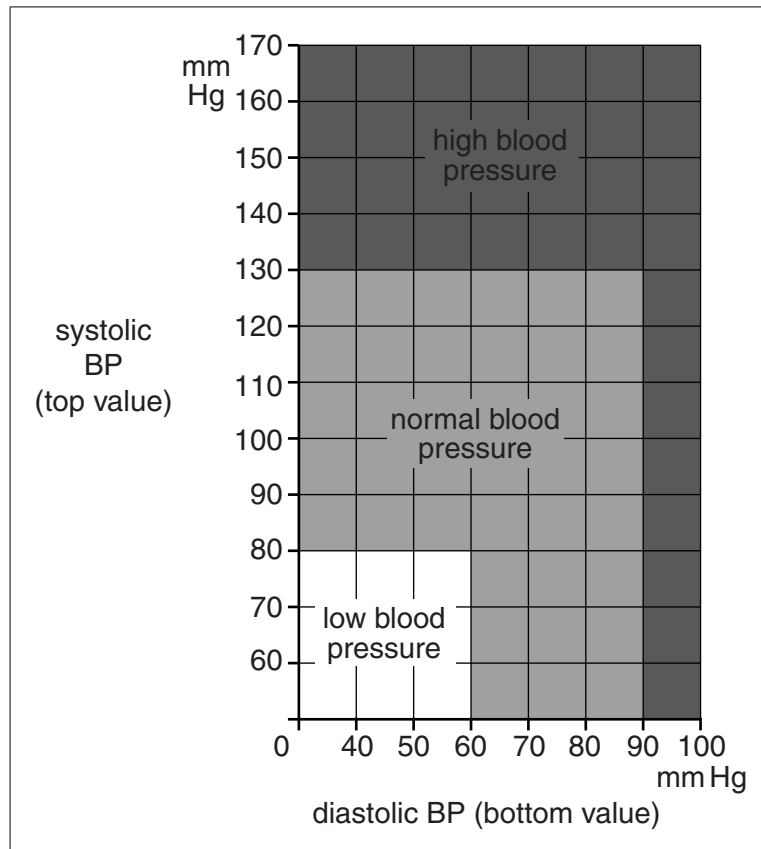
Suggest one other way he could lose weight.

..... [1]

[Total: 9]

- 5 Jason has his blood pressure measured each year by his doctor. His doctor tells him that his latest blood pressure reading is 128/87.

(a) Jason uses this chart to find the state of his blood pressure.

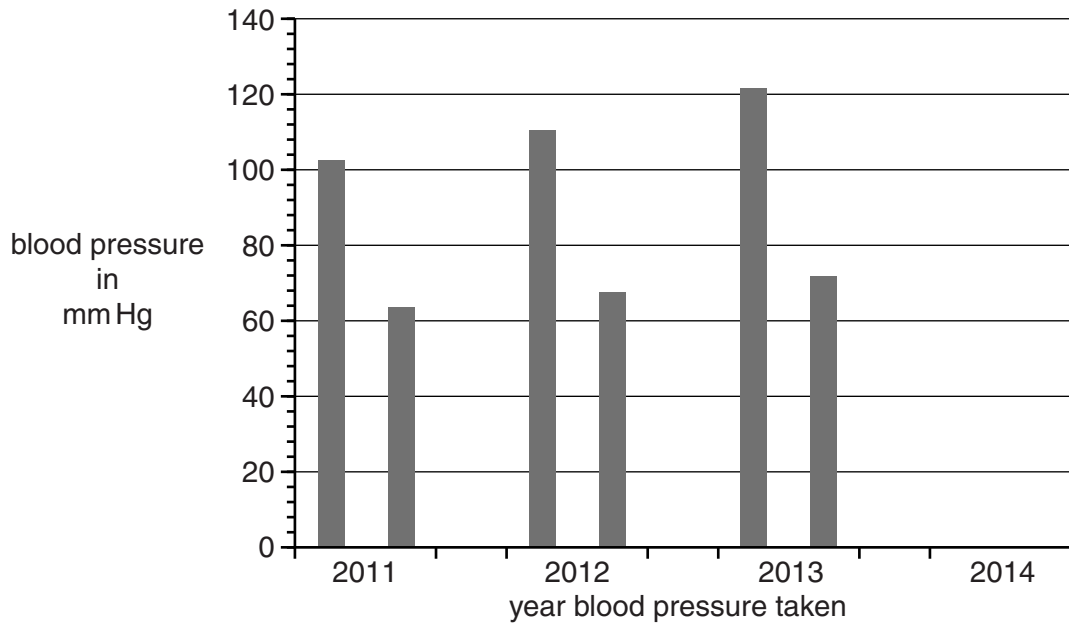


Write down the state of Jason's blood pressure.

.....

[1]

- (b) The bar chart shows Jason's blood pressure readings for the last four years. Complete the chart by drawing the bars for Jason's latest reading of 128/87.



[2]

- (c) The doctor explains that Jason should be concerned about his blood pressure readings. Use data from the charts in parts (a) and (b) to suggest why Jason should be concerned.

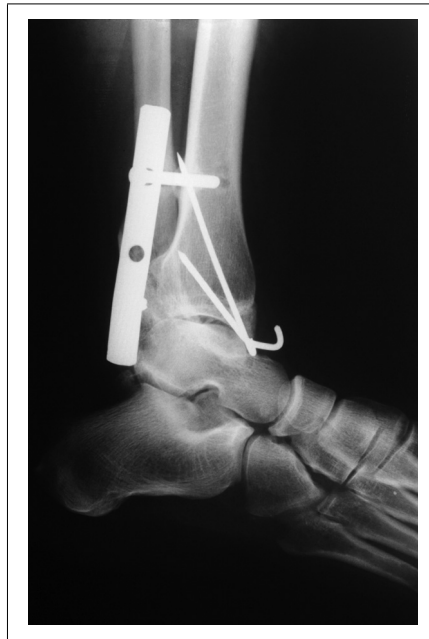
.....

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..... [2]

[Total: 5]

- 6 Pippa has a skiing accident. She breaks a bone in her ankle. The doctors repair the broken bone with a metal plate. Pippa then has treatment from a physiotherapist.



Describe how the physiotherapist assesses the injury and helps the patient recover. Give examples of good practice in your answer.



The quality of written communication will be assessed in your answer.

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..... [6]

[Total: 6]

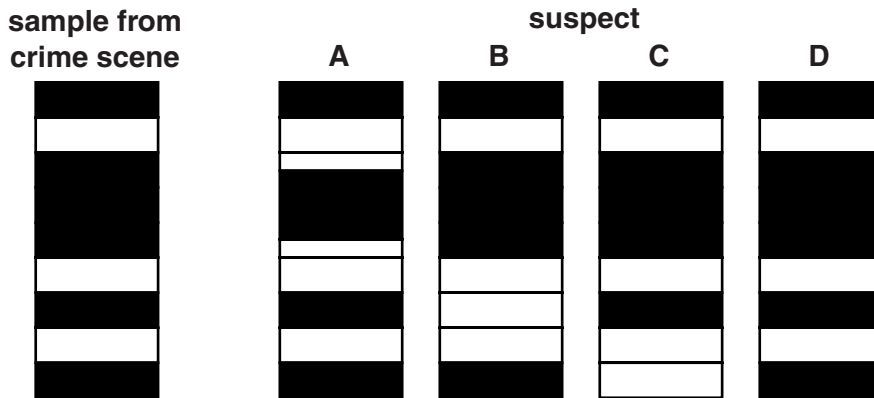
7 A blood sample is collected from a crime scene.
A forensic scientist analyses the DNA in the blood sample.

(a) Which of these processes would he use to analyse the DNA?
Put a tick (✓) in the box next to the best process.

chromatography	
filtration	
electrophoresis	
checking blood group	

[1]

(b) He obtains the following result and compares the result with the DNA of four suspects, **A**, **B**, **C** and **D**.



After a quick look at the results, the scientist concluded that the sample was from suspect **A**.
Evaluate the scientist's conclusion.
Explain your answer.

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

(c) Collecting and storing DNA evidence involves different ethical issues.

Which of the following are ethical issues if DNA evidence is stored?
Put ticks (✓) in the boxes next to the **three** correct answers.

Individuals have a right to privacy.	
Different kinds of data may be collected.	
The data may be used by other organisations.	
Only scientists are used to collect the data.	
A person may be unaware that data is held.	
The Government passes laws to regulate data collection.	
Computers are used to store the information.	

[2]

[Total: 5]

8 Paper chromatography is a useful technique for analysing unknown mixtures.

Describe in detail how you would **set up and use** paper chromatography to find out if a banned food dye had been used in a bottle of fruit juice.
You may use the blank space for a diagram.



The quality of written communication will be assessed in your answer.

..... [6]

[Total: 6]

END OF QUESTION PAPER

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