

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
TWENTY FIRST CENTURY SCIENCE
ADDITIONAL APPLIED SCIENCE A**

A324/01

Life Care
(Foundation Tier)

**Wednesday 21 January 2009
Afternoon**

Duration: 45 minutes

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)



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

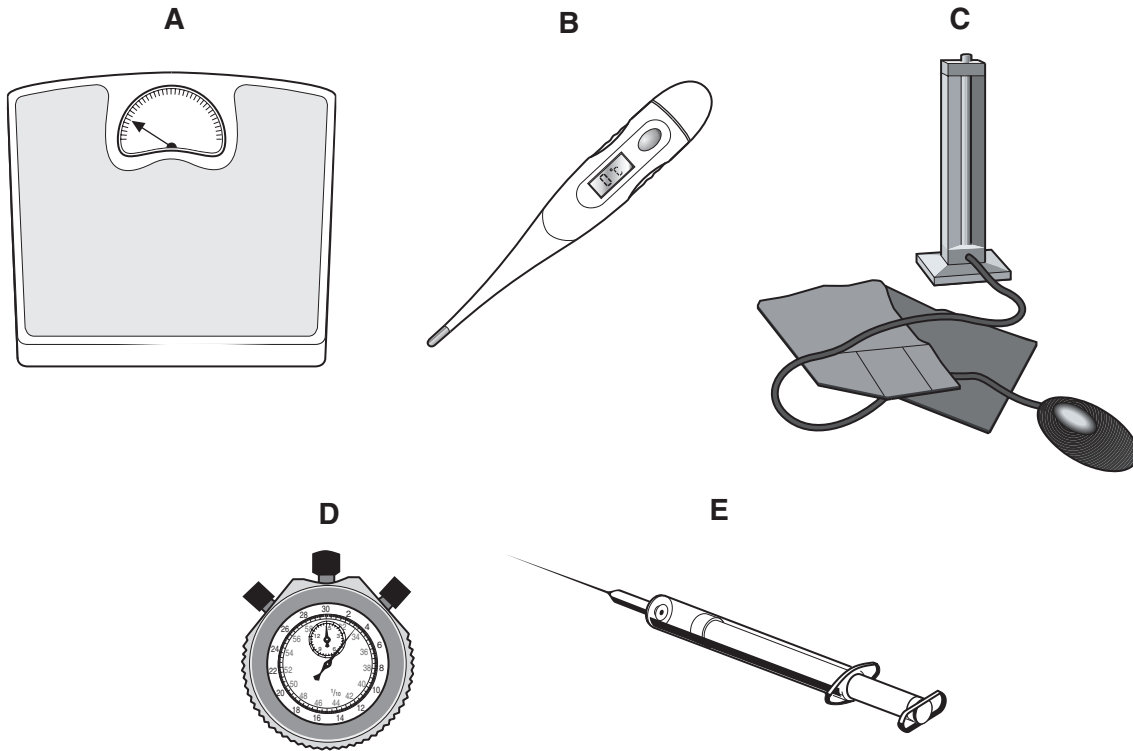
INFORMATION FOR CANDIDATES

- 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.

FOR EXAMINER'S USE		
Qu.	Max.	Mark
1	6	
2	5	
3	11	
4	8	
5	6	
TOTAL	36	

Answer **all** the questions.

- 1 Shakira is a nurse.
She carries out tests on new patients.
Some of the equipment she uses is shown in the diagram.



- (a) Look at the diagrams of the equipment.
Write down the letter **A, B, C, D** or **E** of the equipment which she would use for each test. The first one has been done for you.

measure the mass **A**

measure the pulse rate

measure the blood pressure

measure the temperature

[3]

- (b) Shakira asks each patient about their lifestyle.
Write down **three** important things she should ask about.

1

2

3

[3]

[Total: 6]

- 2 Tim enjoys mountain biking.
He takes part in a tour across mountains in Africa.
Tim feels hot.

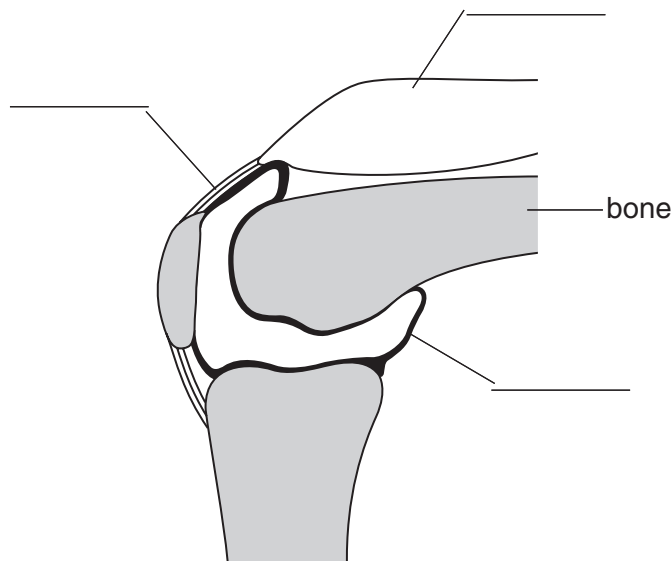


- (a) Use your knowledge about temperature control to explain **how** Tim's body tries to cool him down.

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

- (b) Despite the high temperatures, Tim still has to warm up and cool down each day.
This is to make sure he does not strain a muscle or damage his tendons and ligaments.

Complete the labelling of the diagram to show a **ligament**, a **muscle** and a **tendon**.

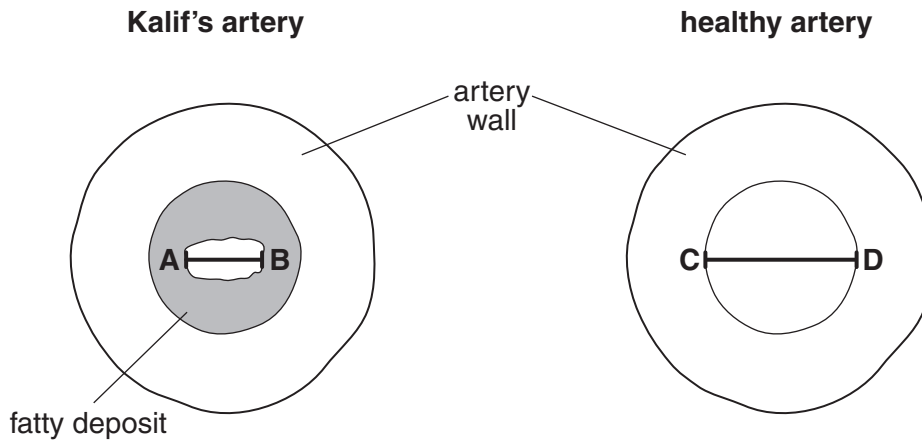


[2]

[Total: 5]

Turn over

- 3 Kalif is in hospital with a suspected heart attack. Tests show that some of Kalif's arteries are becoming blocked. The diagram shows one of Kalif's arteries and a healthy artery.



- (a) (i) Measure the width of the artery from **A–B**.
width = mm [1]
- (ii) Measure the width of the artery from **C–D**.
Calculate how much wider it is than Kalif's artery.
Show your working.

[1]

- (b) Finish the table. Choose words from the list of blood vessels.

artery capillary vein

blood vessel	job	structure
	allows exchange of materials	walls are only 1 cell thick
	carries blood back to the heart	thin walls with valves
	carries blood away from the heart	thick, muscular walls

[2]

(c) A nurse continuously monitors Kalif's heart beat.

(i) Suggest how the nurse does this.

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

(ii) Kalif needs treatment.
Explain why detailed notes must be kept.

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

(d) When Kalif is stable, he will have to undergo a rehabilitation programme.
This will involve a number of different health care workers.
Suggest **two** different types of health care workers.
Explain how each could help Kalif.

1.
.....
..... [2]

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

[Total: 11]

- 4 Kate is a hospital scientist.
She tests urine with a dipstick.

(a) Write down **one** advantage and **one** disadvantage of testing with a dipstick.

advantage

.....

.....

disadvantage

.....

..... [2]

(b) Urine samples are often tested for chemicals which indicate different medical conditions.
Give **one** chemical urine may be tested for and suggest what its presence indicates.

.....

.....

.....

..... [2]

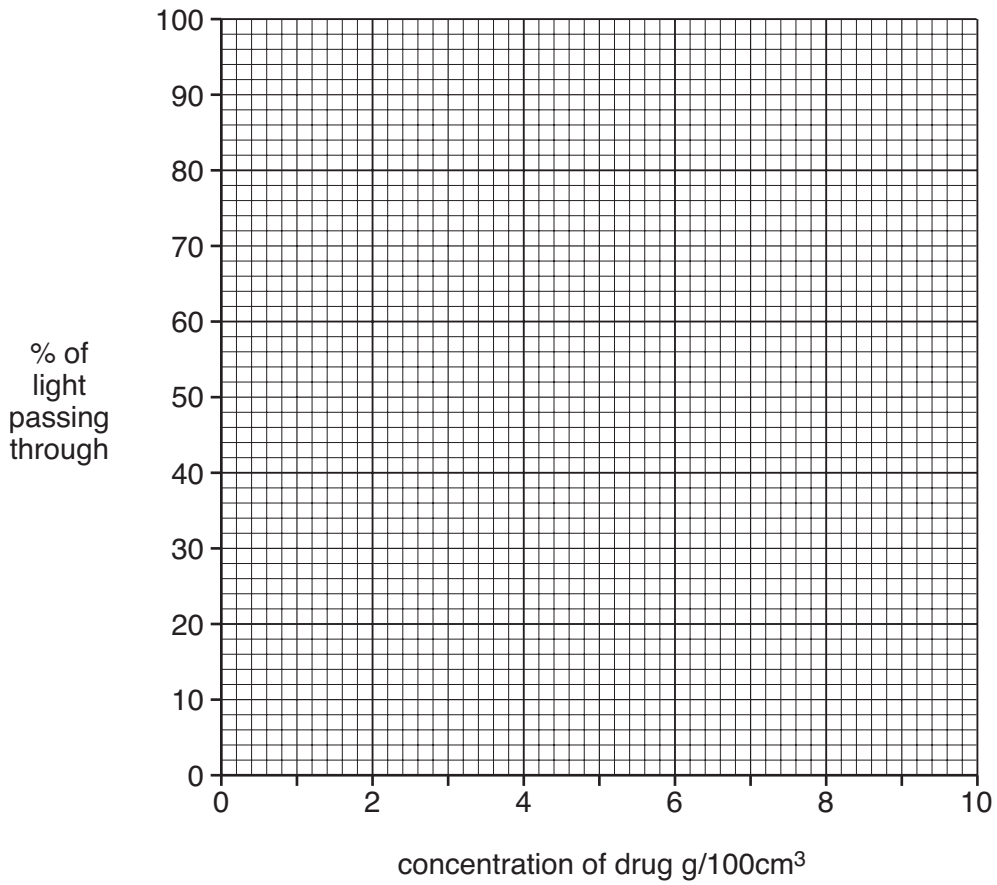
(c) Kate receives a urine sample from an athlete suspected of taking a banned drug.
She needs to know how much of the drug is present in the urine sample.
First she makes a graph with known concentrations of the drug.
She uses a test which measures the amount of light passing through a liquid.
She dissolves different quantities of the drug and measures the amount of light passing through it.

These are her results.

concentration of drug (g/100 cm ³)	% of light passing through
0	100
1	85
2	70
4	40
8	15

(i) Plot Kate's results on the grid below.

Draw a smooth curve through the points.



[3]

(ii) Kate tests the unknown urine sample.
 In this sample 55% of the light passed through.
 Use the graph to find the concentration of the drug in this sample.

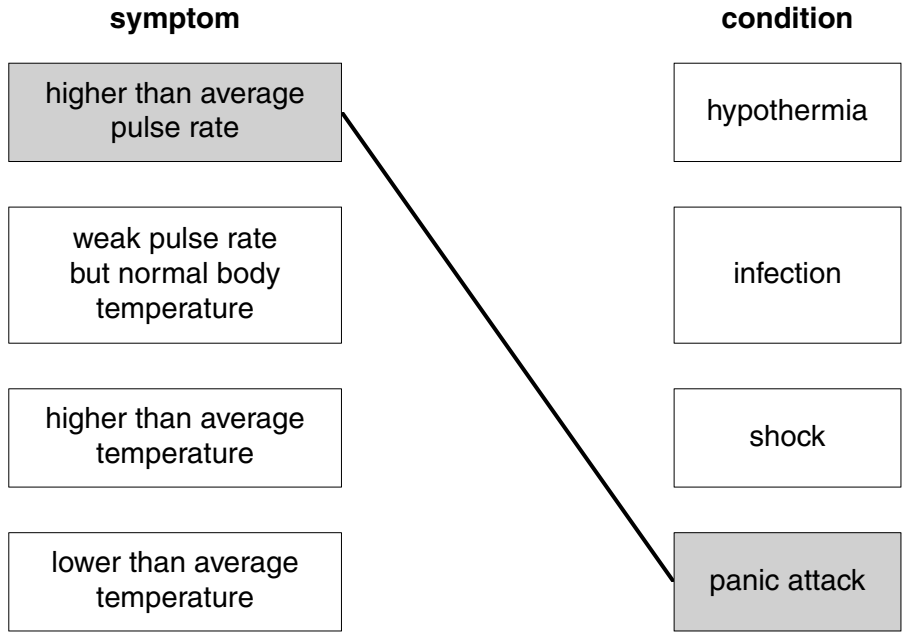
concentration = g/100 cm³ [1]

[Total: 8]

5 Hyat is a paramedic.
He is trained to link certain symptoms with a likely condition.

(a) The lists show symptoms and conditions.

Draw a line from each **symptom** to the most likely **condition**.
One has been done for you.



[2]

(b) Hyat has to prioritise people for emergency treatment.
Describe how Hyat would decide who to treat first.

.....

.....

..... [2]

(c) Hyat treats the symptoms but does not necessarily cure the problem.
Describe an example to show the difference between treating the symptoms and curing a problem.

.....

.....

..... [2]

[Total: 6]

END OF QUESTION PAPER