Centre Number						Candidate Number				
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Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
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6	
7	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
June 2010

Geography (Specification A)

40301F

F

Unit 1 Physical Geography

Monday 14 June 2010 9.00 am to 10.30 am

For this paper you must have:
- the colour insert.

You may use a calculator.

Time allowed
- 1 hour 30 minutes

Instructions
- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **THREE** questions: **one** question from **Section A**, **one** question from **Section B**, and **one** further question from **either** Section A **or** Section B.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- Use case studies to support your answers where appropriate.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 75.
- You will be marked on your ability to:
  – use good English
  – organise information clearly
  – use specialist vocabulary where appropriate.

Advice
- Where appropriate, credit will be given for the use of diagrams to illustrate answers and where reference is made to your personal investigative work. You are advised to allocate your time carefully.

Section A

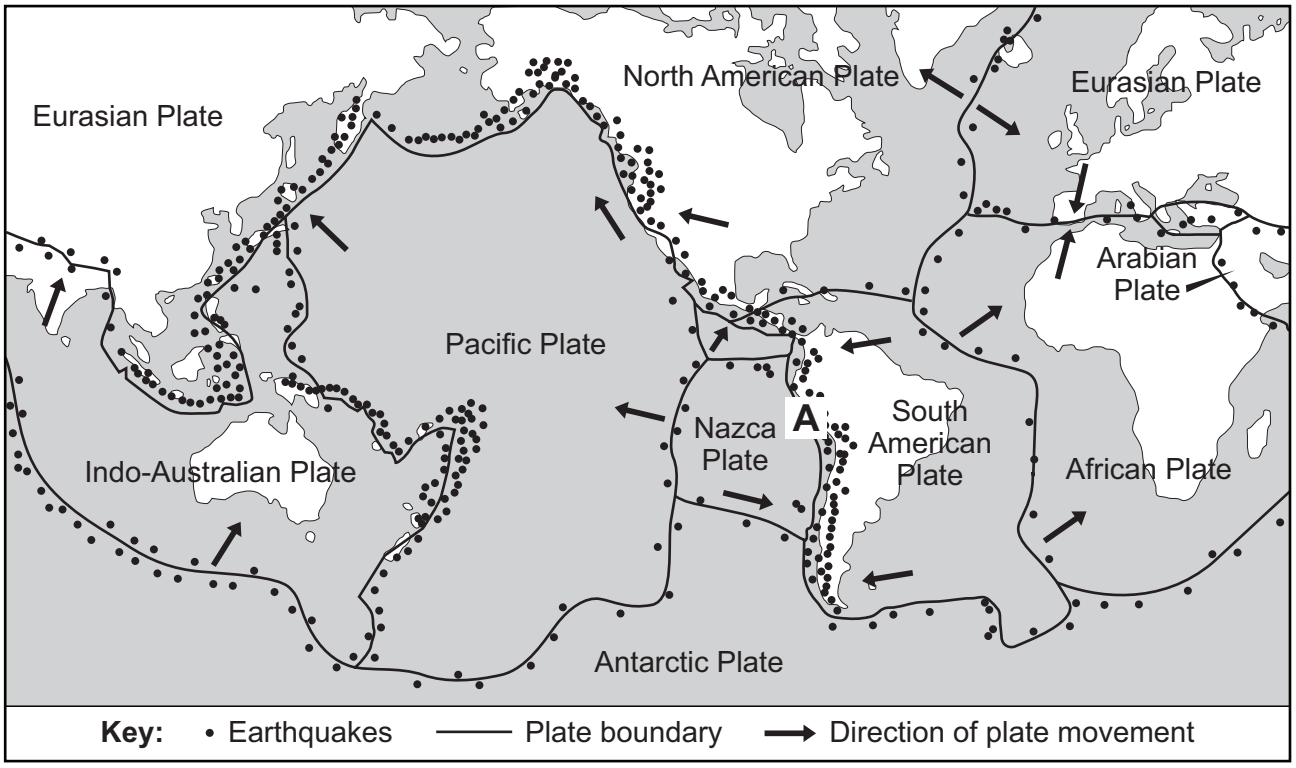
You must answer at least **ONE** question but **not more than TWO** questions in this section.

Use case studies to support your answers where appropriate.

1 The Restless Earth **Total for this question: 25 marks**

1 (a) Study **Figure 1** which shows the Earth's tectonic plates and the places where earthquakes occur.

Figure 1



1 (a) (i) Are the following statements about the distribution of earthquakes **true** or **false**?
Tick the correct boxes.

	True	False
Earthquakes occur in lines.	☐	☐
Earthquakes never occur away from plate boundaries.	☐	☐
Earthquakes occur around the edge of the Pacific Ocean.	☐	☐

(3 marks)

1 (a) (ii) On **Figure 1**, the letter **A** is on a plate boundary.
What type of plate boundary is shown by the letter **A**?
Circle the correct type in the following list.

Conservative **Constructive** **Destructive**

(1 mark)

1 (a) (iii) Complete the paragraph below to explain why earthquakes occur at conservative plate boundaries.
Choose the correct words from this list.

apart from	**jerking**	**different**	**lava**
slide past	**parallel with**	**pressure**	**smooth**

At conservative plate boundaries, plates move ..... each other.

They ..... each other. The plates often stick and

..... builds up. The sudden release of the plates causes a

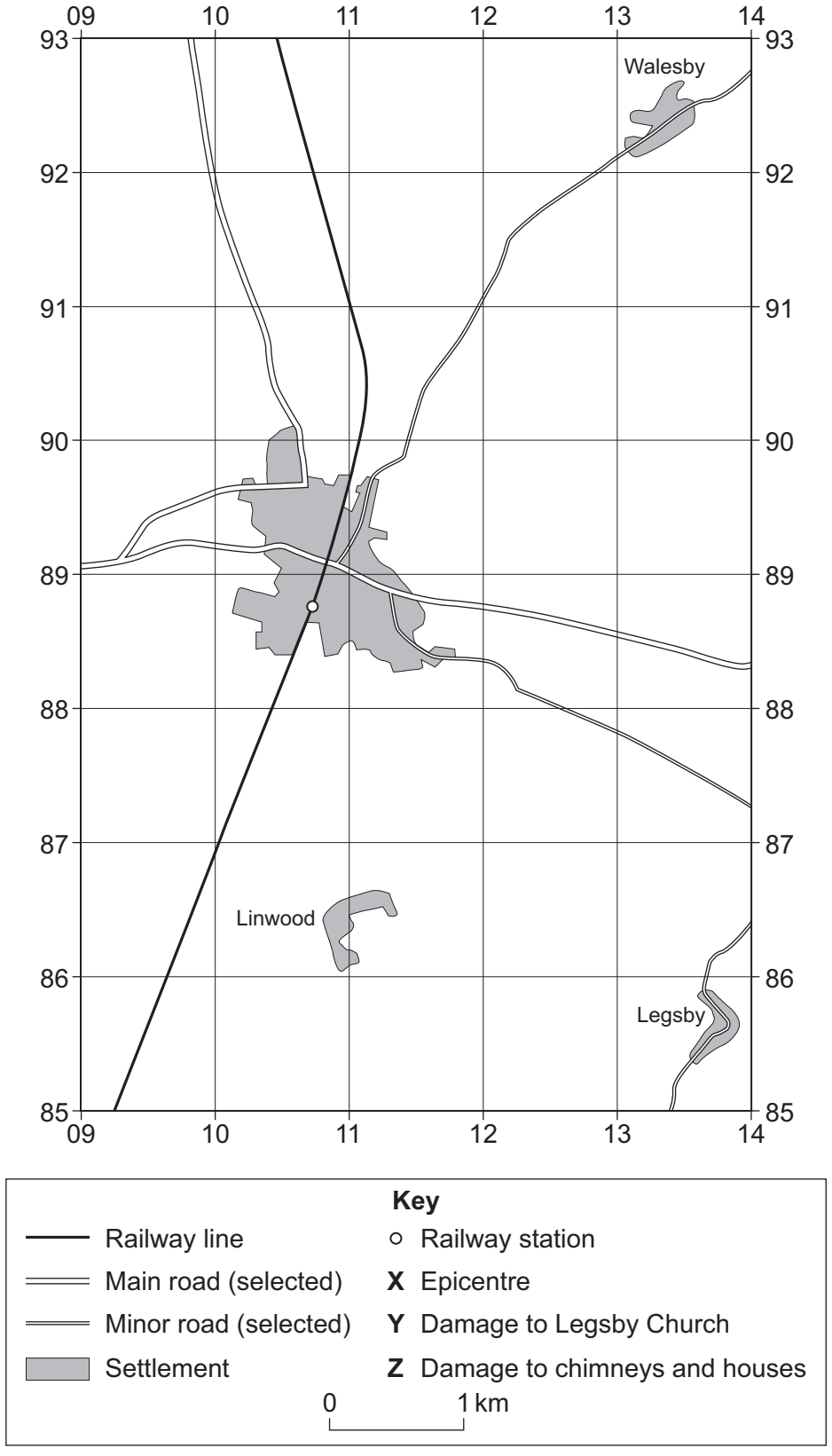
..... movement and an earthquake occurs.

(4 marks)

Question 1 continues on the next page

1 (b) Study **Figure 2**, on the insert, a 1:50 000 Ordnance Survey map extract of Market Rasen, Lincolnshire. An earthquake struck Market Rasen on 27 February 2008. **Figure 3** is a sketch map drawn from **Figure 2**.

Figure 3



1 (b) (i) The epicentre of the earthquake was 4 km north of the railway station in Market Rasen.
On **Figure 3**, mark the position of the epicentre with the letter **X**.

(2 marks)

1 (b) (ii) Damage was reported to Legsby parish church in grid square 1385 and to chimneys of houses at grid reference 108892.
On **Figure 3**, draw two arrows to show where this damage occurred.
Label these arrows with the correct letters **Y** and **Z** from the key.

(3 marks)

1 (b) (iii) The earthquake measured 5.2 on the Richter Scale.
With the help of **Figure 2** and your own knowledge, explain why the damage was limited.

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Question 1 continues on the next page

1 (c) (i) Explain why a tsunami is a secondary effect of plate movement.

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(2 marks)

1 (c) (ii) Use a case study of a tsunami to describe its effects on coastal areas.

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2 Rocks, Resources and Scenery **Total for this question: 25 marks**

2 (a) Study **Figure 4**, on the insert, which shows (part of) a geological timescale.

2 (a) (i) Use **Figure 4** to describe how an 'era' is different from a 'period' on a geological timescale.

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(2 marks)

2 (a) (ii) Use the information in **Figure 4** to complete the table below.

Period	Rock Type	Age (millions of years)
Carboniferous		360 – 290
	Granite	290 – 245
Cretaceous	Chalk and Clay	

(3 marks)

2 (a) (iii) What type of rock is limestone?
Circle the correct type in the following list.

Metamorphic **Sedimentary** **Igneous**

(1 mark)

Question 2 continues on the next page

2 (b) Study **Figure 5**, on the insert, which is a photograph of Malham Cove, a limestone area in Yorkshire.
Give **three** characteristics of the rock and landscape shown in the photograph.

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3 .....

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(3 marks)

2 (c) Rocks are affected by different types of weathering.
Draw a line to link each of the statements to the correct type of weathering.

Type of Weathering	Statement
Freeze thaw	is a type of chemical weathering.
Exfoliation	is when water changes to ice, expands and weakens the rock.
Solution	occurs when plants and animals have an effect on the rock.
Biological weathering	is when layers of rock peel off from the surface.

(3 marks)

2 (d) Study **Figure 6**, on the insert, a 1:50 000 Ordnance Survey map extract of Westbury, Wiltshire.

2 (d) (i) Westbury cement works is marked **X** on the map.
Complete the paragraph below to describe the location of Westbury cement works.
Circle the correct answer in **each** case.

Westbury cement works is found in grid square **8852 / 8952**. The works are

south west / north east of the church in grid square 8751. The land is

gently / steeply sloping.

(3 marks)

2 (d) (ii) A quarry is marked **Y** on the map.
Use **Figure 6** to describe how the quarry at **Y** may cause problems for the environment.

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(4 marks)

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Question 2 continues on the next page

2 (e) Use a case study to describe the advantages of a quarry.

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Turn over for the next question

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

3 Challenge of Weather and Climate **Total for this question: 25 marks**

3 (a) Study **Figure 7**, on the insert, which shows average July temperatures for the United Kingdom.

3 (a) (i) Complete the sentences below to describe the pattern of average July temperatures. Add a compass direction in each space.

Temperatures are highest in the ..... . As you move

..... and ..... , the temperatures fall.

(3 marks)

3 (a) (ii) Explain why London is warmer than Edinburgh in July.

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(2 marks)

3 (a) (iii) Explain why Aberystwyth is cooler than Norwich in July.

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(2 marks)

3 (b) Study **Figure 8**, on the insert, which describes floods in Hull in June 2007.
Use **Figure 8** to give evidence that supports the following statement:
'The UK weather is becoming more extreme.'

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(4 marks)

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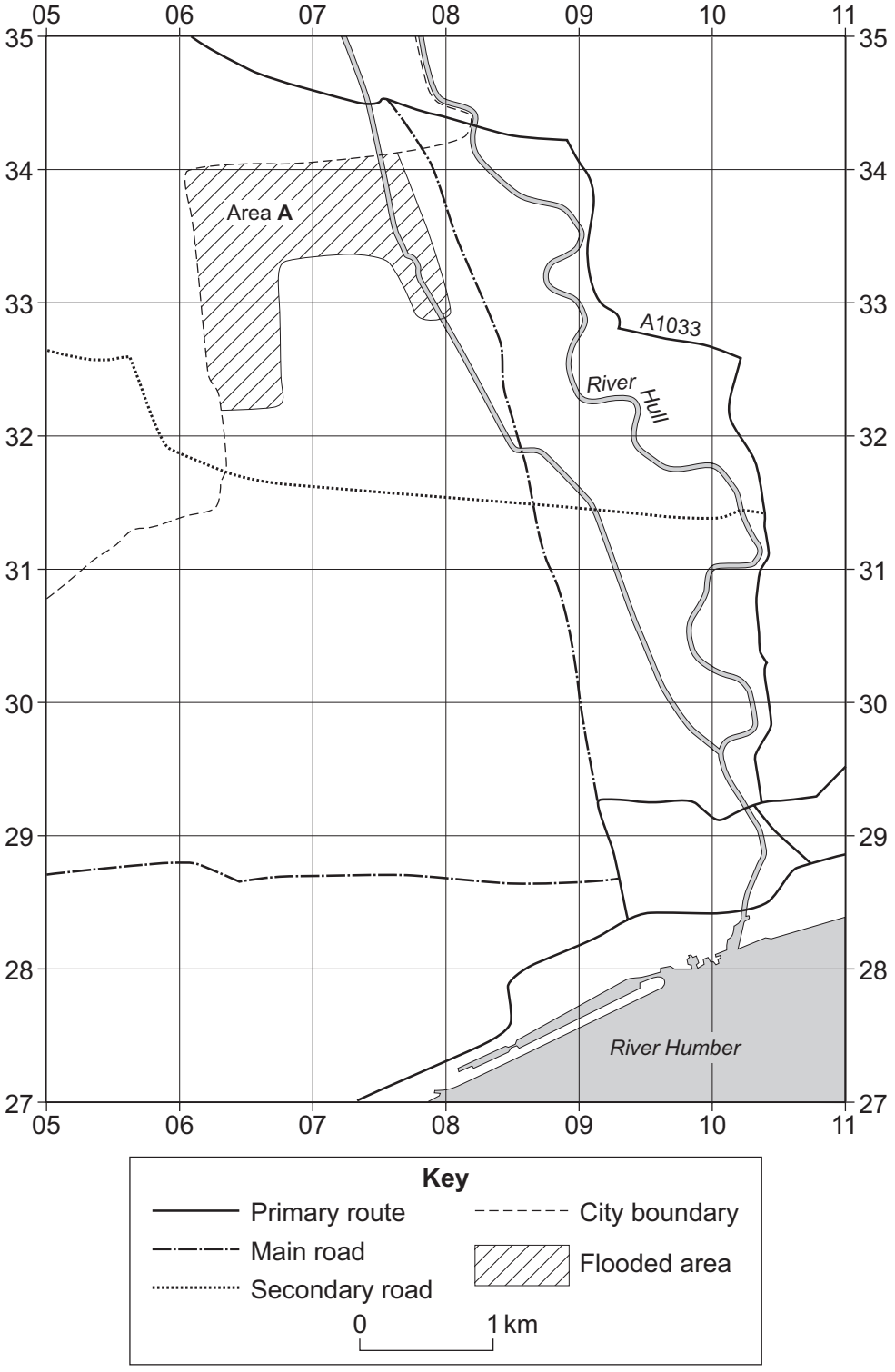
Question 3 continues on the next page

3 (c) Study **Figure 9**, on the insert, a 1:50 000 Ordnance Survey map extract of part of Kingston Upon Hull, East Yorkshire.

3 (c) (i) Bransholme is an area that was flooded in June 2007.
Using **Figures 8** and **9**, shade in the flooded area of Bransholme on **Figure 10**, a sketch map of the area.

(2 marks)

Figure 10



3 (c) (ii) Use **Figure 9** to describe area **A** shown in **Figure 10**.

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(3 marks)

3 (c) (iii) Use **Figure 9** to suggest the effects of the flood in area **A**.

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(3 marks)

Question 3 continues on the next page

3 (d) Describe what is being done to respond to the threat of climate change at an international level.

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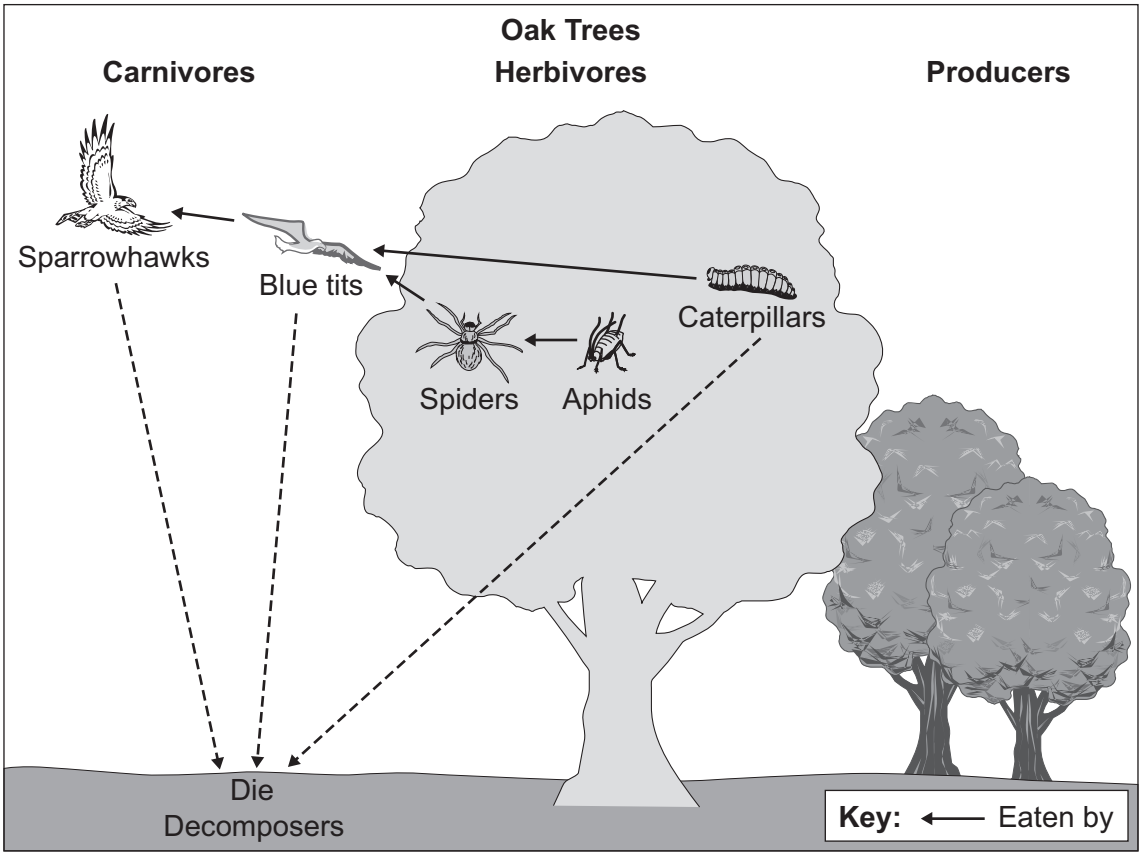
4 Living World **Total for this question: 25 marks**

4 (a) Study **Figure 11** which shows part of a deciduous forest ecosystem.

Figure 11



4 (a) There are different parts of an ecosystem.

Draw a line to link each of the statements to the correct part of the ecosystem.

Part of ecosystem	Statement
Producers	eat green plants
Herbivores	break down dead plants and animals
Carnivores	make their own food by photosynthesis
Decomposers	are the highest level in the food chain

(3 marks)

Question 4 continues on the next page

4 (b) (i) Explain **one** way in which deciduous trees have adapted to the climate.

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(2 marks)

4 (b) (ii) Explain **one** way in which deciduous trees have adapted to the soil.

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(2 marks)

4 (c) Study **Figure 12**, on the insert, a 1:50 000 Ordnance Survey map extract of part of Epping Forest, a deciduous forest near London.

4 (c) (i) Measure the distance along the A104 from the roundabout at 427994 to the road junction at 408953.

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(2 marks)

4 (c) (ii) Use **Figure 12** to describe recreation activities in Epping Forest.

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(3 marks)

4 (d) Describe how an area of deciduous woodland is managed to supply timber and timber products.

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(3 marks)

Question 4 continues on the next page

4 (e) Study **Figures 13a** and **13b**, on the insert, photographs of vegetation in a hot desert area.
Describe, and suggest reason(s) for, the changes in vegetation.

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(4 marks)

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4 (f) Use a case study of a hot desert area in a poorer part of the world to describe how people use the area to make a living.

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(6 marks)

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End of Section A

Turn over for Section B

Section B

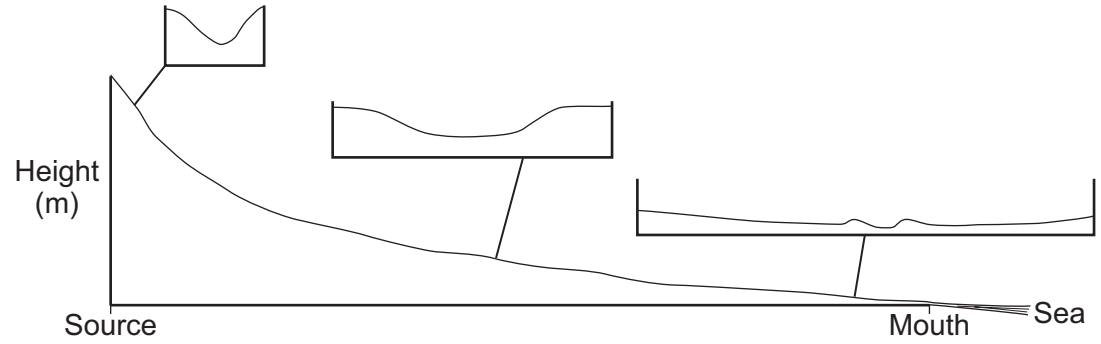
You must answer at least **ONE** question but **not more than TWO** questions in this section.

Use case studies to support your answers where appropriate.

5 Water on the Land **Total for this question: 25 marks**

5 (a) Study **Figure 14** which shows a long profile and cross profiles of a typical river.

Figure 14



5 (a) (i) Are the following statements about the long profile and cross profiles **true** or **false**? Tick the correct boxes.

	True	False
The steepest part of the long profile is near the source.	☐	☐
The cross profile shows the shape of the valley from one side to the other.	☐	☐
The cross profile is narrower and deeper near the mouth.	☐	☐
Most lateral erosion occurs near the source.	☐	☐

(4 marks)

5 (a) (ii) Complete the paragraph below to explain why deposition occurs along the course of a river.
Choose the correct words from this list.

energy	**increases**	**transports**
decreases	**sediment**	**leaves behind**

Deposition occurs when the river ..... material. This happens when the speed of the river ..... and the river has less .....

(3 marks)

5 (b) (i) Study **Figure 15**, on the insert, a photograph of a waterfall in the Glens of Antrim, Northern Ireland.
Describe the features of the waterfall shown in **Figure 15**.

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(3 marks)

Question 5 continues on the next page

5 (b) (ii) Draw a labelled diagram(s) to explain the formation of a waterfall.

(4 marks)

5 (c) Study **Figures 16a** and **16b** which are hydrographs for two different streams in North Yorkshire after the same storm.
A hydrograph shows the link between rainfall and discharge in a river.

Figure 16a

Austwick Beck

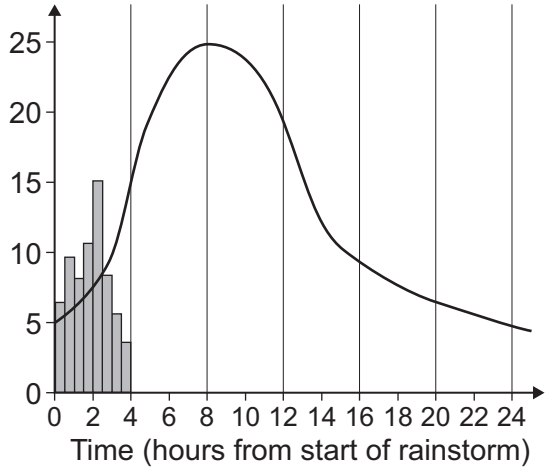
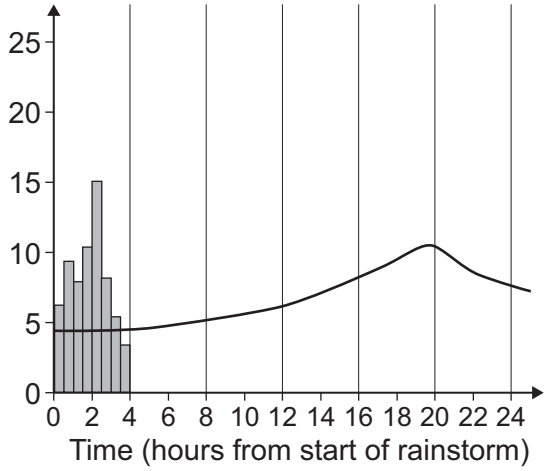


Figure 16b

Clapham Beck



5 (c) (i) Use **Figures 16a** and **16b** to complete the following:

Peak rainfall for both streams: ..... mm

Peak discharge for Clapham Beck: ..... cumecs

Lag time (the time difference between the peak rainfall and the peak discharge) for Austwick Beck: ..... hours

(3 marks)

5 (c) (ii) Suggest **one** reason why the discharge for Austwick Beck is different from that for Clapham Beck.

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(2 marks)

Question 5 continues on the next page

5 (d) Explain why the demand for water is increasing in the UK.

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6 Ice on the Land **Total for this question: 25 marks**

6 (a) Study **Figure 17**, on the insert, a map showing how the ice cover in the northern hemisphere has changed.

6 (a) (i) Complete the sentences below to describe the changing extent of ice cover. Choose the correct words from this list.

southern Europe	**North America**	**40**	**30**
eastern Asia	**Africa**	**shrunk**	**extended**

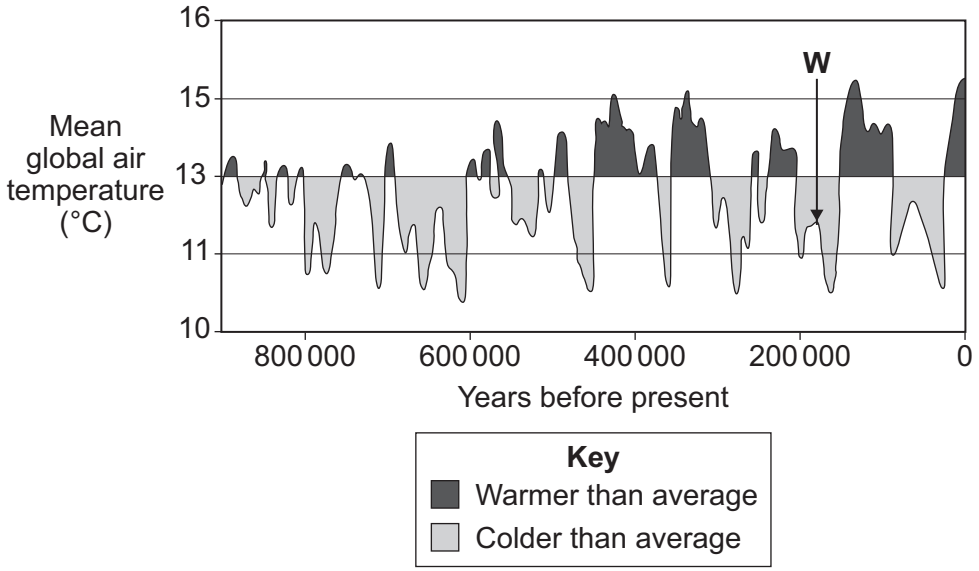
At the time of maximum ice cover, ... had the largest ice sheet. This extended as far south as ..... degrees north. There were two separate areas in ....., one of which remains ice covered today. The extent of ice cover has ..... .

(4 marks)

Question 6 continues on the next page

6 (a) (ii) Study **Figure 18**, a timeline of the mean world temperatures over the past million years.

Figure 18



The table below states some facts about the timeline.
On **Figure 18**, mark with an arrow and add the correct letter (**X**, **Y** or **Z**) to show each of the following facts on the timeline.
The letter **W** has been done for you.

W	**Previous Ice Age**
X	Recent rapid rise in global temperatures
Y	The period when the mean global air temperature was lowest
Z	A period when the mean global air temperature was between 13°C and 15°C

(3 marks)

6 (b) Study **Figure 19**, on the insert, which shows changes in average global temperatures from 1850 to 2007.

Describe the changes in average global temperatures shown in **Figure 19**.

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6 (c) (i) Abrasion is an important process of glacial erosion.
Describe how abrasion occurs.

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(3 marks)

Question 6 continues on the next page

6 (c) (ii) Give **two** landforms that result from glacial erosion.

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(2 marks)

6 (d) (i) Describe the attractions for tourists of an area that is covered by snow and ice.

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(3 marks)

6 (d) (ii) Use a case study of an area covered by snow and ice to describe the ways in which tourism is managed.

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Turn over for the next question

7 The Coastal Zone **Total for this question: 25 marks**

7 (a) Mass movement is a process affecting the coastal zone.

7 (a) (i) Are the following statements about mass movement **true** or **false**?
Tick the correct boxes.

	True	False
Slumping occurs when material moves downhill along a curved surface.	☐	☐
Sliding occurs when loose material shifts down a slope.	☐	☐

(2 marks)

7 (a) (ii) Study **Figure 20**, on the insert, which shows the coastal zone of Antrim, Northern Ireland.
Figure 21 is a black and white copy of **Figure 20**.
On **Figure 21**, label landforms **X**, **Y** and **Z**.

Figure 21

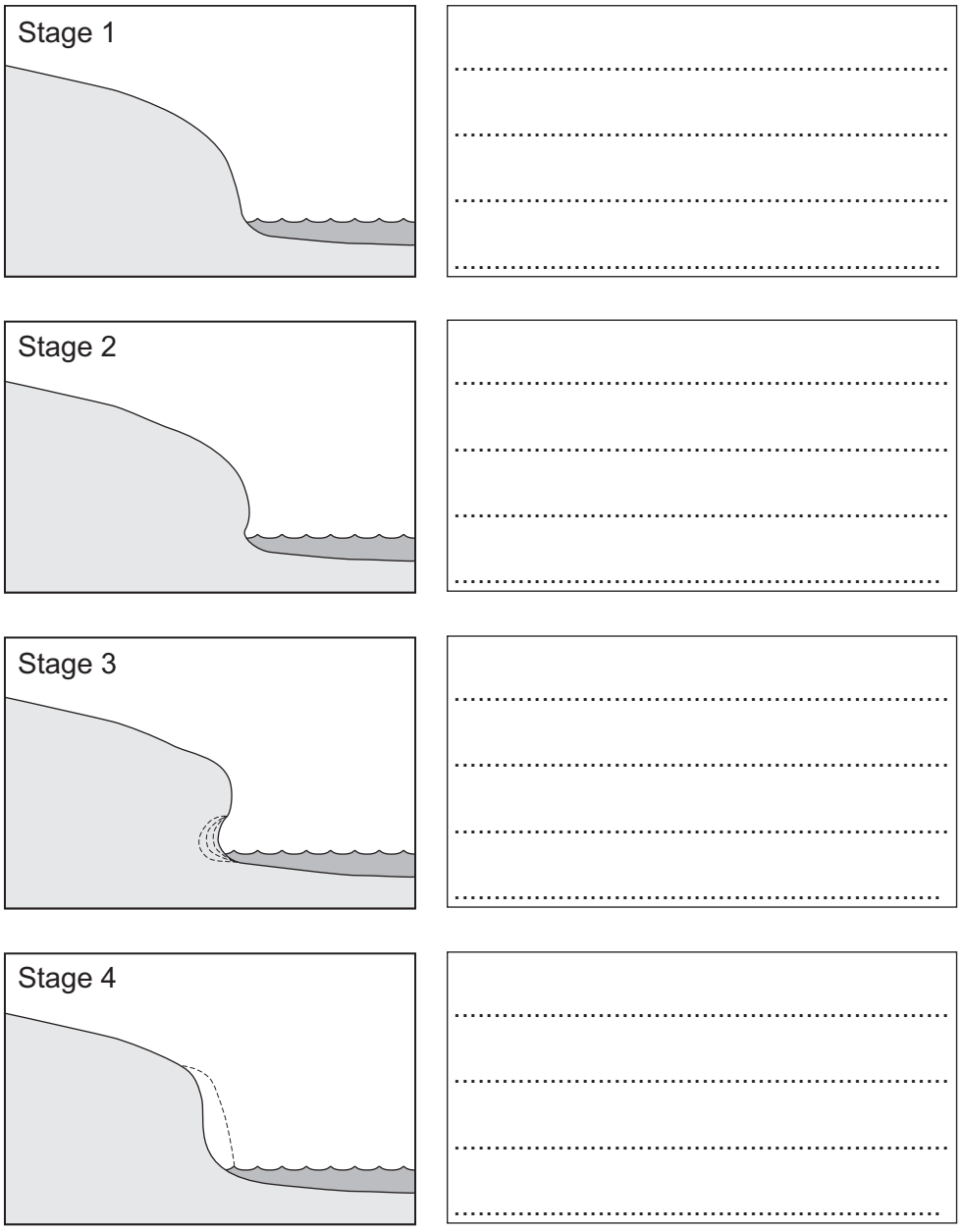
X ..... **Y** ..... **Z** .....

(3 marks)

7 (a) (iii) **Figure 22** shows the formation of some of the landforms in **Figure 20**.

Add a sentence to each box to explain the formation of these landforms.

Figure 22



(4 marks)

Question 7 continues on the next page

7 (b) (i) Explain why sea level is expected to rise.

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(3 marks)

7 (b) (ii) Use a case study to describe economic effects of coastal flooding.

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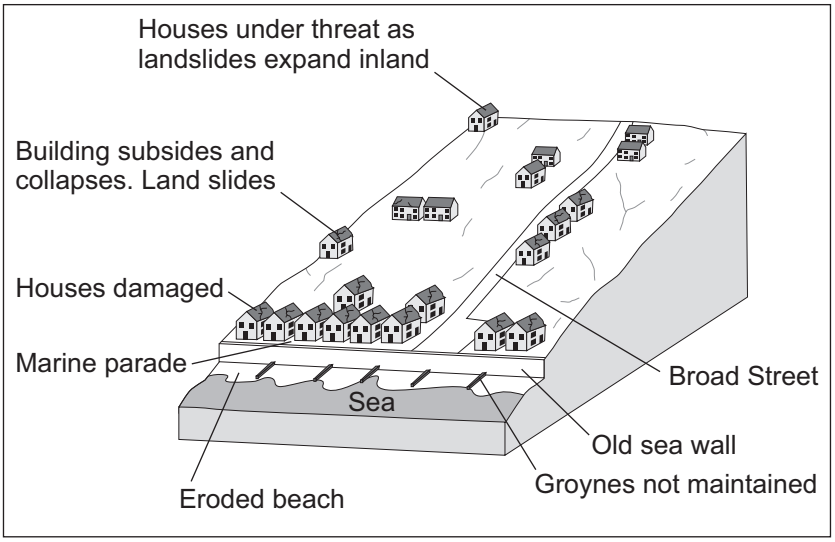
7 (c) (i) Study **Figure 23** which shows the coast at Lyme Regis, a town in Dorset.

Figure 23



Use **Figure 23** to explain why the town is under threat from the sea.

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(3 marks)

Question 7 continues on the next page

7 (c) (ii) Hard engineering includes sea walls and groynes.
Describe the costs and benefits of hard engineering in managing a coastline.

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END OF QUESTIONS

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