

Friday 17 June 2016 – Morning

GCSE ADDITIONAL APPLIED SCIENCE

A191/01 Science in Society (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

- Pencil
- Ruler (cm/mm)
- Calculator

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. If additional space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- 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 **12** pages. Any blank pages are indicated.

Answer **all** the questions.

1 Jason wants to improve his fitness.

(a) Jason asks his doctor for a health check before he starts his fitness training.

(i) The doctor takes a sample of Jason’s blood.

Look at the table below.
It is about Jason’s blood.

Complete the **three** pieces of missing information.

Component	Number per ml	Job
.....	5 000 000	transports oxygen
white cells	6000
platelets	300 000

[3]

(ii) The doctor tests Jason’s joints.

Complete the table below by writing down the name of each part of a joint.

Job that each part does	Name of each part
supports the body	
provides a smooth surface in the joint	
holds the joint together	
attaches muscle to bone	
contracts and moves the joint	

[3]

(iii) Write down **two** other organs that the doctor needs to check before Jason starts his fitness training.

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

(b) Jason's fitness trainer wants to know how fast Jason can run.

Jason runs 100 m in 20 seconds.

Calculate Jason's average speed.

average speed = m/s [2]

(c) Jason's fitness trainer designs a programme to improve his fitness.

Describe a training programme that **Jason** could use. It should include exercises for both muscle building and aerobic fitness.



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

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

[Total: 16]

2 Health care is important for all of us.

(a) There are many different jobs in health care.

Describe the jobs of **two** qualified healthcare practitioners.

Choose from this list.

doctor nutritionist pharmacist optician dentist

Include in your answer the scientific knowledge and technical skills they need to do their job.

.....

.....

.....

.....

.....

..... [4]

(b) Midwives use an **APGAR** test to assess the health of a new-born baby.

Look at the table below.

Observation	Scores 0	Scores 1	Scores 2
Appearance	blue or pale all over	pink body but pale or blue fingers	pink all over
Pulse	0	less than 100	100 or more
Grimace	no response to stimulation	feeble grimace or cry when stimulated	cry or pull away when stimulated
Activity	no bending of joints	some bending of joints	bending of joints that resists straightening
Respiration	no breathing	weak, irregular breathing	strong, deep, regular breathing

(b) Litmus paper or universal indicator paper can be used to test river water.

(i) Explain the advantage of using **universal indicator**, rather than **litmus**, to test river water.

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

(ii) Describe the difference between a qualitative test and a semi-quantitative test.

qualitative test
.....
semi-quantitative test
..... [2]

[Total: 10]

4 A Scene of Crime Officer (SOCO) took a photograph of a crime scene.

(a) The photograph had several important features.
Draw a straight line to connect each important **feature** to its correct **explanation**.

feature	explanation
a sharp image	The photograph was in black and white.
good contrast	The photograph was in focus.
good depth of field	A zoom lens was used.
showed small detail	Close and far objects were in focus.

[3]

(b) The SOCO enclosed the crime scene with police tape.

The area was a rectangle.

It measured 15 m long and 9 m wide.

(i) The SOCO calculated the area of the crime scene.

Show his calculation and write down the answer.

area =m² [2]

(ii) Suggest reasons why his measurements may not have given a true value of the area of the crime scene.

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

[Total: 7]

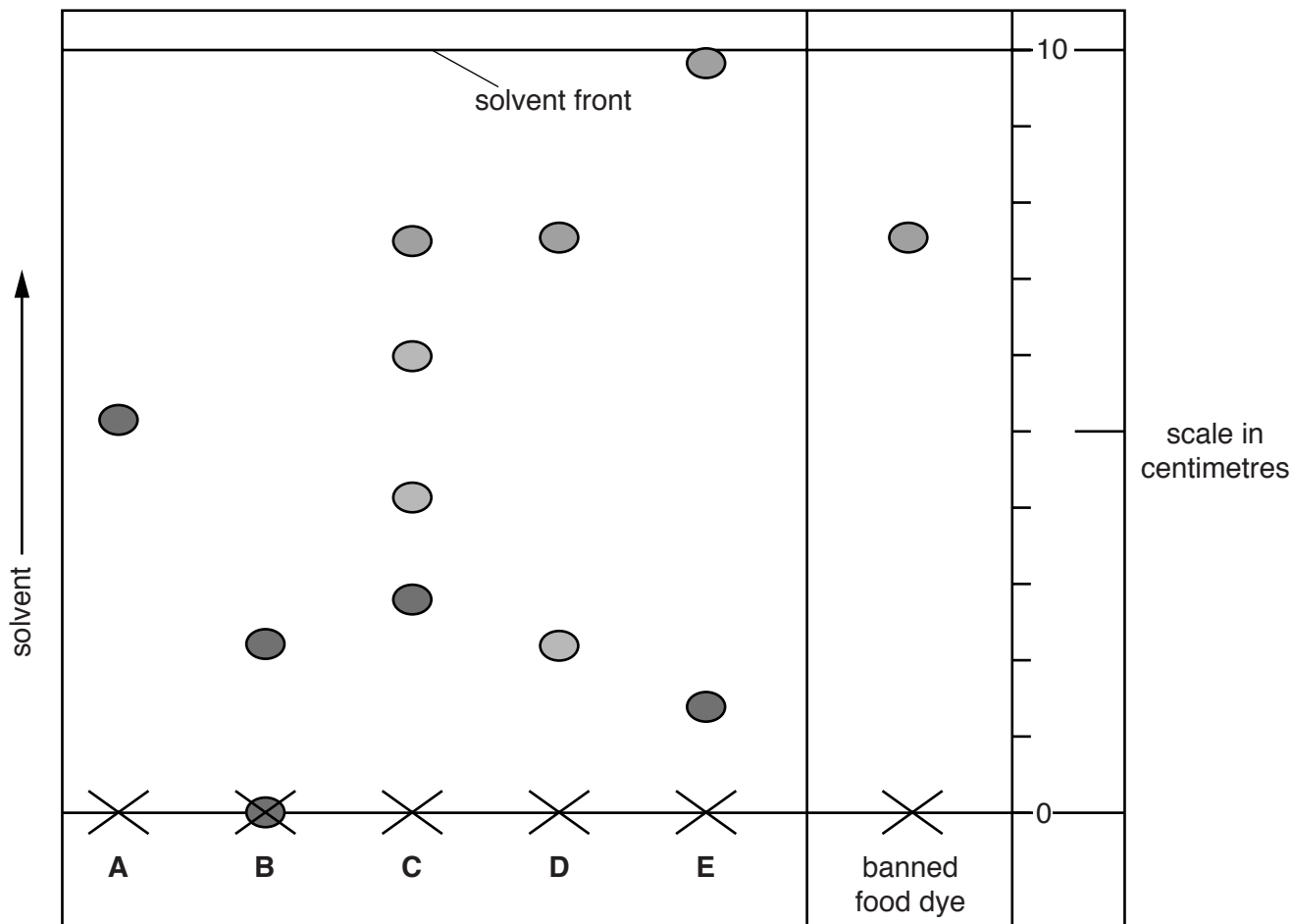
PLEASE DO NOT WRITE ON THIS PAGE

Turn over for the next question

5 Joseph is a Public Analyst.
He tests sweets to see if they contain a banned food dye.

He uses chromatography to test five sweets, **A**, **B**, **C**, **D** and **E**.

Here is his chromatogram.



(a) Which sweets contain the banned food dye?

..... [2]

(b) What is meant by a **standard reference material**?

Use the chromatogram to help explain your answer.

.....

 [2]

(c) Sweets **B** and **D** both have a dye with the same R_f value.

Why does this **not** prove that the sweets contain the same food dye?

.....

.....

..... [2]

[Total: 6]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

A large rectangular area with a vertical line on the left side and horizontal dotted lines across the page, providing space for writing answers.



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