FOR OFFICIAL USE

Total Marks

X055/101

NATIONAL QUALIFICATIONS 2010

WEDNESDAY, 9 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.

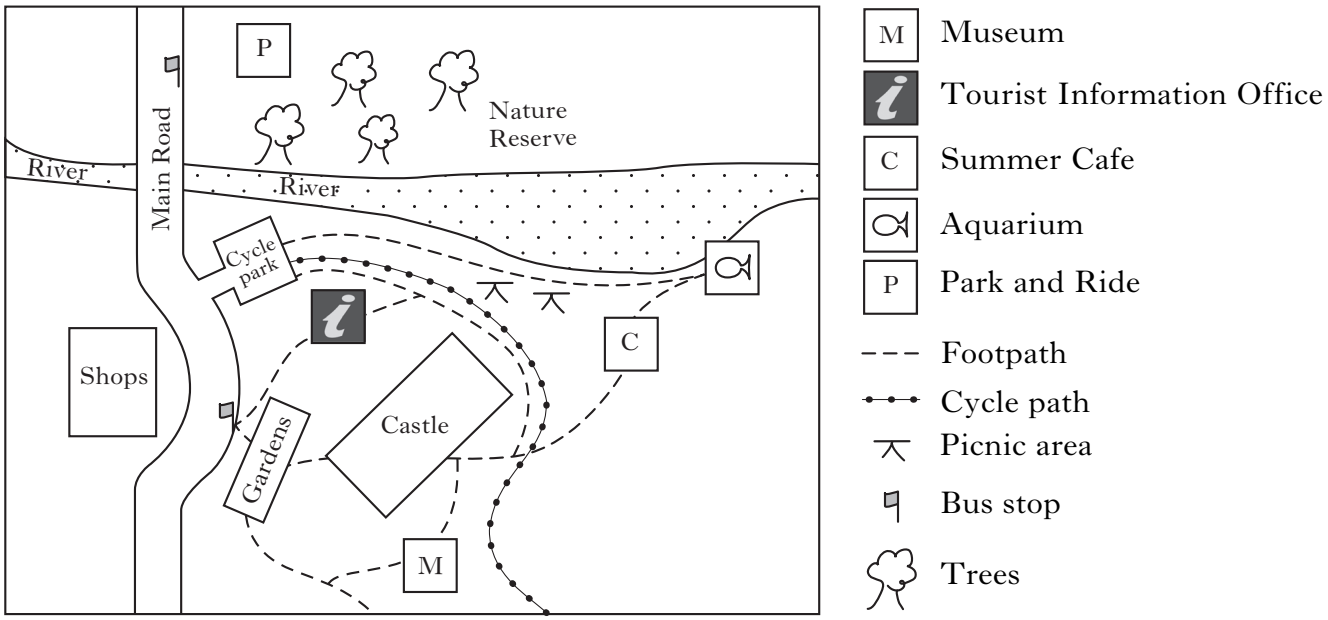
4 Try all the questions.

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.

1. The sketch map below shows part of the centre of a small tourist town.



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Marks

(*a*) From the sketch map, answer the following questions.

(i) Give **one** example of each of the following environments.

1 Natural _____

2 Semi-natural _____

3 Built _____ **2**

(ii) The castle is an example of a tourist attraction.

Name **two** other examples of tourist attractions in this town.

1 _____

2 _____ **2**

(iii) Suggest **one** seasonal job opportunity there could be in this town.

_____ **1**

(iv) Give **two** ways in which a reduction in car traffic is being encouraged.

1 _____

2 _____ **2**

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1. (*a*) (continued)

(v) Give **one** advantage and **one** disadvantage of this reduction in traffic.

Advantage _____

Disadvantage _____ **2**

(*b*) A ranger service is based at the nature reserve.

Suggest **one** way in which the ranger service can help to protect this environment.

_____ **1**

(*c*) A bye-law has been passed to reduce dog-fouling.

(i) This is an example of legislation at which level?

Tick (✓) the correct box.

☐ Local

☐ National

☐ International **1**

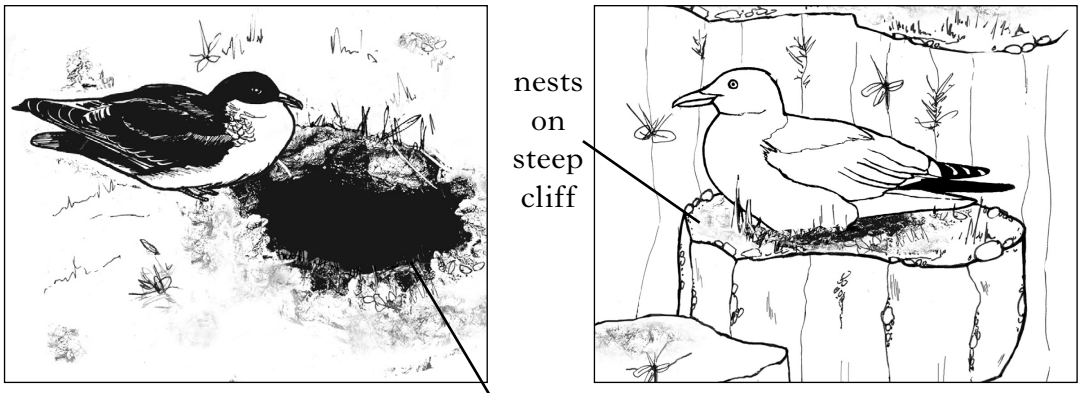
(ii) Suggest how the local council could encourage people to reduce the problem of dog-fouling.

_____ **1**

[Turn over

Marks

2. The Manx shearwater and the Herring gull are seabirds which breed on a Scottish island.



Manx shearwater

Herring gull

The numbers of Manx shearwater have decreased due to rats eating their eggs and chicks.

In an attempt to increase the numbers of Manx shearwater, all the rats were poisoned.

(*a*) (i) Explain why it was important that **all** the rats on the island were poisoned.

_____ **1**

(ii) The cost of poisoning one rat was £50. The number of rats on the island was estimated to be 10,000.

Calculate the total cost of this poisoning.

Space for calculation

£_____ **1**

DO NOT WRITE IN THIS MARGIN

Marks

2. (*a*) (continued)

(iii) Rat control experts came from New Zealand to poison the rats.

Suggest **one** disadvantage of using experts from New Zealand.

_____

_____ **1**

(iv) Tick (✓) **one** box to show what you think would happen to biodiversity on the island after all the rats had been poisoned and give a reason for your answer.

Biodiversity increases ☐

decreases ☐

stays the same. ☐ **1**

Reason_____

_____ **1**

(v) Rats did not prey on the eggs and young of Herring gulls as much as they did on the Manx shearwater.

Suggest a reason why.

_____ **1**

(*b*) Scottish Natural Heritage (SNH) funded this project on the island.

Name **one** other national organisation for the protection of the environment.

_____ **1**

(*c*) Name **one** bird that is in danger of extinction in Scotland.

_____ **1**

[Turn over

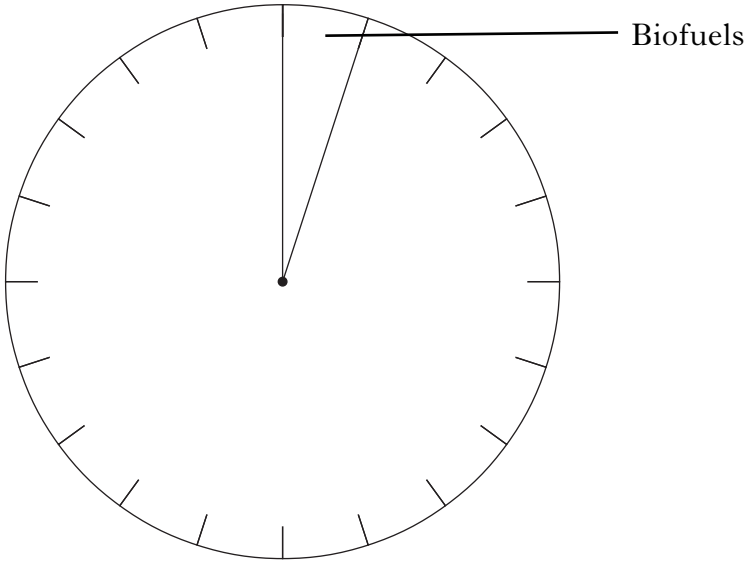
Marks

3. (*a*) The table below shows the percentage of electricity generated from renewable sources in 2006.

Renewable energy source	*Percentage of electricity generated*
Hydro	50
Wind	40
Biofuels	5
Other renewable sources	5

(i) Use the information in the table to complete the pie chart below.

(An additional pie chart is available on *Page twenty-one*)



2

(ii) A total of 2,400 megawatts of electricity were generated from renewable sources.

Calculate how many megawatts were generated by wind.

Space for calculation

Answer _____ megawatts **1**

DO NOT WRITE IN THIS MARGIN

Marks

3. (continued)

(*b*) Give **one** advantage and **one** disadvantage of using wind to generate electricity.

Advantage _____

Disadvantage _____ **2**

(*c*) Acid rain can be formed when fossil fuels are used to generate electricity.

Describe fully **one** effect of acid rain on the environment.

_____

_____ **2**

(*d*) Suggest **two** ways in which you personally can reduce energy use at home.

1 _____

2 _____ **2**

[Turn over

Marks

4. Read the passage below and answer the following questions.

The gas nitrogen trifluoride (NF_3) is used when plasma screen televisions are made. It is used to clean the plasma screens. During this process some of the NF_3 can escape into the atmosphere.

Scientists monitor levels of NF_3 in the atmosphere. NF_3 can trap 17,000 times more heat than carbon dioxide. This could have serious consequences for the global environment.

Liquid crystal display (LCD) television screens do not require any NF_3 in their manufacture. However, the size and quality of LCD screens are not always as good as plasma screens.

(*a*) Which gas traps more heat in the atmosphere?

_____ **1**

(*b*) (i) Some scientists believe that increasing levels of NF_3 and carbon dioxide could cause global warming.

Give **one** major world-wide effect of global warming.

_____ **1**

(ii) Name **one** international initiative which monitors and protects the environment.

_____ **1**

(*c*) Which type of television, plasma or LCD, would you choose?

Give **one** advantage and **one** disadvantage of your choice.

Television type_____

Advantage _____

Disadvantage _____ **2**

DO NOT WRITE IN THIS MARGIN

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4. (continued)

(*d*) (i) Old televisions should be disposed of in a way which allows recycling.

Suggest **one** way this could be done.

_____ **1**

(ii) Name **two** other types of household waste which can be recycled.

1 _____

2 _____ **1**

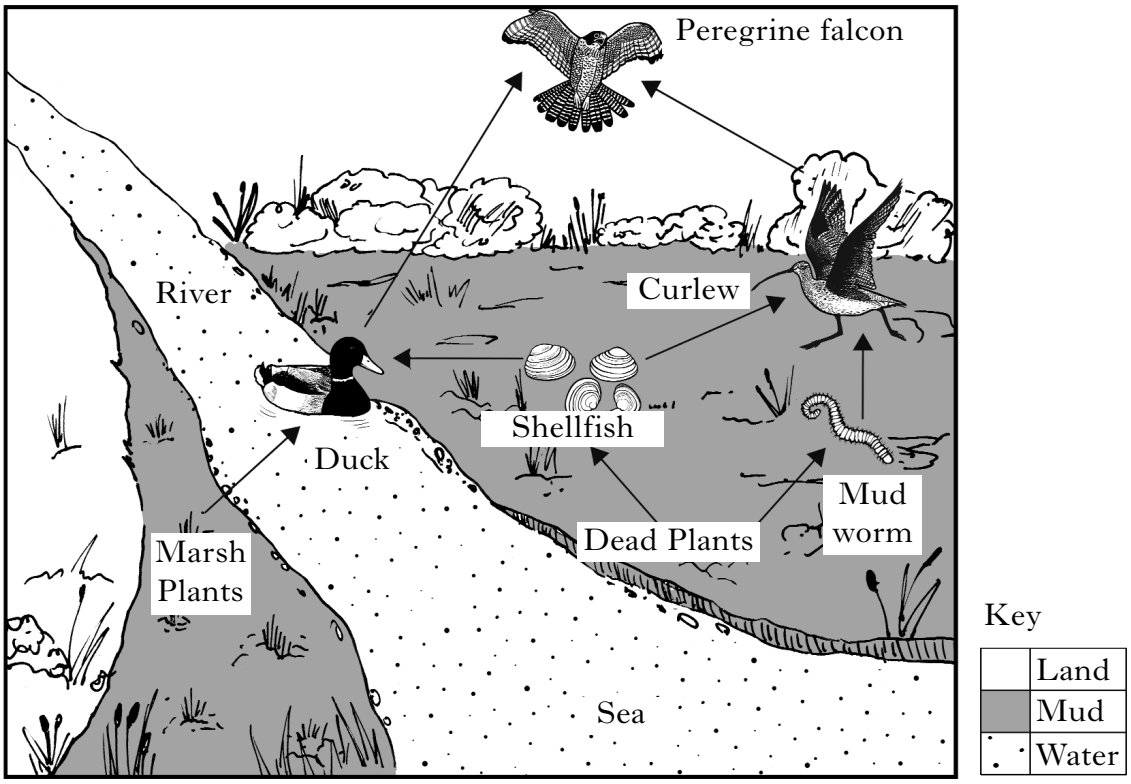
(*e*) Human activity can also damage the ozone layer in the atmosphere.

Give **one** effect this can have on human health.

_____ **1**

[Turn over

5. (*a*) The diagram below shows part of a food web in a river estuary.



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From the diagram

(i) Give **one** omnivore.

_____ **1**

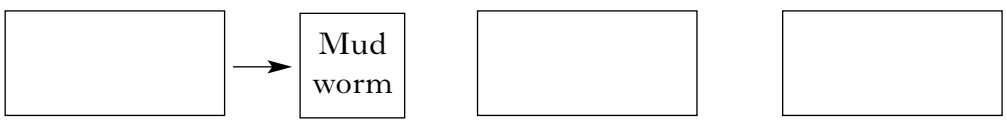
(ii) What name is given to the type of organism like the Mud worm that feeds on dead and decaying material?

_____ **1**

(iii) What do the arrows represent?

_____ **1**

(iv) Complete the food chain below.



2

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5. (*a*) (continued)

(v) Name **two** habitats found in this river estuary.

1 _____

2 _____ **1**

(*b*) State the source of all energy entering a food web.

_____ **1**

(*c*) Give **one** way in which energy is lost from a food chain.

_____ **1**

(*d*) Complete the following:

Ecosystem = Habitat + _____ **1**

[Turn over

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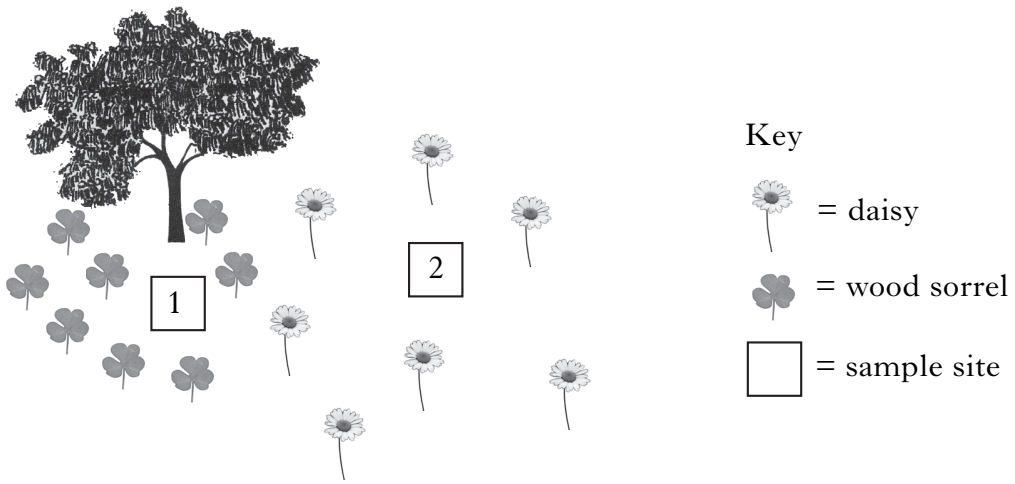
6. (*a*) A group of students investigated the distribution of two types of plant, daisy and wood sorrel in the school grounds.

The diagram below shows their distribution.



The light intensity was measured at two sample sites, 1 and 2.

Five readings were taken at each site.

The results are shown in the following table.

Sample site	*Light Intensity Reading*				
1	B	B	A	A	B
2	H	G	G	H	A

Light Intensity Scale: A B C D E F G H

Low ◄——————► **High**

(i) From the results, circle the reading in the table which appears to be incorrect. **1**

(ii) Suggest what may have caused this incorrect result.

_____

_____

_____ **1**

DO NOT WRITE IN THIS MARGIN

Marks

6. (*a*) (continued)

(iii) Explain why the students took five readings at each site.

_____ **1**

(iv) Give **one** piece of evidence from the diagram and **one** piece of evidence from the results table which show that wood sorrel prefers low light intensities.

1 Evidence from diagram _____

_____

2 Evidence from results table _____

_____ **2**

(*b*) Light intensity is an abiotic factor.

Name **one** other abiotic factor.

_____ **1**

(*c*) A quadrat is used to sample plants.

Describe how a quadrat is used.

_____

_____

_____ **2**

(*d*) The students want to increase biodiversity in the school grounds.

Suggest **two** ways in which they could do this.

1 _____

2 _____ **2**

[Turn over

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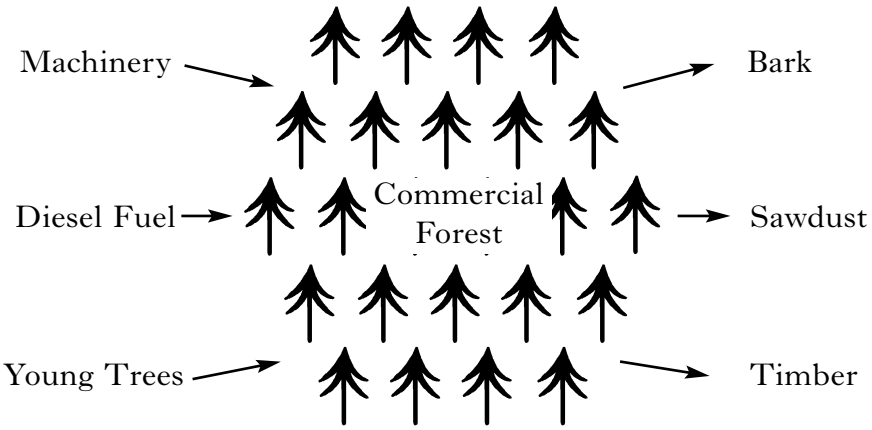
7. (*a*) The diagram below shows some of the inputs and the outputs of a commercial forest.



From the diagram

(i) Name **one** input which is a renewable resource

_____ **1**

(ii) Give the full range of products from this commercial forest.

_____ **1**

(*b*) Give **two** uses of timber.

1 _____

2 _____ **1**

(*c*) The public is allowed access into forests for recreational purposes.

Suggest **two** recreational uses of a forest.

1 _____

2 _____ **1**

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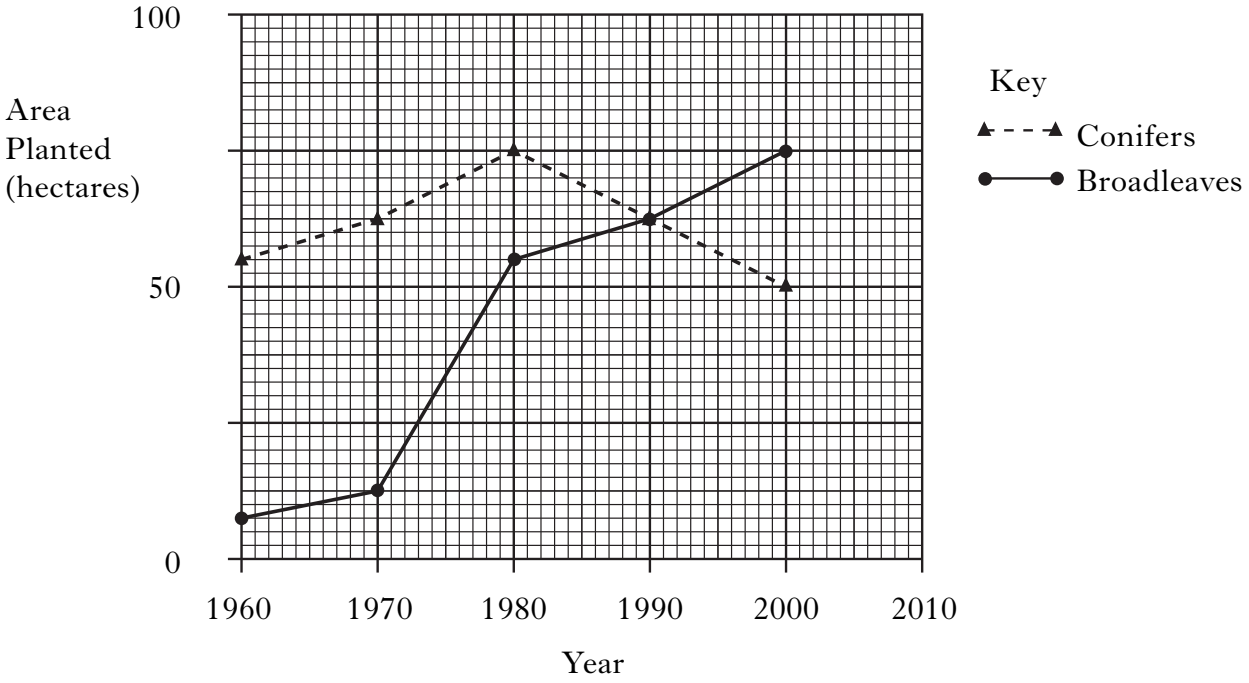
7. (continued)

(*d*) The graph below shows the area of broadleaf and conifer trees planted on a Scottish estate between 1960 and 2000.



(i) During which period did the area of broadleaf species being planted increase the most? Tick (✓) the correct box.

1960 - 1969	
1970 - 1979	
1980 - 1989	

1

(ii) In which year were equal areas of conifers and broadleaf species planted?

_____

1

(iii) Predict what will be the area of conifers being planted in 2010.

_____ hectares

1

[Turn over

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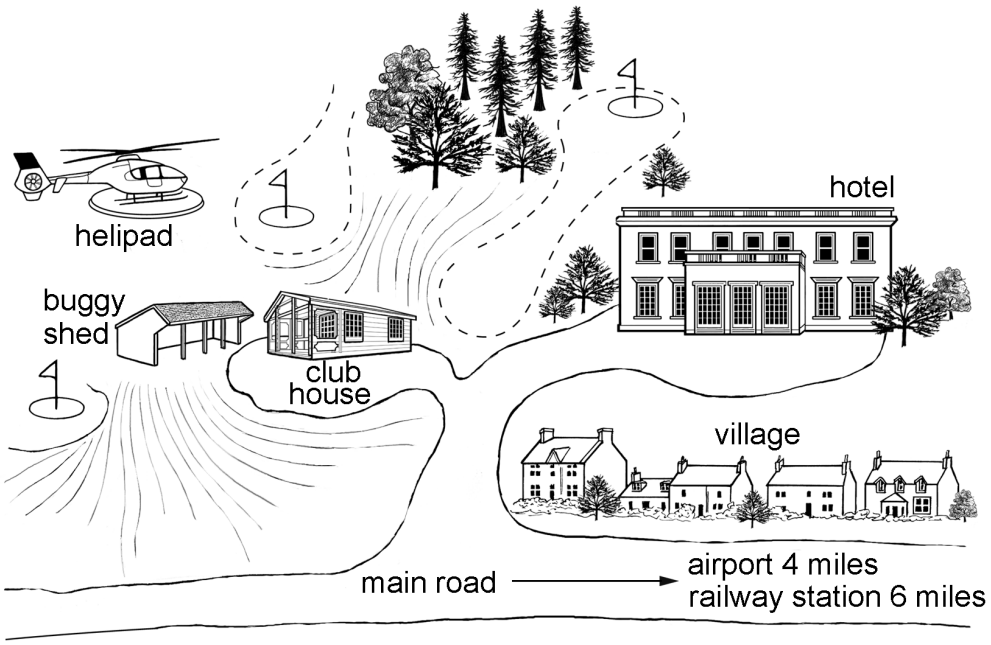
8. (*a*) The diagram below shows a hotel with its new golf course.



(i) Give **one** physical requirement of a golf course.

_____ **1**

(ii) Give **one** advantage of this golf course to visitors from overseas.

_____ **1**

(iii) Suggest **two** reasons why the helipad is sited at a distance from the hotel and the village.

1 _____ **1**

2 _____ **1**

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8. (continued)

(*b*) Give **one** advantage and **one** disadvantage to the villagers of building the golf course.

Advantage _____ **1**

Disadvantage _____ **1**

(*c*) Planning permission was required before the golf course was built.

Give **one** reason for this.

_____ **1**

(*d*) The golf course was built next to an SSSI which has a rare orchid.

What do the letters SSSI stand for?

_____ **1**

(*e*) The golf club wishes to increase its membership. Suggest **one** way this could be achieved.

_____

_____ **1**

[Turn over

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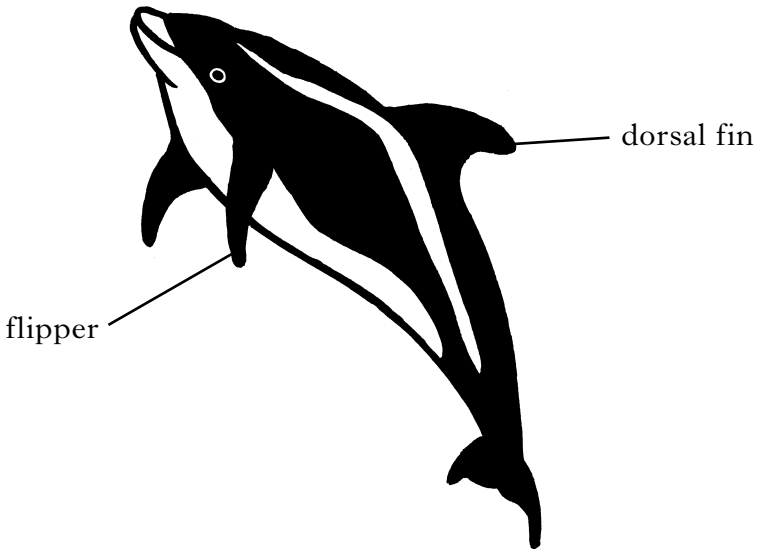
9. (*a*) The key below can be used to identify some species of whales and dolphins seen off the west coast of Scotland.

Key for some species of whales and dolphins

1	Dark underbelly	.....	**Bottlenose dolphin**
	Light underbelly	.....	Go to 2
2	Dorsal fin straight	.....	**Orca whale**
	Dorsal fin curved	.....	Go to 3
3	Band on flipper	.....	**Minke whale**
	No band on flipper	.....	**White beaked dolphin**

(i) Use the key to identify the animal below.



Animal _____ **1**

(ii) Give **two** features of the Orca whale.

1 _____

2 _____ **1**

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9. (continued)

(*b*) The table below gives the numbers of Bottlenose dolphins seen off the west coast of Scotland from 2003 to 2007.

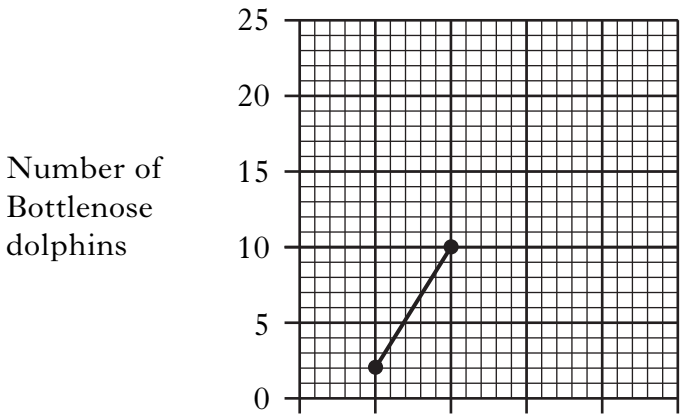
Year	2003	2004	2005	2006	2007
Number of Bottlenose dolphins	2	10	18	20	24

(i) Using information from the table, complete the line graph below by adding

1 a label and scale to the horizontal (x) axis **1**

2 the number of Bottlenose dolphins seen in 2005, 2006 and 2007. **1**

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



(ii) Give the trend in the number of dolphins seen between 2003 and 2007.

_____ **1**

(*c*) Some species of whale are endangered. Give **one** reason for this.

_____ **1**

(*d*) Name **one** international organisation that helps protect endangered species.

_____ **1**

[Turn over

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9. (continued)

(*e*) Fishing quotas are set to limit the amount of fish caught at sea.
Is this an example of local, national or international legislation?
Tick (✓) the correct answer.

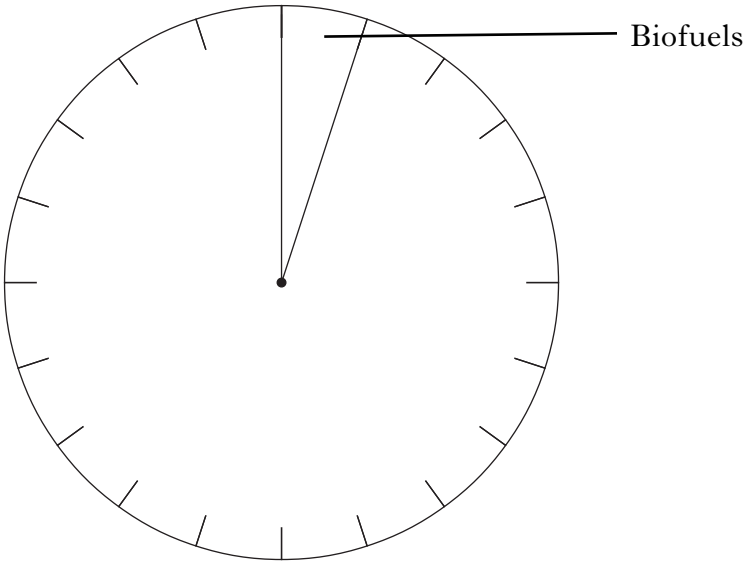
☐ Local

☐ National

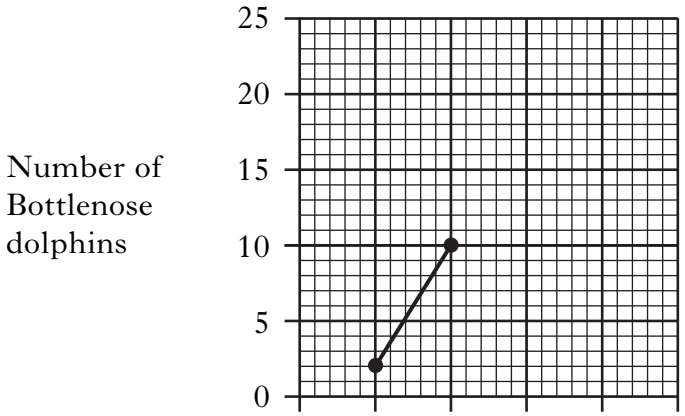
☐ International **1**

[*END OF QUESTION PAPER*]

ADDITIONAL PIE CHART FOR QUESTION 3(*a*)(i)



ADDITIONAL LINE GRAPH FOR QUESTION 9(*b*)(i)



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