FOR OFFICIAL USE

Total Marks

X055/10/01

NATIONAL QUALIFICATIONS 2012

THURSDAY, 7 JUNE
1.00 PM – 2.30 PM

MANAGING ENVIRONMENTAL RESOURCES
INTERMEDIATE 1

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth
Day Month Year

Scottish candidate number

Number of seat

1 Read the whole of each question carefully before you answer it.

2 Write in the spaces provided.

3 Where boxes like this ☐ are provided, put a tick ✓ in the box beside the answer you think is correct.

4 Try all the questions.

5 Do not give up the first time you get stuck; you may be able to answer later questions.

6 Extra paper may be obtained from the Invigilator, if required.

7 Before leaving the examination room you must give this book to the Invigilator. If you do not, you may lose all the marks for this paper.

SQA ©

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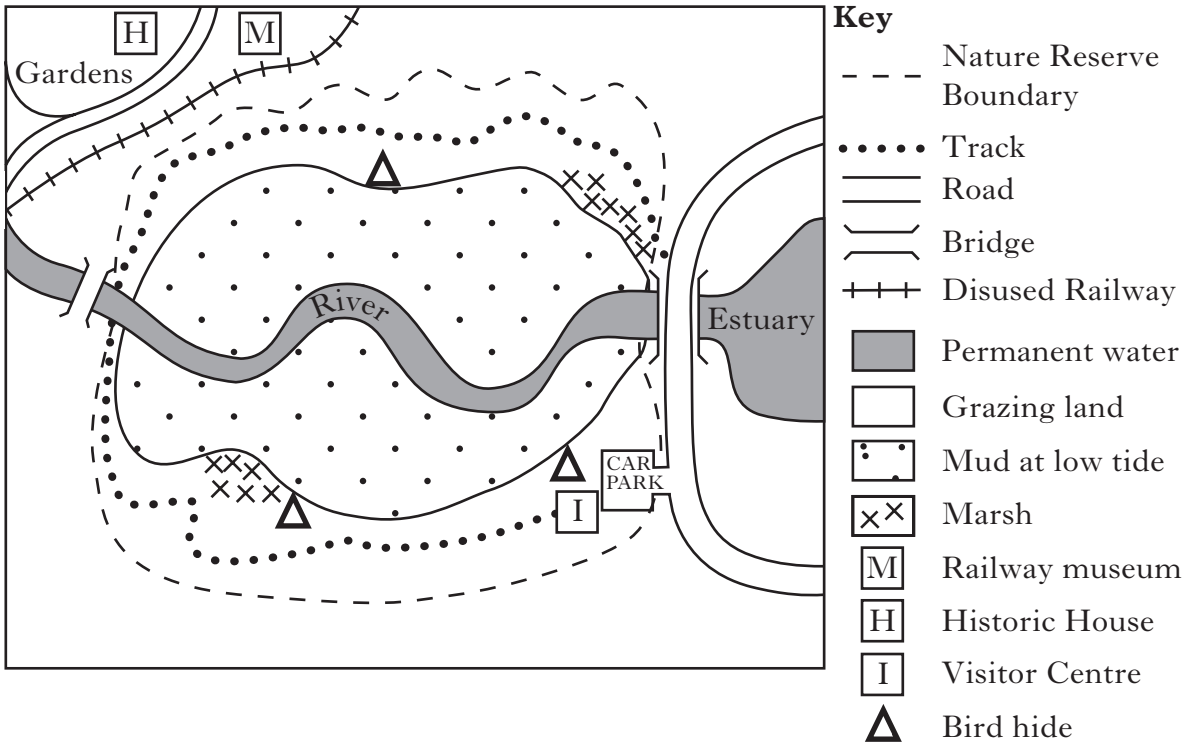
Marks

1. (*a*) The sketch map shows an area of Scotland, which has been developed as a Nature Reserve.



From the sketch map, answer the following questions.

(i) Name **two** natural environments found in the area.

1 _____

2 _____ **2**

(ii) Give **one** example of a semi-natural environment.

_____ **1**

(iii) Give **one** example of a tourist attraction in the area.

_____ **1**

(iv) Suggest **one** recreational activity which takes place in the nature reserve.

_____ **1**

Marks

1. (*a*) (continued)

(v) There are large populations of birds in the area which might be disturbed by people visiting the reserve. Suggest **one** way this has been reduced.

_____ **1**

(*b*) (i) The nature reserve is a designated SSSI. What do these letters stand for?

_____ **1**

(ii) Name **one** environmental organisation which operates at a local level.

_____ **1**

(iii) Name **one** piece of environmental legislation which operates at a local level.

_____ **1**

[Turn over

Marks

2. (*a*) Information about **energy sources** and their **percentage (%)** production is given below.

In 2008, Scotland produced 30 % of its electricity from nuclear fuels. Renewable sources contributed a total of 20 %. 24 % was produced by coal-fired power stations and 26 % by power stations using oil and gas.

(i) Present this information in a table using two headings.

2

(ii) The Scottish Government has set a target of 80 % electricity to be produced from renewable energy sources by 2020. Calculate the increase in percentage production required to meet this target.

Space for calculation

_____ %

1

Marks

2. (continued)

(*b*) Energy sources can have advantages and disadvantages.

(i) Match the energy source with its main disadvantage to the environment.

Energy source	*Disadvantage*
Wind	Acid rain
Coal	Leaks or spills
Nuclear	Visual pollution
Oil	Difficult to dispose of waste

2

(ii) Name **two** renewable sources of energy.

1 _____ 2 _____ **1**

(iii) Give **one** advantage of using a nuclear energy source to produce electricity.

_____ **1**

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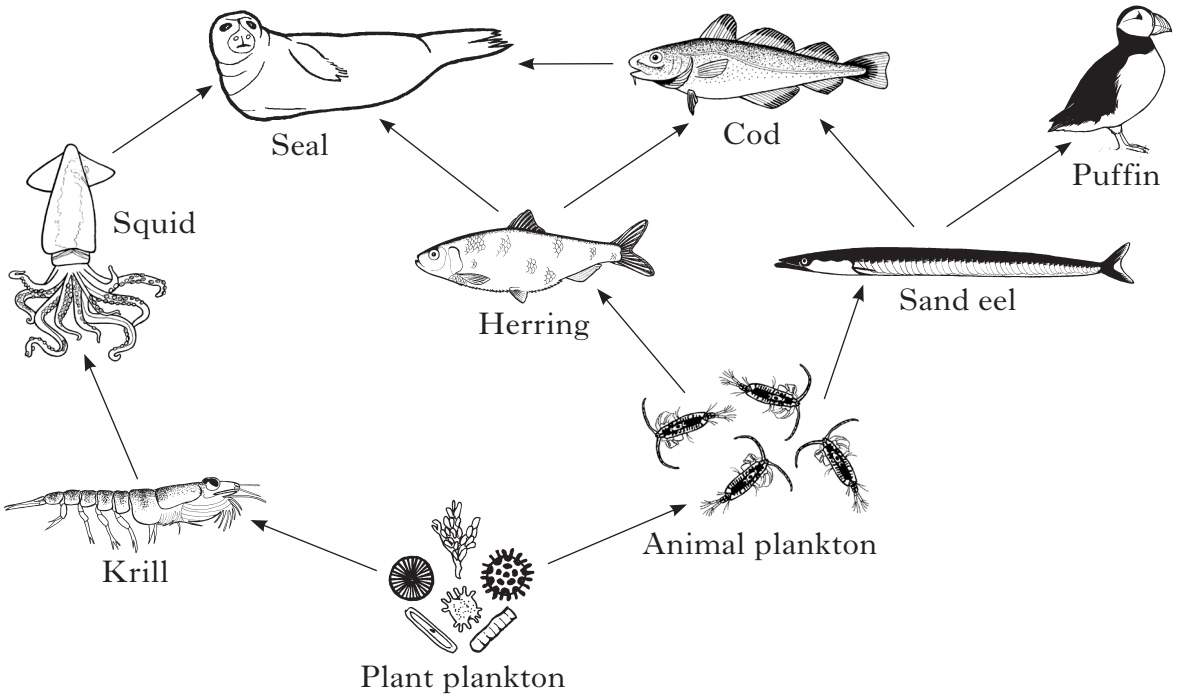
3. The diagram below shows part of a food web in the North Sea.



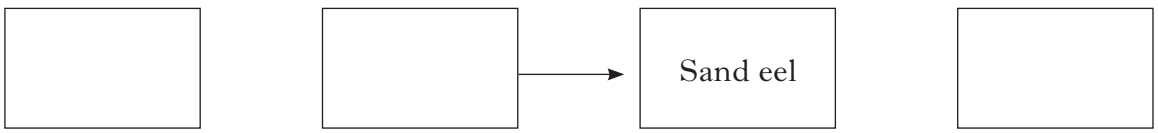
(*a*) Use the diagram to answer the following questions.

(i) Complete the table.

Food web term	*Example from food web*
	Plant plankton
Herbivore	
	Seal

2

(ii) Complete the food chain to show the flow of energy.



2

Marks

3. (*a*) (continued)

(iii) Numbers of plant plankton have decreased recently. (Circle) the correct answer to predict what will happen to squid numbers and give a reason for your answer.

Squid numbers will increase / stay the same / decrease. **1**

Reason _____

_____ **1**

(iv) Name the source of energy for this food web.

_____ **1**

(*b*) Name **one** type of pollution which can affect a marine ecosystem and describe its effect.

Pollution _____

Effect _____

_____ **1**

(*c*) The panda is a mammal in danger of global extinction. Name one **marine** mammal which is in danger of global extinction.

_____ **1**

(*d*) Legislation has limited the number of cod which can be caught. At what level does this legislation operate?

(Circle) your answer.

Local National International **1**

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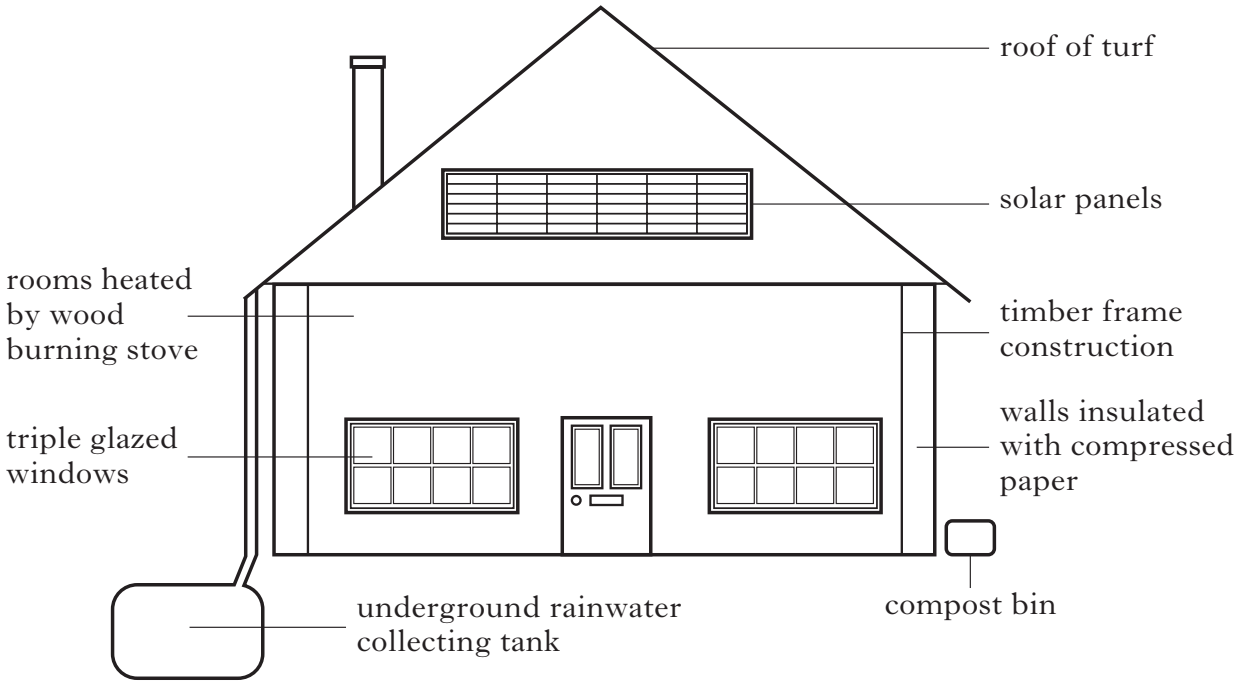
4. (*a*) The diagram below shows some features of an "eco-house".



(i) From the diagram, select **two** features which reduce energy loss.

1 _____

2 _____ **1**

(ii) Name **one** renewable resource which is used in the building of the house.

_____ **1**

(iii) Which word best describes the use of waste paper as wall insulation?

(Circle) the correct word.

reduce reuse recycle **1**

(iv) Waste paper has replaced expanded polystyrene as wall insulation, because the production of expanded polystyrene contributed to the damage of the ozone layer.

Give **one** effect of this damage on human health.

_____ **1**

(v) Name the **type** of organism involved in composting.

_____ **1**

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4. (continued)

(*b*) Give **two** ways in which you personally could reduce energy consumption in your home.

1 _____

2 _____ **2**

[Turn over

Marks

5. (*a*) The number of capercaillie in Scotland is being monitored. The table shows the estimated number of capercaillie between 1970 and 2010.

Year	*Number of capercaillie*
1970	20,000
1991	2,200
1999	1,100
2004	2,000
2010	4,000

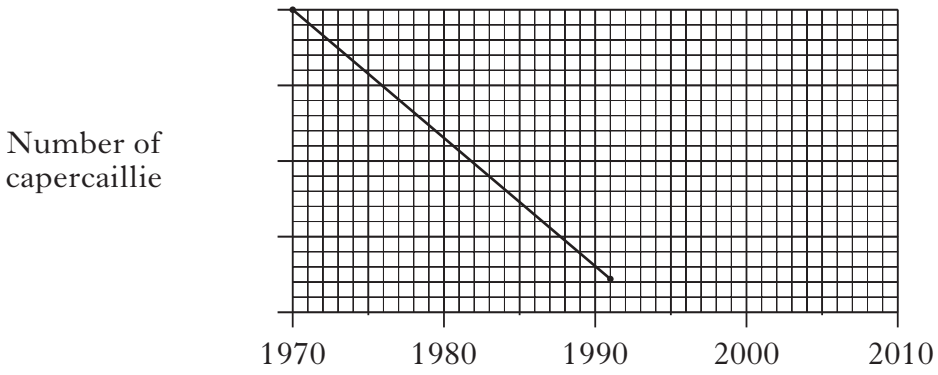
(i) Use this information to complete the graph below by adding:

1 a label to the x (horizontal) axis;

2 a scale to the y (vertical) axis;

3 the points for 1999, 2004 and 2010.

(An additional graph is available on *Page twenty-three*)



3

Marks

5. (*a*) (continued)

(ii) Calculate the ratio of the number of capercaillie in 1970 to the number in 2010. Give the ratio in its simplest form.

Space for calculation

1970 _____ : _____ 2010 **1**

(iii) Give **one** reason why the number of a species is monitored.

_____ **1**

(*b*) Threats to capercaillies include

- Fencing: put up around pinewoods to prevent deer from eating young trees. When the birds fly into this it can cause injury
- Predators: such as pine martens and foxes
- Disturbance: people visiting the pinewoods
- Overgrazing: sheep

Choose **one** of these threats and suggest how it might be reduced.

Threat _____

Suggestion _____

_____ **1**

(*c*) Capercaillie chicks eat insects and berries. What is the name given to this type of feeding?

_____ **1**

(*d*) The Forestry Commission and Scottish Natural Heritage are organisations involved in planting native woodland. Suggest how this could help increase the number of capercaillie.

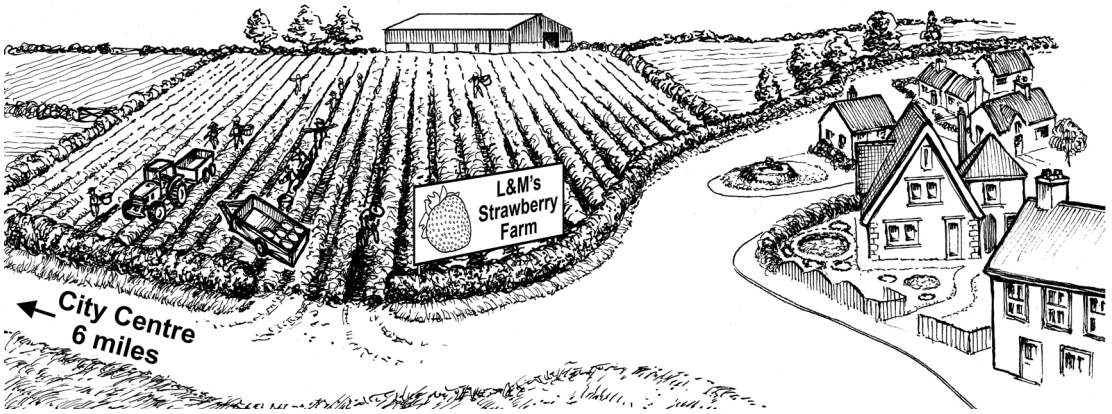
_____ **1**

(*e*) Name **one** organisation which operates at international level to protect the environment.

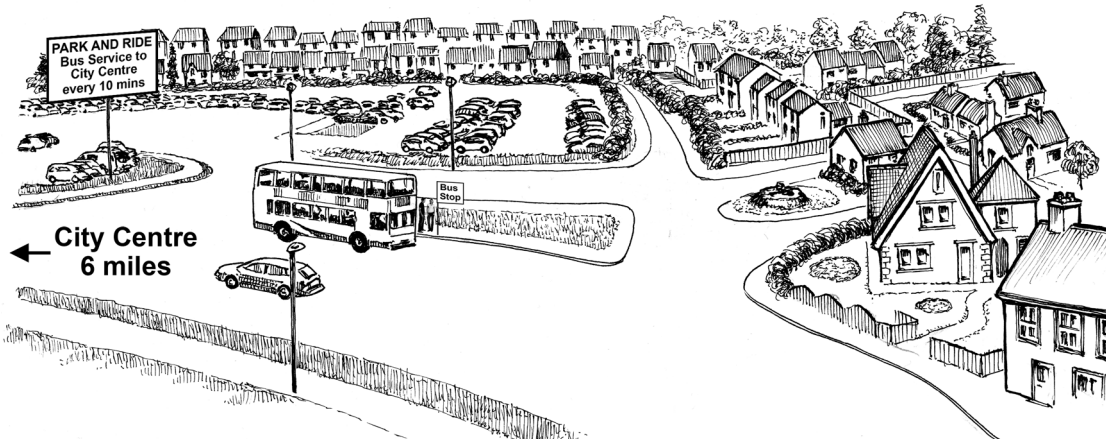
_____ **1**

Marks

6. (*a*) The diagrams below show an area on the outskirts of a city in 1990 and in 2010.



1990



2010

(i) What was the main land use in 1990?

_____ **1**

(ii) (Circle) the main type of environment in 2010.

built semi-natural natural **1**

(iii) Name **one** type of job available in

1990 _____ **1**

2010 _____ . **1**

DO NOT WRITE IN THIS MARGIN

Marks

6. (*a*) (continued)

(iv) Give **two** reasons why park and ride developments are being encouraged.

1 _____ **1**

2 _____ **1**

(v) Give **one** disadvantage of this park and ride development.

_____ **1**

(*b*) Planning permission was required for this development.

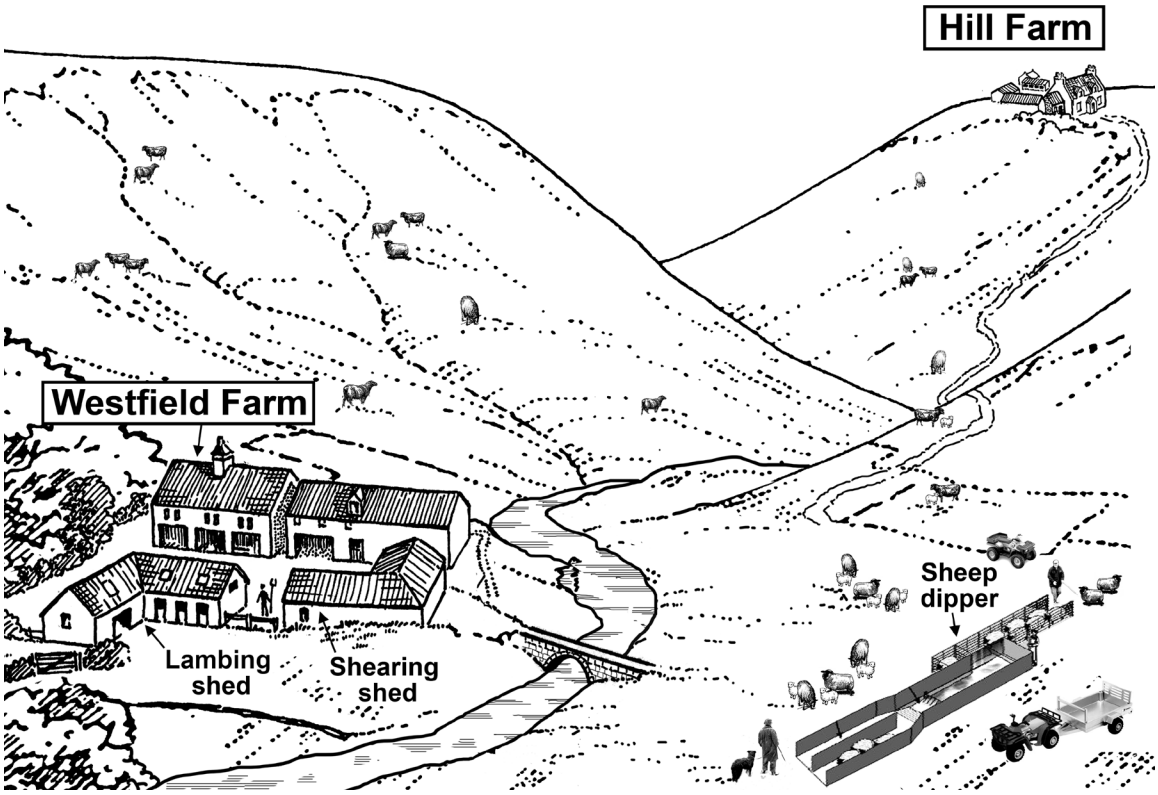
Give **one** reason for this.

_____ **1**

[Turn over

Marks

7. The diagram below shows a sheep-farming area in Scotland.



(*a*) (i) Give **two** physical requirements of a sheep farm.

1 _____

2 _____ **1**

(ii) Name **one** seasonal labour requirement of a sheep farm.

_____ **1**

(iii) Name **one** product obtained from a sheep farm.

_____ **1**

(iv) The dipper is where the sheep are dipped in a chemical to prevent some diseases.

Give **one** reason why the dipper is sited away from the river.

_____ **1**

(v) The river water may be monitored.

Name the national organisation which monitors water quality in Scotland.

_____ **1**

Marks

7. (continued)

(*b*) The table below gives information on four different breeds of sheep.

Breed	*Diet*	*Average number of lambs per sheep*	*Ability to withstand harsh conditions*
Cheviot	Heather	2	Good
Suffolk	Grass	2	Poor
Blackface	Heather	1	Very Good
Texel	Grass	2	Poor

Which breed of sheep would you recommend for **Hill Farm**?
Give a reason for your answer.

Breed _____

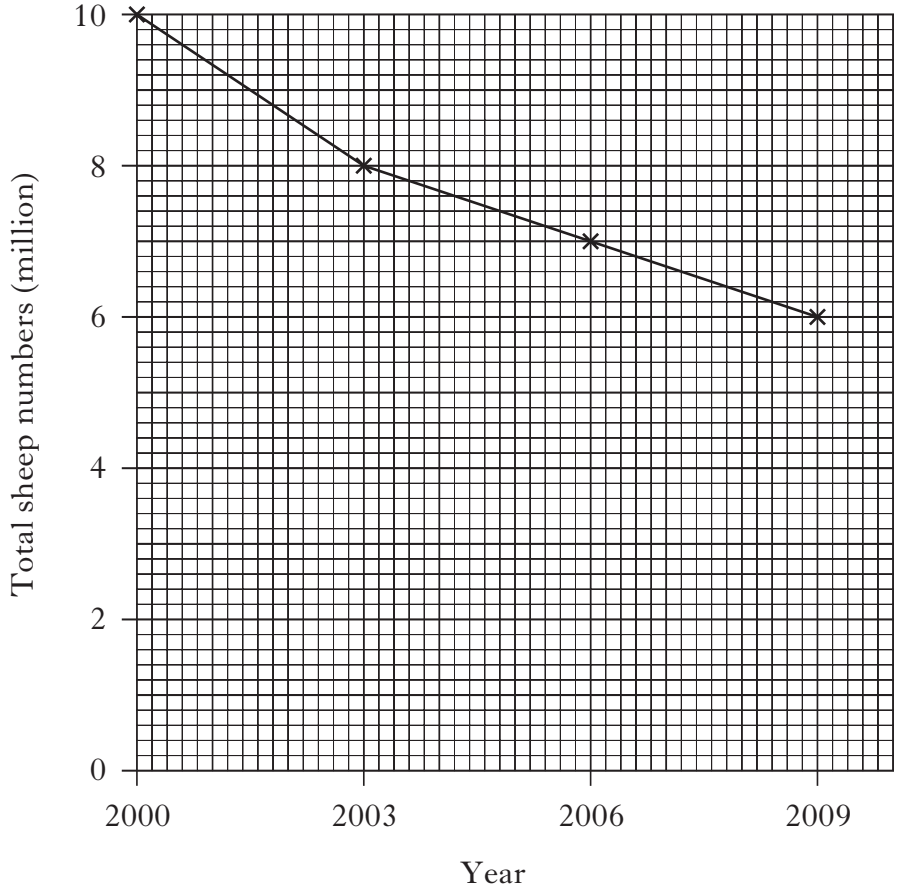
Reason _____ **1**

[Turn over

Marks

7. (continued)

(*c*) The graph below shows the changes in total sheep numbers between 2000 and 2009.



(i) Describe the general trend in total sheep numbers shown on the graph.

_____ **1**

(ii) Suggest **one** reason for this trend.

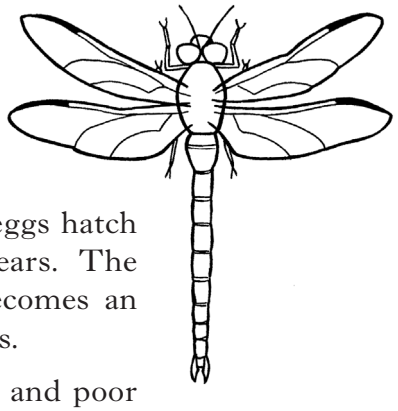
_____

_____ **1**

Marks

8. Read the passage below and answer the questions that follow.

Dragonflies



Dragonflies are flying insects, with fossil records dating back 350 million years. There are 39 species found in Britain, of which 13 species are found in the wetland areas of the Cairngorms National Park.

The female lays eggs directly into water. The eggs hatch into the nymph stage which can last up to five years. The nymph leaves the water, sheds its skin and becomes an adult. The adults only live for about 3 to 4 weeks.

The main threats to dragonflies are habitat loss and poor weather conditions.

(*a*) (i) Calculate the percentage of British dragonfly species found in the Cairngorms National Park.

Space for calculation

_____ % **1**

(ii) Where does the dragonfly spend most of its life?

_____ **1**

(iii) Suggest how global warming could affect the number of dragonfly species in the Cairngorms National Park. (Circle) your choice and give a reason for it.

The number of dragonfly species would
decrease
increase
stay the same.

Reason _____

_____ **1**

(*b*) Name **one** piece of equipment suitable for catching adult dragonflies in an environmental study.

_____ **1**

Marks

8. (continued)

(*c*) Explain why it is important to return all organisms to their habitat after an investigation.

_____

_____ **1**

(*d*) The Cairngorms National Park is an initiative for the protection of the environment.

Name **one** other initiative which operates at national level.

_____ **1**

(*e*) Name **one** species under threat of extinction in Scottish wetland.

_____ **1**

(*f*) Complete the following definition of an ecosystem.

Ecosystem = Community +_____ **1**

Marks

8. (continued)

(*g*) The key below can be used to identify some species of male dragonflies found in the Cairngorms National Park.

Key for some male dragonflies

1	Total body length less than 50 mm	go to 2
	Total body length 50 mm and over	go to 3
2	Dark red or orange abdomen	Common Darter
	Paired red spots on abdomen	Black Darter
3	Yellow edged wings	Common Hawker
	Wings without yellow edge	go to 4
4	Paired blue spots on abdomen	Azure Hawker
	Yellow bands on abdomen	Golden-ringed Dragonfly

Use the key to

(i) describe **fully** the Common Hawker;

_____

_____

_____ **2**

(ii) give **one** similarity and **one** difference between the Black Darter and the Azure Hawker.

Similarity _____ **1**

Difference _____

_____

_____ **1**

[Turn over

DO NOT WRITE IN THIS MARGIN

Marks

9. A group of students carried out an investigation in their school grounds.

They counted the numbers of daisies and buttercups at five sites (A to E). They also measured the soil moisture on a scale of 1 to 10 where 1 is driest and 10 wettest.

The results of their investigation are shown below:

Sampling Site	*Soil moisture reading*	*Number of daisies*	*Number of buttercups*
A	3	9	1
B	5	8	2
C	7	5	10
D	8	2	11
E	8	0	13

(*a*) (i) (Circle) the correct word in the sentence below to make a valid conclusion from these results.

As the soil moisture increases the number of daisies

increases / *decreases*. **1**

(ii) In the year following this investigation the rainfall was very low.

Predict what effect this would have on the number of buttercups.

_____ **1**

(iii) Name **one** other abiotic factor that the students could measure in their investigation.

_____ **1**

(iv) Name **one** piece of equipment you could use to estimate the number of daisies and buttercups.

_____ **1**

(v) Describe how you could measure the soil moisture at A then B.

_____

_____

_____ **2**

Marks

9. (continued)

(*b*) The school is working towards an environmental award, but there is a problem of litter in the playground. The students did a litter pick to find out how bad the problem was.

The results of their pick are shown in the table below:

Type of Litter	*Number*
Crisp Packets	20
Sweet Wrappers	15
Drinks Cans	11
Waste Food	8

Complete the bar chart on the grid below by adding:

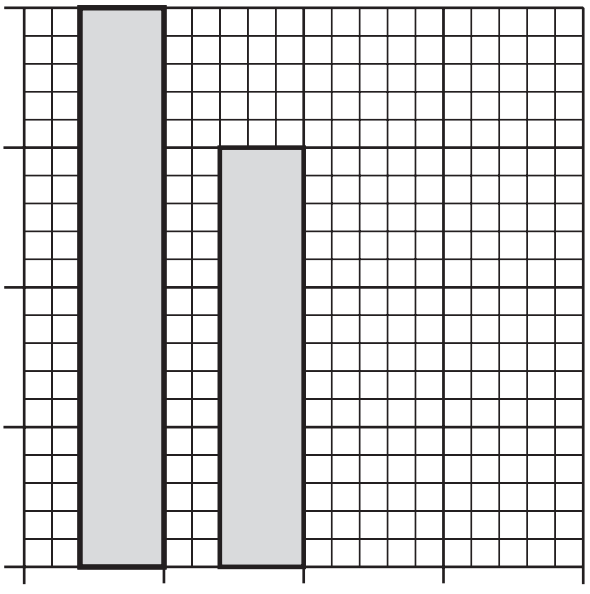
(i) a scale to the y (vertical) axis; **1**

(ii) labels to the x (horizontal) axis; **1**

(iii) bars for 'drinks cans' and 'waste food'. **1**

(An additional bar chart is available on *Page twenty-three*)

Number



[Turn over for Question 9(*c*) on *Page twenty-two*

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Marks

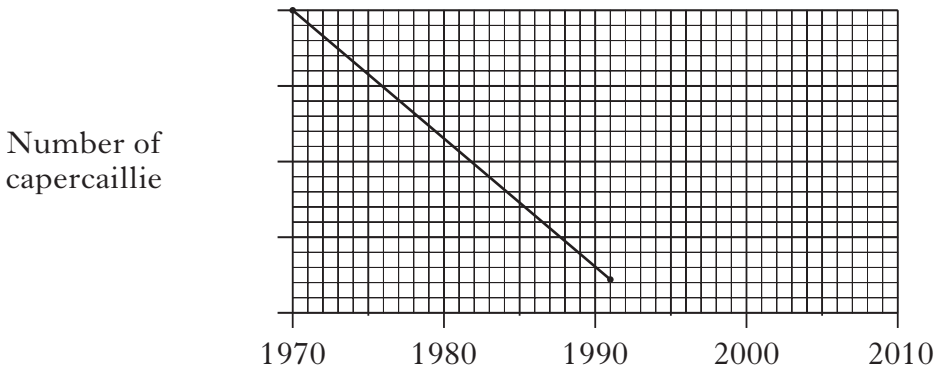
9. (continued)

(*c*) Suggest **one** way the school could solve the litter problem.

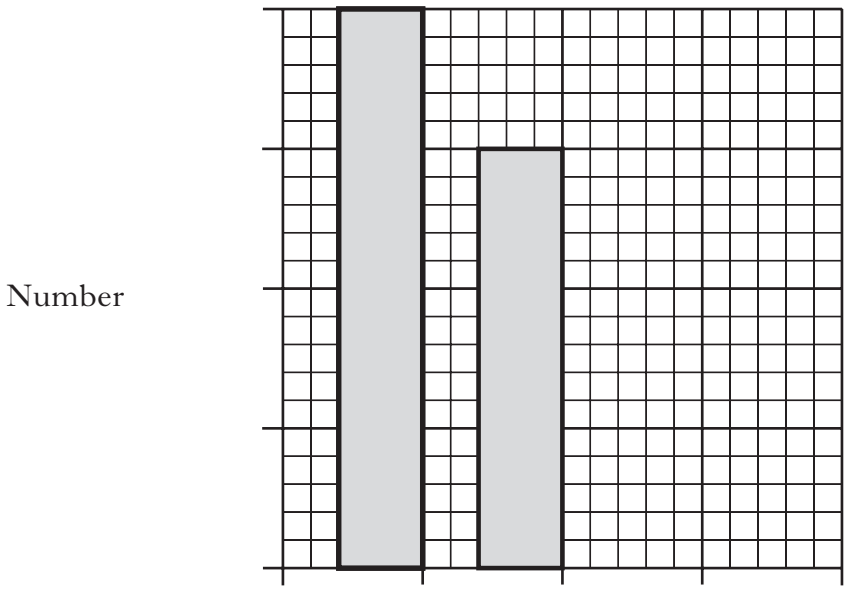
_____ **1**

[*END OF QUESTION PAPER*]

ADDITIONAL GRAPH FOR QUESTION 5(*a*)(i)



ADDITIONAL BAR CHART FOR QUESTION 9(*b*)



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