

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GCSE**

**A324/01**

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

**Life Care (Foundation Tier)**

**THURSDAY 26 JANUARY 2012: Morning**

**DURATION: 45 minutes**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**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)**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

- **Write your name, centre number and candidate number in the boxes on the first page. 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).**

## **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.**

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**Please turn over for Question 1.**

**Answer ALL the questions.**

**1 Marcus is a doctor in a very busy hospital.  
He thinks that an operation is the best treatment for a patient.  
Before he can operate, he must get the patient's agreement.**

**(a) Put ticks (✓) in the boxes next to the THREE best reasons.**

**All treatments make you better.**

**All treatments carry some risk.**

**A number of different treatments may be available.**

**All treatments cure the problem.**

**A treatment may have some side effects.**

**Some treatments are more expensive than others.**

**[3]**

**(b) Patients arriving at the hospital accident and emergency department are prioritised for treatment.**

**This means some patients are treated before others.**

**Explain how they are prioritised.**

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**[2]**

**[Total: 5]**

**2 Saskia is a physiotherapist.  
She designs exercise programmes to treat skeletal muscular injury.**

**(a) Saskia monitors her patient's progress during a programme.  
Briefly describe one example of how she might do this.**

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**[3]**

**(b) Sometimes she has to change an exercise programme before it is completed.  
Write down TWO reasons for changing a programme before it is completed.**

**1** \_\_\_\_\_

**2** \_\_\_\_\_

**[2]**

**[Total: 5]**

**3 Ralph is on holiday.  
He sits in the sun and becomes too hot.**

**(a) Which of the following BEST describe the changes in his skin?  
Put ticks (✓) in the boxes next to the THREE best answers.**

**Ralph's skin capillaries carry less blood.**

**Ralph's temperature receptors are stimulated.**

**Ralph's skin capillaries carry more blood.**

**Ralph's sweat glands produce sweat.**

**Ralph's fat layer gets thinner.**

**Ralph's skin capillaries move closer to the surface of his skin.**

**[3]**

**(b) Ralph applies sun tan lotion.  
He remembers hearing about the risk of skin cancer and wants to stay safe.  
Explain why it is important to inform the public about health issues.**

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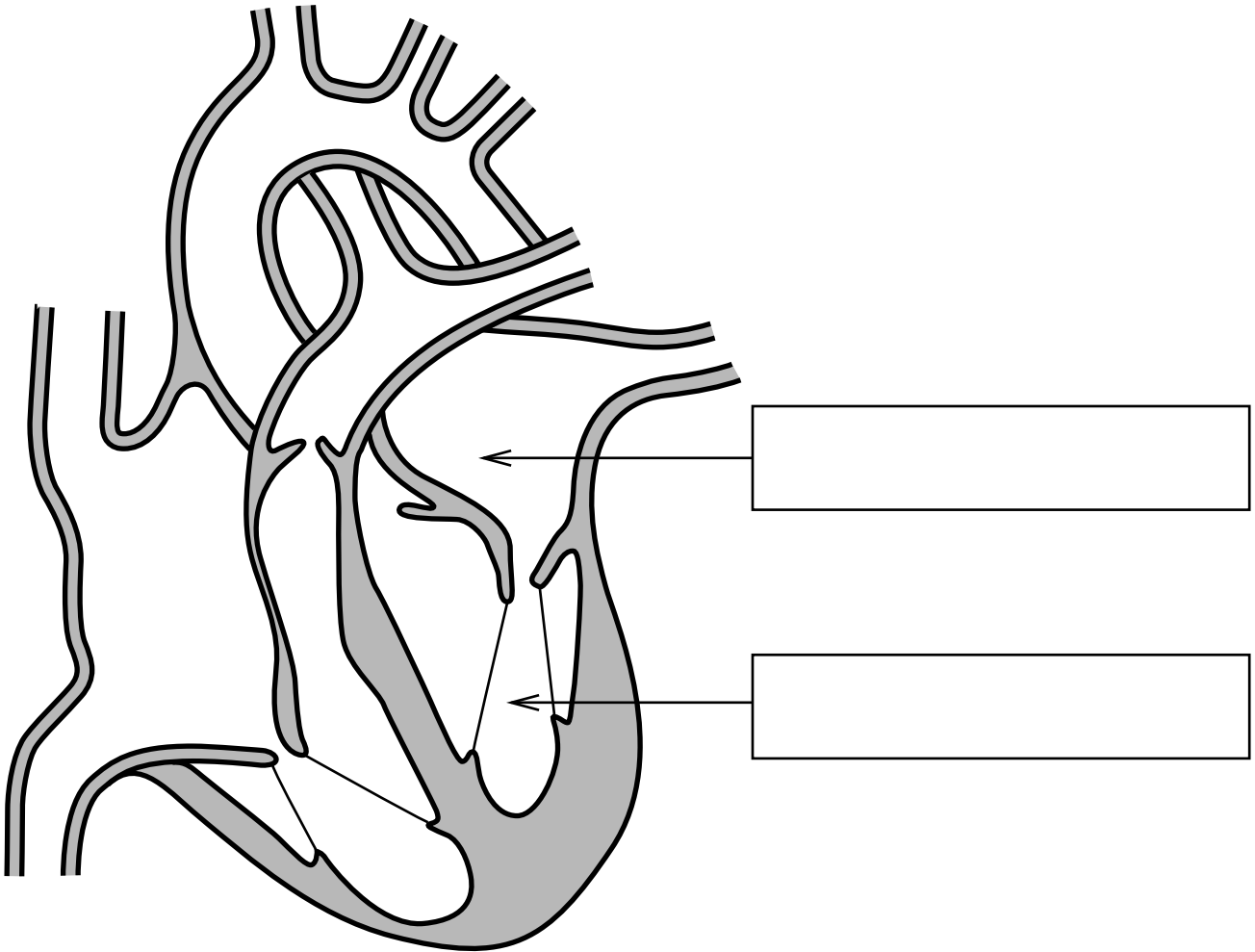
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**[2]**

**[Total: 5]**

4 Perry is recovering from a heart attack. The diagram shows his heart.

(a) Complete the labels on the diagram.



[2]



**(b) Perry has his heart function monitored regularly.**

**Put a tick (✓) in the box next to the piece of equipment used to study heart function.**

**clinical thermometer**

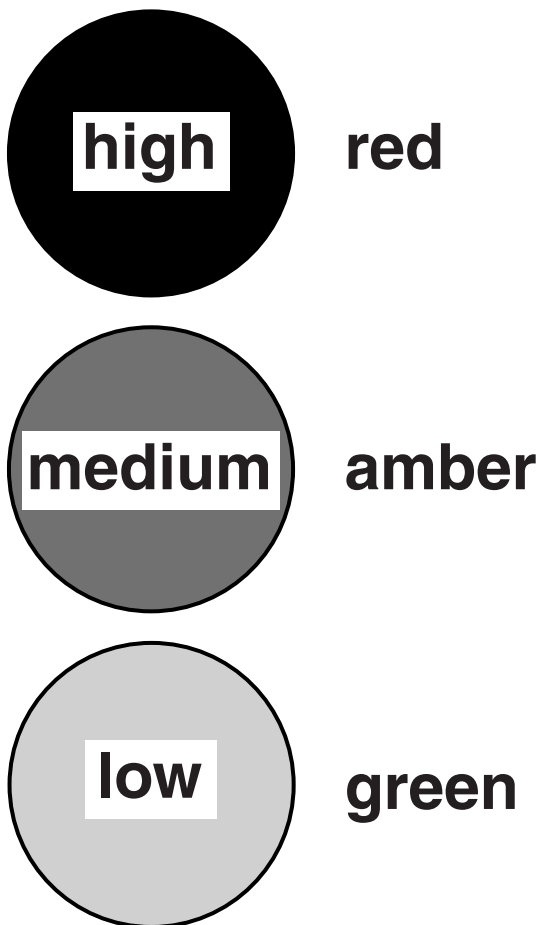
**ECG**

**microscope**

**X ray**

**[1]**

**(c) Perry's medical team produce a rehabilitation programme to help him recover. The dietician gives him advice about healthy eating. She describes the traffic light labelling system on foods. The system helps people to identify healthy foods. Perry can look at the food and see if it has a high, medium or low amount of sugar.**



**The list below shows other ingredients the food may contain.**

**Put a ring around TWO other ingredients that need a green or amber light for a healthy diet.**

**amino acids**

**carbohydrates**

**proteins**

**salt**

**saturated fat**

**water**

**[2]**

**(d) Give the title and role of two OTHER health practitioners on Perry's medical team.**

<b>title 1</b>	<b>role</b>
<b>title 2</b>	<b>role</b>

**[4]**

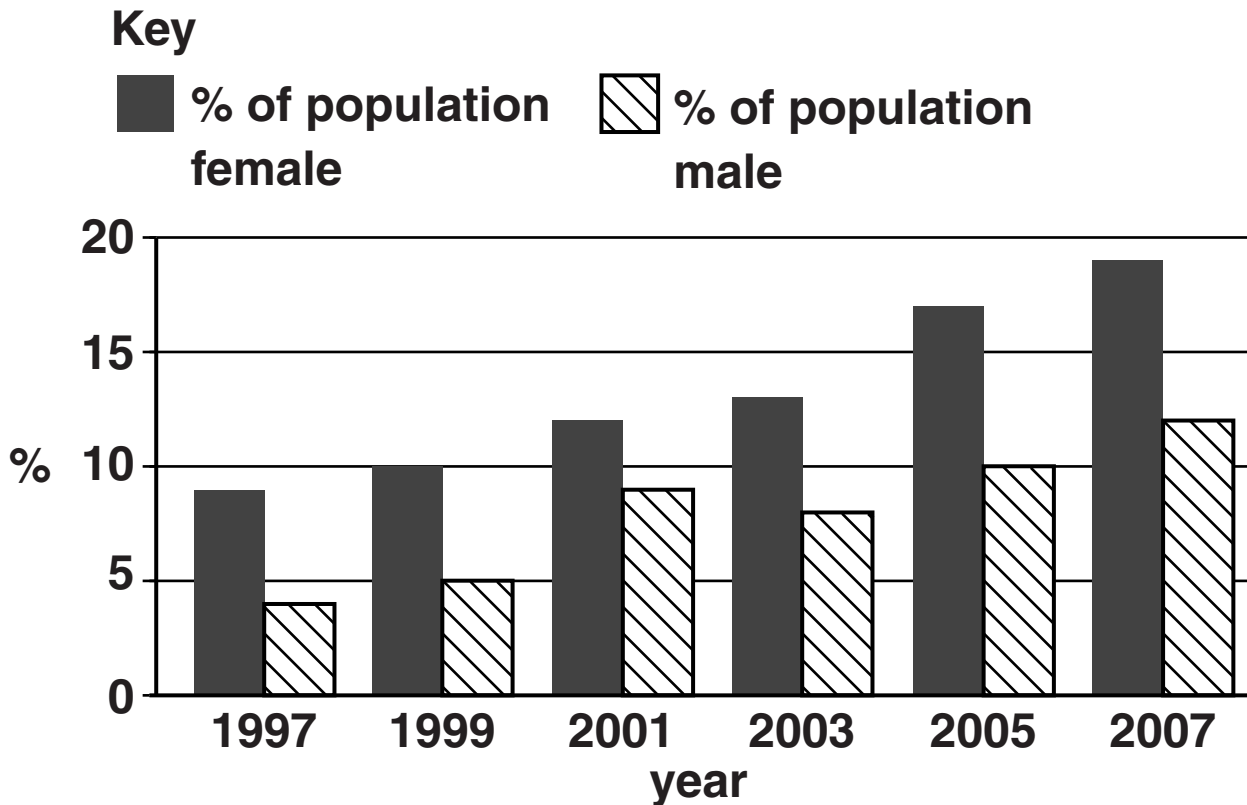
**[Total: 9]**

5 Tracy sees the following headline in a magazine.

## Obesity – the greatest health threat facing the UK

She reads on and comes to this chart.

It shows the percentage (%) of women and men aged 16–25 in the obese category as measured by their BMI (body mass index).



(a) Describe the overall trend for women shown in the chart.

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[1]

(b) Tracy is **20** and worried that she is obese.  
Tracy is **2.0**m tall and has a mass of **124**kg.

(i) Calculate Tracy's BMI.

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

Show your working.

BMI = \_\_\_\_\_ [2]

(ii) The BMI categories are shown in the table below.

<b>BMI</b>	<b>CATEGORY</b>
<b>less than 20</b>	<b>underweight</b>
<b>20–25</b>	<b>normal weight</b>
<b>25.1–29.9</b>	<b>overweight</b>
<b>30 and over</b>	<b>obese</b>

Which category does this put Tracy in?

\_\_\_\_\_ [1]

(c) Tracy decides to join her local fitness centre. She is asked questions about her **LIFESTYLE**. Write down **THREE** lifestyle questions she should be asked before she can join.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

[3]

[Total: 7]

- 6 (a) Anita is pregnant.  
Her body has changed during the pregnancy.  
Describe THREE of these changes.

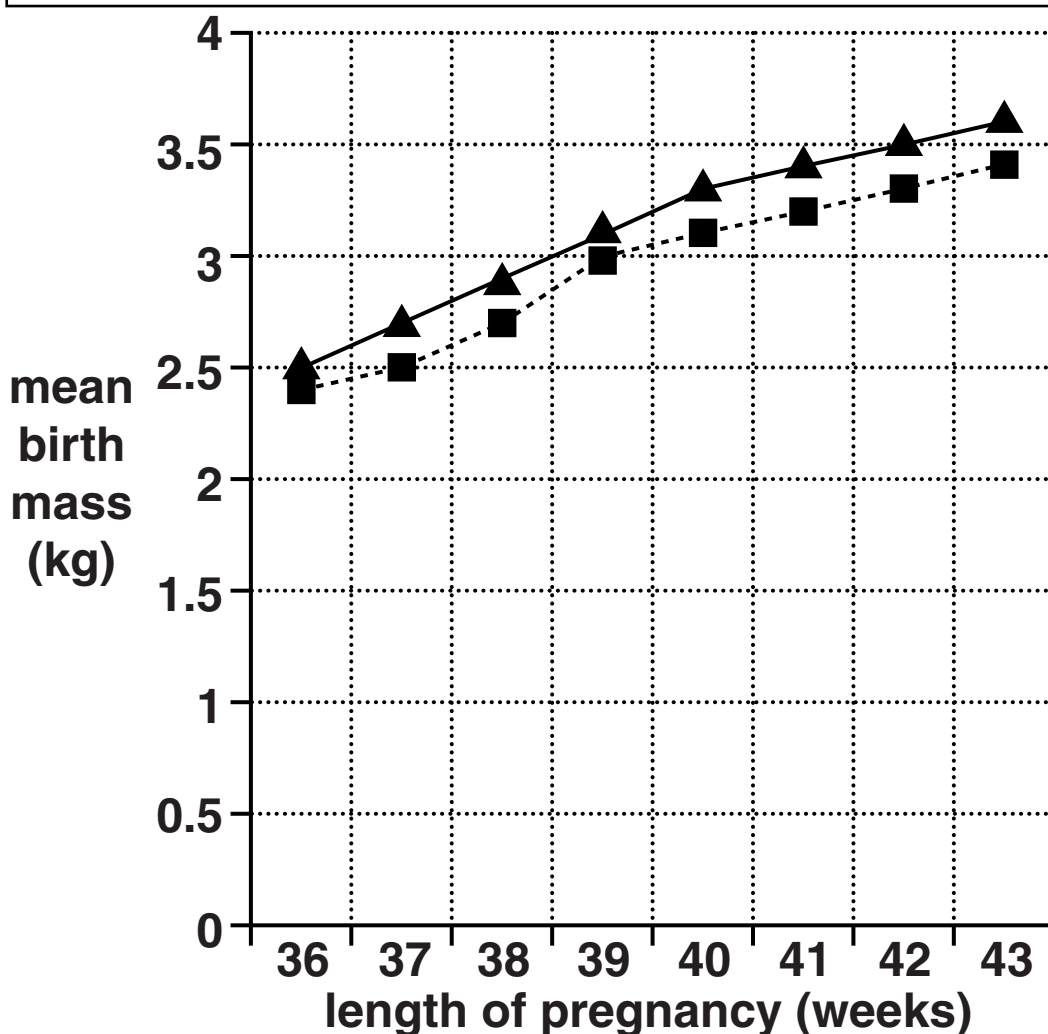
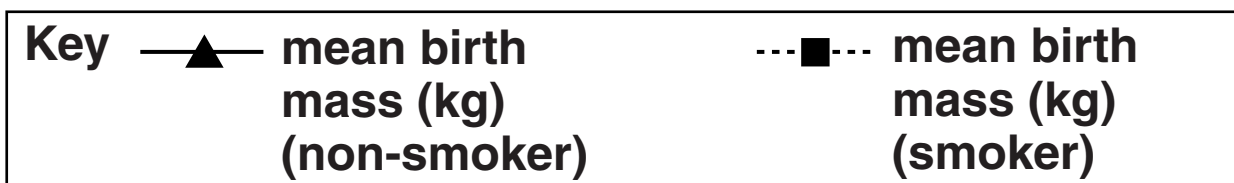
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[3]

- (b) The normal pregnancy time in humans is 40 weeks, but this can vary.  
The graph shows the effects of smoking during pregnancy.





- (i) Anita does not smoke.  
What would be the most likely mass of her baby if it was born at 39 weeks?

answer \_\_\_\_\_ kg [1]

- (ii) Her friend Anju does smoke.  
Suggest why Anju should stop smoking when she is pregnant.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [1]

[Total: 5]

**END OF QUESTION PAPER**

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