Edexcel GCSE

Centre Number

Candidate Number

Biology/Science
Unit B1: Influences on Life

Foundation Tier

Monday 5 November 2012 – Morning
Time: 1 hour

Paper Reference
5BI1F/01

You must have:
Calculator, ruler

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.

Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question*.
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions*.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

PEARSON

Answer ALL questions.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Classification

1   The photograph shows a single-celled bacterium.

(a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer.

Bacteria are classified into the kingdom

(1)

☒ **A** animalia

☒ **B** plantae

☒ **C** fungi

☒ **D** prokaryota

(ii) Complete the sentence by putting a cross (☒) in the box next to your answer.

Bacteria do **not** contain

(1)

☒ **A** a cell membrane

☒ **B** a cell wall

☒ **C** a nucleus

☒ **D** chromosomes

(b) Viruses are not classified into any kingdom.

Describe what a virus does after it has entered its host.

(2)

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(c) All vertebrates have a backbone and are classified into groups.

(i) Use words from the box to complete the sentences about one method of classification.

(2)

| chordates | | oviparous |
| viviparous | hybrids | consumers |

Once fertilisation has occurred some vertebrates lay eggs.

Vertebrates that lay eggs are known as ....

Vertebrates that give birth to live young are known as ....

(ii) Describe **two** other methods scientists can use to place vertebrates into groups.

(2)

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(Total for Question 1 = 8 marks)

Recycling

2   (a) The graph shows some materials recycled in 2004 and 2010.
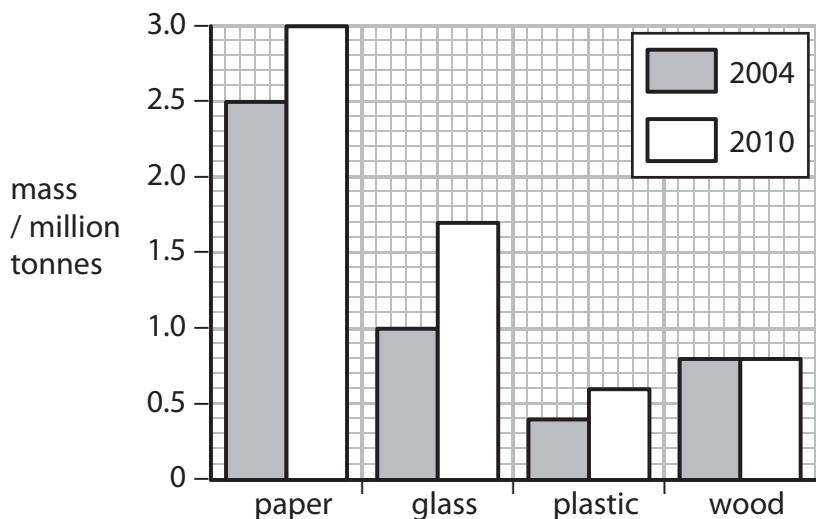
(i)   Calculate the increase in the mass of paper recycled between 2004 and 2010.

(2)

answer = ... million tonnes

(ii) Complete the sentence by putting a cross (☒) in the box next to your answer.

From the graph, the material that is recycled the least is

(1)

☒ **A** glass

☒ **B** paper

☒ **C** plastic

☒ **D** wood

(iii) Suggest **one** reason why a large mass of paper is recycled.

(1)

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(b) Composting is a method used to recycle waste from the garden and kitchen.

Explain how composting increases carbon dioxide concentration in the air.

(2)

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(c) Explain how **one** other human activity contributes to an increase in carbon dioxide concentration in the air.

(2)

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(Total for Question 2 = 8 marks)

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Inheritance

3 (a) The diagram shows a human body cell.

Name the structures labelled **A** and **B**.

(2)

A ....

B ....
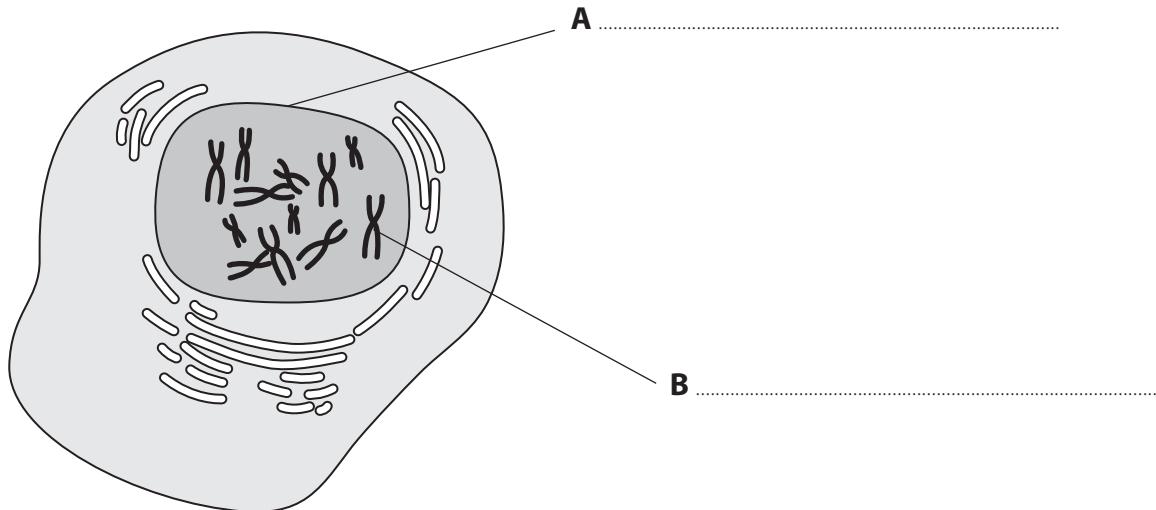
(b) Genes code for the characteristics of an individual.

Different forms of the same gene are called alleles.

(i) Complete the sentence by putting a cross (☒) in the box next to your answer.

The term used to describe an individual with two identical alleles is

(1)

☒ **A** heterozygous

☒ **B** homozygous

☒ **C** dominant

☒ **D** recessive

(ii) Blue eyes are an example of a person's physical characteristics.

State the genetic term for a person's physical characteristics.

(1)

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(c) The diagram shows the inheritance of eye colour in a family.

The allele for brown eyes is **B** and the allele for blue eyes is **b**.
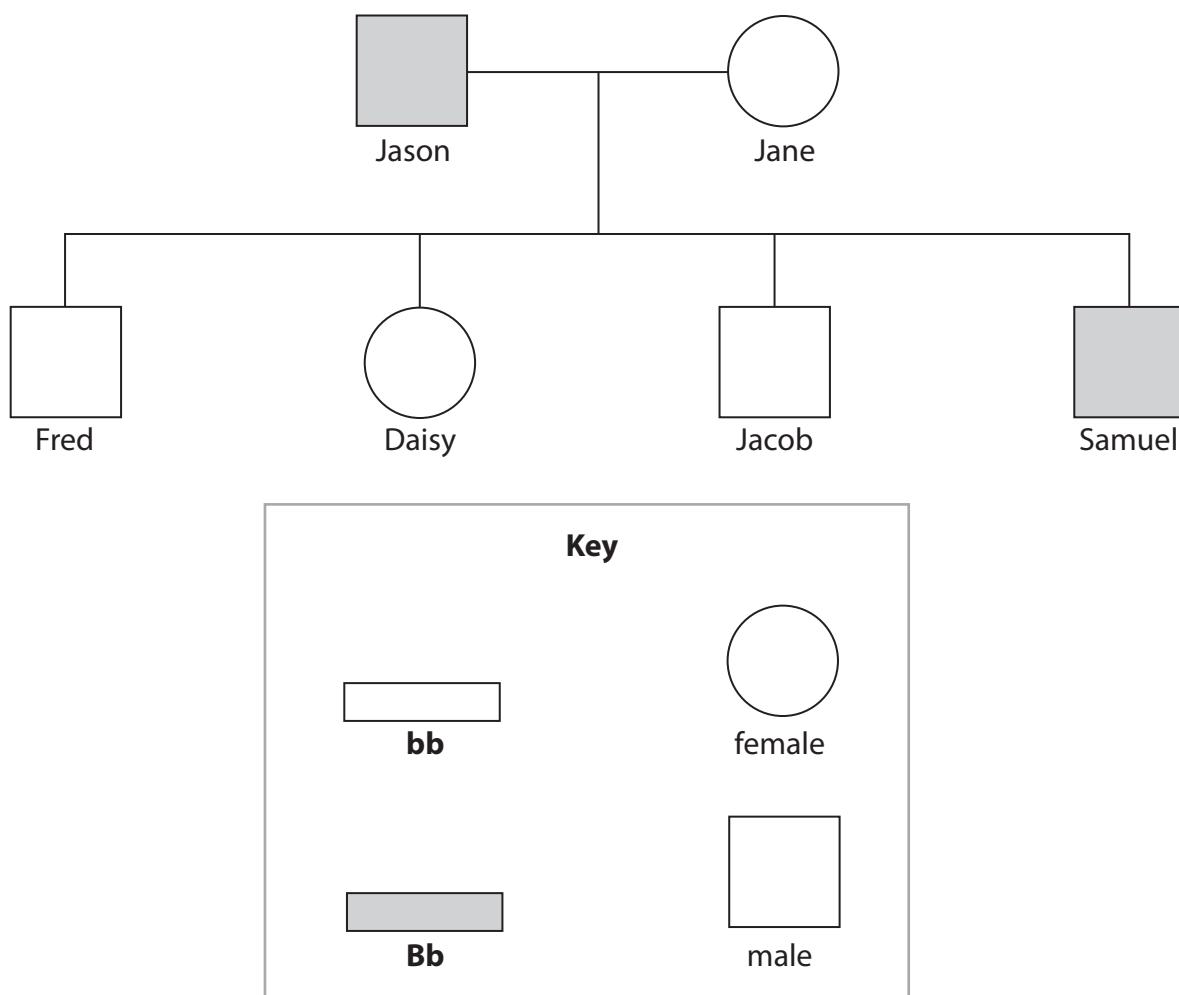
(i) How many offspring have blue eyes?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** 1

☒ **B** 2

☒ **C** 3

☒ **D** 4

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(ii) Explain why none of the children of Jason and Jane have the genotype **BB**.

(2)

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(iii) Fred has an identical twin.

Explain which of the other children is Fred's identical twin.

(3)

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(Total for Question 3 = 10 marks)

Bees and the environment

4 The photograph shows a bee collecting nectar from a flower.

(a) Nectar is made from glucose produced by plants.

Name the process that plants use to make glucose.

(1)

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(b) (i) When the bee collects nectar from the flower, the plant benefits because the pollen sticks to the bee and is carried to another flower.

Complete the sentence by putting a cross (☒) in the box next to your answer.

The relationship between the bee and the plant is an example of

(1)

☒ **A** decomposing

☒ **B** eutrophication

☒ **C** mutualism

☒ **D** parasitism

(ii) Some bees have evolved a new method of collecting nectar from flowers.

They drill a small hole in the base of the flower and collect the nectar through the hole.

This means the pollen does not stick to the bee.

Suggest why this is an advantage to the bees.

(2)

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(c) Bees can sting people.

State the physical barrier of the human body that would have to be broken by the bee sting.

(1)

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(d) Honey produced by bees is a natural antiseptic.

Describe how antiseptics can be used, during food preparation, to prevent the spread of infections.

(2)

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(e) Explain how the human body uses chemical defences to prevent infections.

(3)

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(Total for Question 4 = 10 marks)

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Turn over for Question 5

Blood glucose regulation

5 People with diabetes have difficulties regulating their blood glucose concentration.

The graph shows the percentage of the population with Type 2 diabetes between 1993 and 2000.
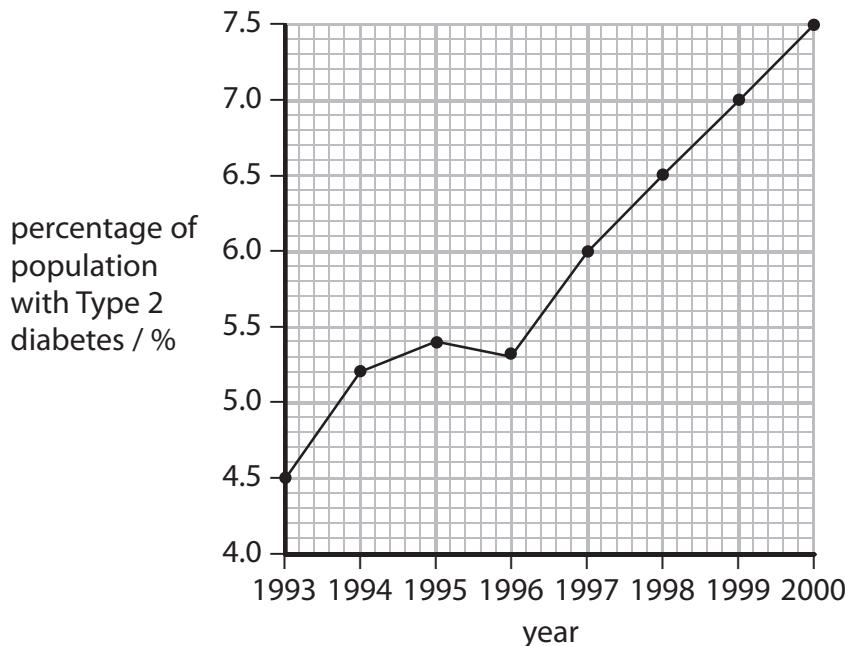
(a) (i) Describe the overall trend shown in the graph.

(1)

....

....

(ii) Calculate the change in the percentage of the population with Type 2 diabetes between 1993 and 2000.

(2)

answer = ...%

(b) People who are obese can develop Type 2 diabetes.

   (i) Body Mass Index (BMI) can be used to indicate obesity.

      Complete the sentence by putting a cross (⊠) in the box next to your answer.

      BMI is calculated using

(1)

   ⊠ **A** mass only

   ⊠ **B** height only

   ⊠ **C** mass and height

   ⊠ **D** mass and blood glucose

   (ii) Suggest why people with a high BMI may develop Type 2 diabetes.

(2)

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*(c) Describe the different methods that people with Type 1 diabetes and Type 2 diabetes use to regulate their blood glucose concentrations.

(6)

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(Total for Question 5 = 12 marks)

Drugs

6   Drugs can affect a person's nervous system.

(a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer.

Alcohol is classed as a

(1)

☒   **A**   depressant

☒   **B**   hallucinogen

☒   **C**   painkiller

☒   **D**   stimulant

(ii) State the effect alcohol has on the time taken to respond to a stimulus.

(1)

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(iii) Drinking excess alcohol over a long period of time can result in alcoholism.

Suggest **two** long-term effects of alcoholism in the human body.

(2)

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(b) Some people drink coffee containing caffeine after drinking alcohol.

Describe the effects of caffeine on the nervous system.

(2)

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*(c) The diagram shows the structure of a motor neurone.

myelin sheath

dendrons

axon
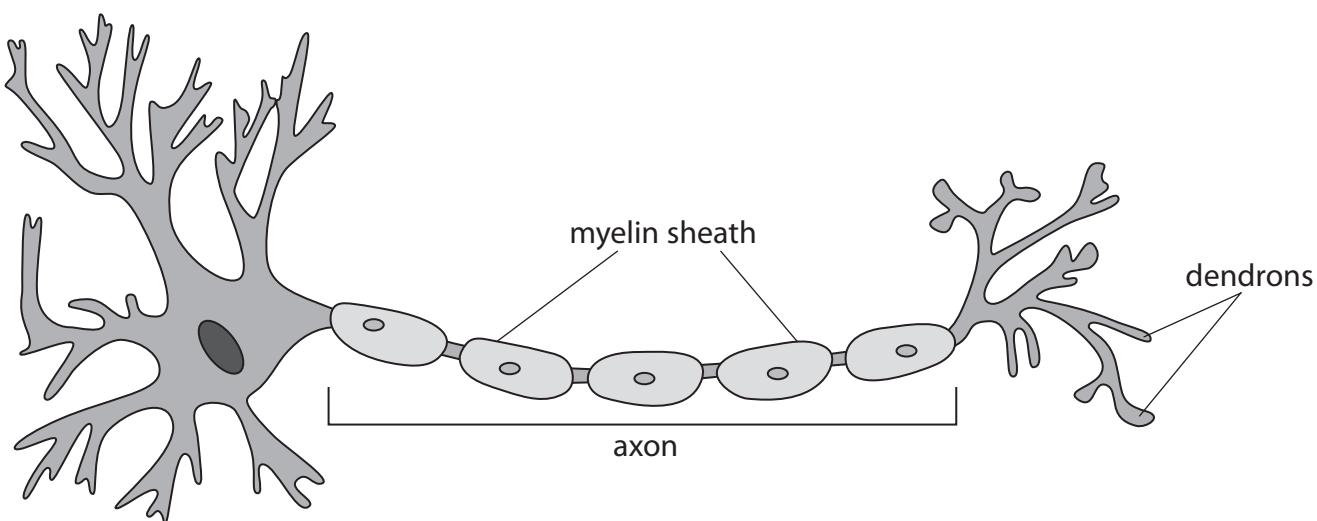
Explain how the structure of the motor neurone relates to its function in carrying messages through the nervous system.

(6)

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(Total for Question 6 = 12 marks)

TOTAL FOR PAPER = 60 MARKS

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