

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

Life Care (Higher Tier)

**TUESDAY 17 JUNE 2008**

Morning  
 Time: 45 minutes

Candidates answer on the question paper.

**Additional materials (enclosed):**

None

Calculators may be used.

**Additional materials:** Pencil  
 Ruler (cm/mm)



Candidate  
 Forename

Candidate  
 Surname

Centre  
 Number

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Candidate  
 Number

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**INSTRUCTIONS TO CANDIDATES**

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.

**INFORMATION FOR CANDIDATES**

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 36.

FOR EXAMINER'S USE		
Qu.	Max.	Mark
1	12	
2	8	
3	7	
4	6	
5	3	
<b>TOTAL</b>	<b>36</b>	

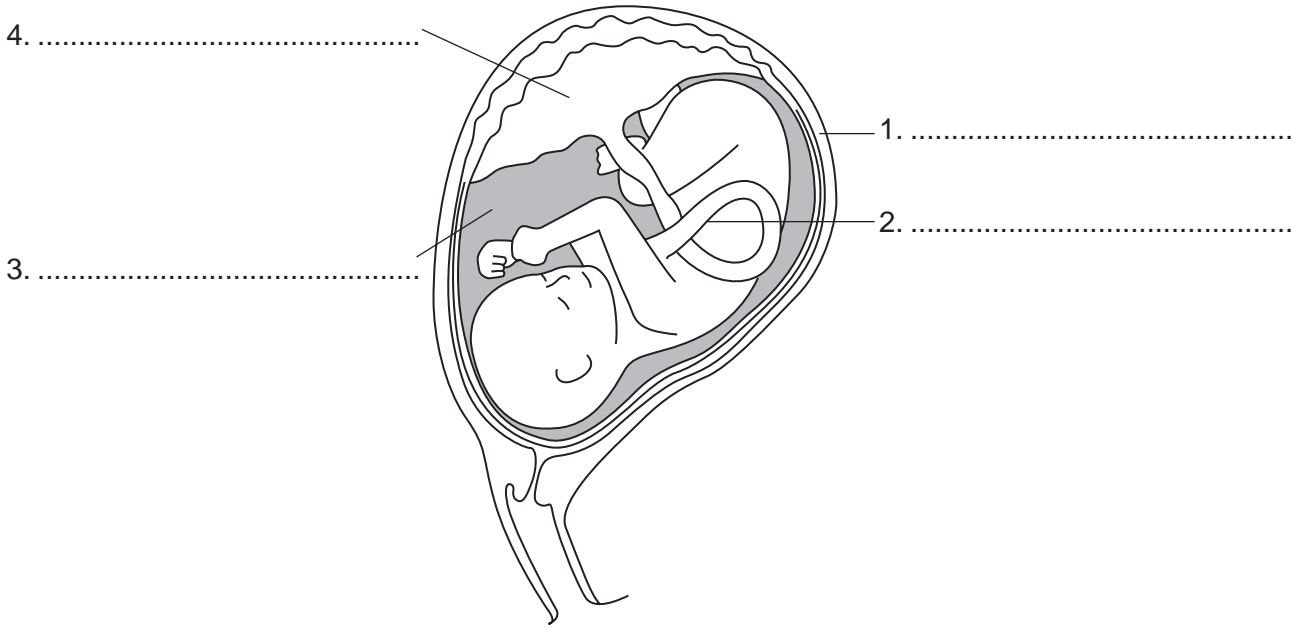
This document consists of **11** printed pages and **1** blank page.

**PLEASE DO NOT WRITE ON THIS PAGE**

Answer **all** the questions.

1 Fiona is pregnant.

(a) The diagram shows Fiona's reproductive system and the fetus.



Label the diagram.

Choose words from this list.

- amniotic fluid
- cervix
- ovary
- placenta
- umbilical cord
- uterus
- vagina

[4]

**(b)** Fiona's body changes during pregnancy.

Write down **three** changes that take place.

- 1.....  
.....
- 2.....  
.....
- 3.....  
.....[3]

**(c)** Fiona regularly visits her midwife throughout the pregnancy.

Write down **two** advantages of these regular visits.

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

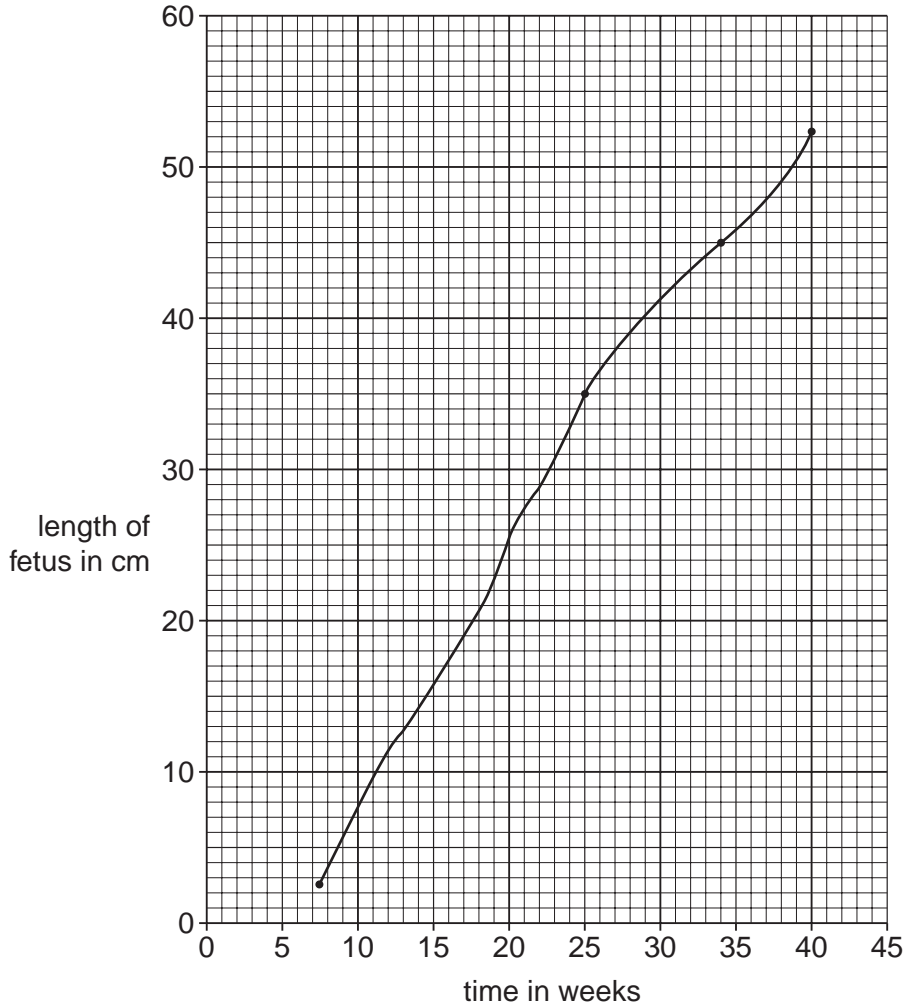
(d) The midwife refers Fiona to the hospital for an ultrasound scan.

The doctor measures the length of the fetus.

It measures 49 cm.

He uses this chart to estimate the age of the fetus.

Chart of average fetal length against age.



Use the chart to calculate how old the fetus is.

age = ..... weeks [1]

(e) The doctor is concerned about the position of the fetus.

Fiona may need an operation to deliver the baby.

The doctor explains all about the operation to Fiona.

Explain why it is necessary for Fiona to know all about the operation.

.....

.....

.....[2]

[Total: 12]

[Turn over

2 Imran's ambition is to be an international cricket star.

His coach carries out a baseline assessment including calculating Imran's Body Mass Index (BMI).

He will use all this information to design a suitable training programme for Imran.

(a) (i) State **two other** baseline assessments the coach may use on Imran.

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

(ii) Imran is 2.0m tall and has a mass of 76 kg.

Calculate Imran's BMI.

Use this formula.

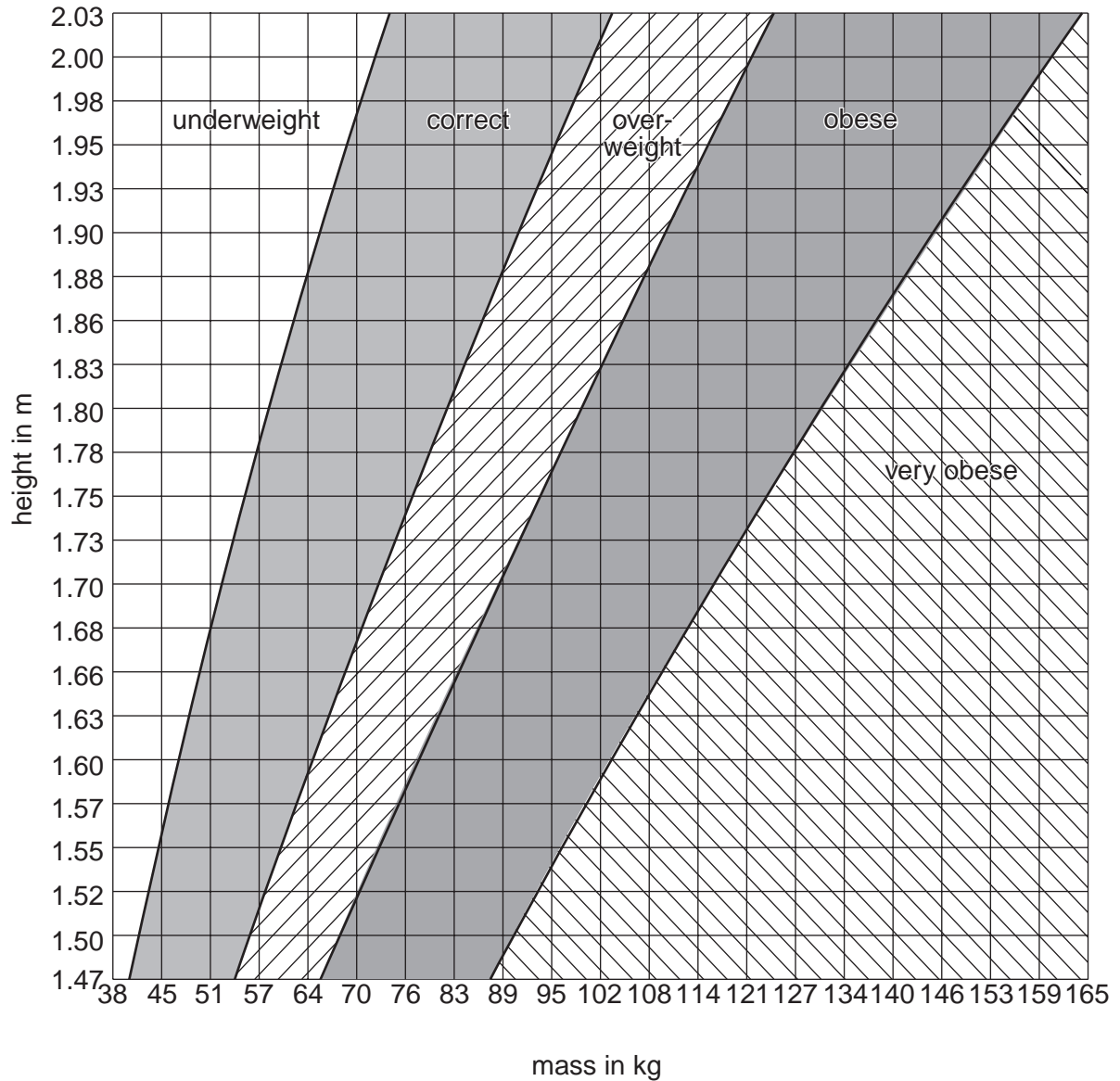
$$\text{BMI} = \frac{\text{mass in kg}}{(\text{height in m})^2}$$

BMI = ..... [2]

(iii) Look at the chart.

It gives information about the link between height, mass and body condition.

Put a cross (X) on the chart to plot Imran's condition.



[1]

**(b)** During a game Imran is hit on the head by a cricket ball.

He is unconscious and is taken to hospital.

The doctors are concerned that he may have internal bleeding in the brain.

**(i)** Name a type of imaging technique the doctors could use to look at Imran's brain.

.....[1]

**(ii)** What is the main advantage of using this type of technique?

.....[1]

**(c)** Imran recovers and is discharged from hospital. He wants to start training again.

The hospital doctors tell him to rest for at least two weeks before resuming training.

Explain why Imran's coach will have to modify the training programme.

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

[Total: 8]



3 Marcus works at a large restaurant.

The restaurant is closed due to an outbreak of food poisoning.

Marcus collapses at home and is rushed into hospital with suspected food poisoning.

(a) At the hospital a nurse collects blood and urine samples from Marcus.

Name **two** other samples that can be taken for analysis.

1.....

2.....[2]

(b) Tests show that Marcus has a type of food poisoning which often results in damage to the kidneys.

(i) State **two** functions of the kidneys.

1 .....

2 .....

(ii) The hospital does not have a kidney unit. The nearest kidney unit is 98 miles away.

Suggest and explain why **every** hospital does not have the whole range of facilities.

.....

.....

.....

.....[3]

[Total: 7]

4 Kelly is a heavy smoker.

She is admitted to hospital with a suspected tumour on her lung.

(a) Before diagnostic tests are carried out, the consultant assesses the risks to Kelly.

Why is this necessary?

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

(b) The tests show she has a tumour. She will need an intensive treatment involving drug therapy.

Name and describe **one** example of drug therapy you have studied.

name of drug therapy.....

description .....

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

(c) The government spends millions of pounds every year funding public health information programmes.

Some of these are about the dangers of smoking. Kelly took no notice of them.

Explain why, despite the expense, these programmes may be cost effective in the long term.

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

[Total: 6]



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