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Tuesday 12 June 2012 – Morning

**GCSE TWENTY FIRST CENTURY SCIENCE
ADDITIONAL APPLIED SCIENCE A**

A324/02 Life Care (Higher Tier)

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

Duration: 45 minutes

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)



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.

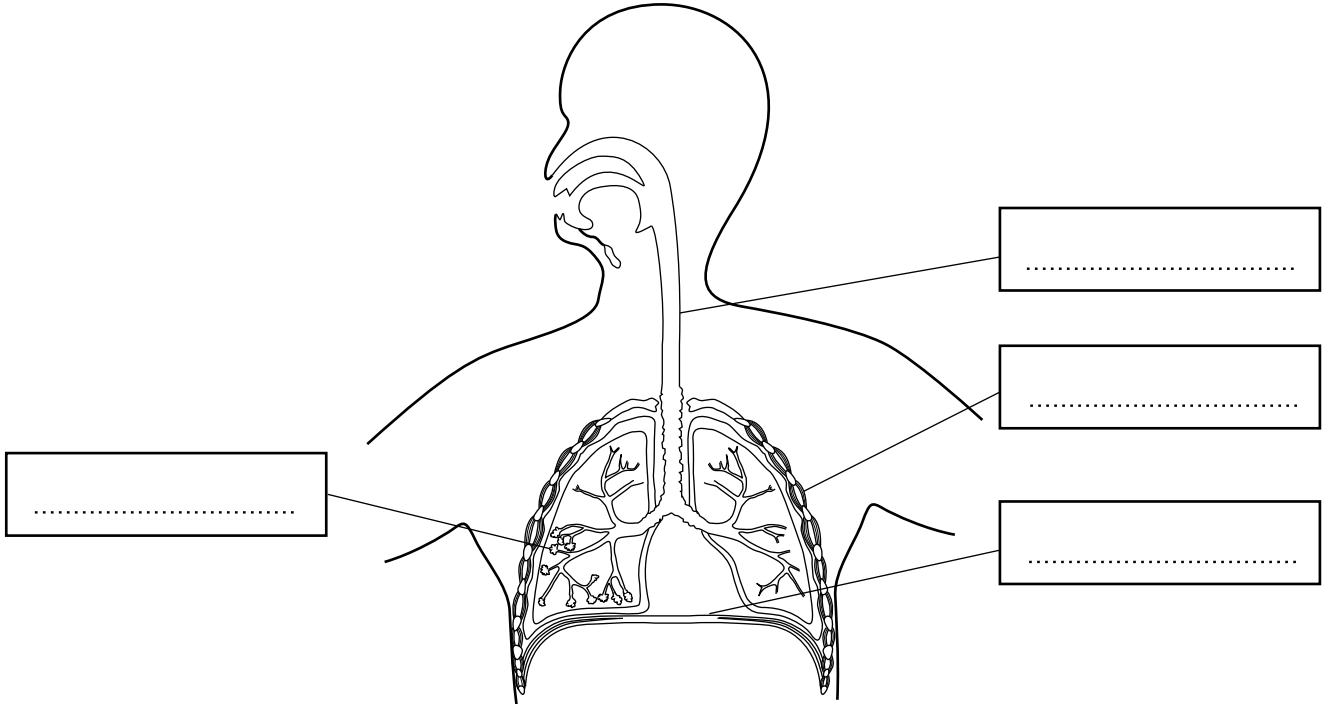
INFORMATION FOR CANDIDATES

- 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 **36**.
- This document consists of **8** pages. Any blank pages are indicated.

Answer **all** the questions.

1 Benji has cystic fibrosis.
This means that his lungs fill up with a sticky mucus, which has to be removed daily.
The diagram shows Benji's lungs.

(a) Finish labelling the diagram of the lungs.



[4]

(b) (i) State **two** ways the structure of alveoli is related to their job.

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

(ii) Suggest what effect the sticky mucus has in Benji's alveoli.

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

(c) There is no cure for cystic fibrosis but Benji receives treatment to help relieve the symptoms.
Give one **other** example of a condition which can only be treated and not cured.

..... [1]

[Total: 9]

2 Misha is in the army.
He injured his leg but is now recovering.
Misha needs to get fit so he can return to duty.

(a) Briefly describe an example of an exercise programme that could be used to improve fitness.

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

(b) Suggest how Misha's progress could be monitored.

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

(c) Give **two** reasons for changing Misha's exercise programme before it has been completed.

1

2

..... [2]

[Total: 6]

3 Jannis visits her doctor.

The doctor tests a sample of Jannis’s urine with a test stick.

(a) Give one advantage and one disadvantage of using a test stick for testing urine.

advantage

.....

disadvantage

.....

[2]

(b) The doctor is testing for the presence of hCG.

What does the presence of hCG show in a urine sample?

..... [1]

(c) The urine contains glucose, which suggests Jannis may have diabetes.
The number of people diagnosed with diabetes is increasing rapidly.
EarlyBird is the UK’s longest running research programme looking at diabetes in children.
It costs £280 000 a year to run but is cost effective.

Explain why, despite the expense of health education and public information programmes, these may be cost effective in the long term.

.....

.....

.....

..... [3]

[Total: 6]

4 Amalie and her friends are caught in the snow on a mountain walk.



- (a) She calls mountain rescue because her friends are unwell and the weather conditions are getting worse.
Complete the sentences about her friends.
Choose words from this list.

hyperthermia
shock
a panic attack
an infection
hypothermia
malaria

Mark has a lower than average body temperature and may be suffering from

Julie is anxious with a higher than average pulse rate suggesting she may be suffering from

Simon is finding it hard to talk coherently and has a very weak pulse rate suggesting he is suffering from

[3]

- (b) Explain how the mountain rescue team would prioritise the emergency treatment of the teenagers.

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

[Total: 5]

5 (a) Leah is pregnant.

Where in Leah's body do the following take place?

release of eggs

fertilisation normally takes place

the fetus develops

[3]

(b) Leah has regular appointments at her antenatal clinic.

(i) Explain the advantage of these appointments.

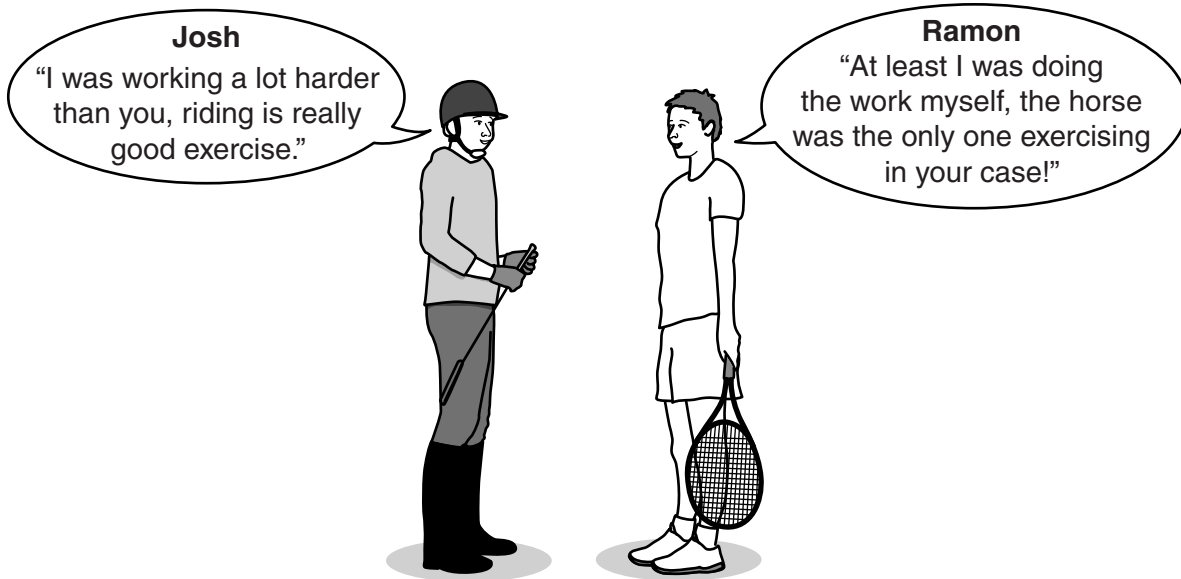
.....
.....
..... [2]

(ii) She reads the posters on the clinic wall as she waits for her appointment. Most of these are about public health campaigns. Briefly describe an example of a public health campaign that is used to improve health or fitness.

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

[Total: 7]

6 Josh and Ramon are arguing.



The table shows the approximate energy demands for various sporting activities.

activity	energy expenditure in kJ/hour by body mass		
	50 kg	60 kg	70 kg
aerobics	1092	1260	1428
orienteering	2184	2478	2772
riding	798	924	1050
squash	2016	2289	2562
tennis	1400	1596	1806

- (a) Josh is 70 kg and went for a 2 hour ride.
Ramon is 50 kg and played tennis for 1 hour 15 mins.
Calculate how much energy each boy used.
Show your working.

JoshkJ

Ramon.....kJ [2]

(b) Who is right, Josh or Ramon?
Explain your answer.

.....
.....
..... [1]

[Total: 3]

END OF QUESTION PAPER



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