Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

ADVANCED SUBSIDIARY GCE

F791

GEOLOGY

Global Tectonics

WEDNESDAY 13 JANUARY 2010: Afternoon
DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the Question Paper

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Ruler (cm/mm)

READ INSTRUCTIONS OVERLEAF

DC (AC/SW) MEP10170 23952/2

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer ALL the questions.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

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 60.
-  Where you see this icon you will be awarded a mark for the quality of written communication in your answer.
- You are advised to show all the steps in any calculations.

BLANK PAGE

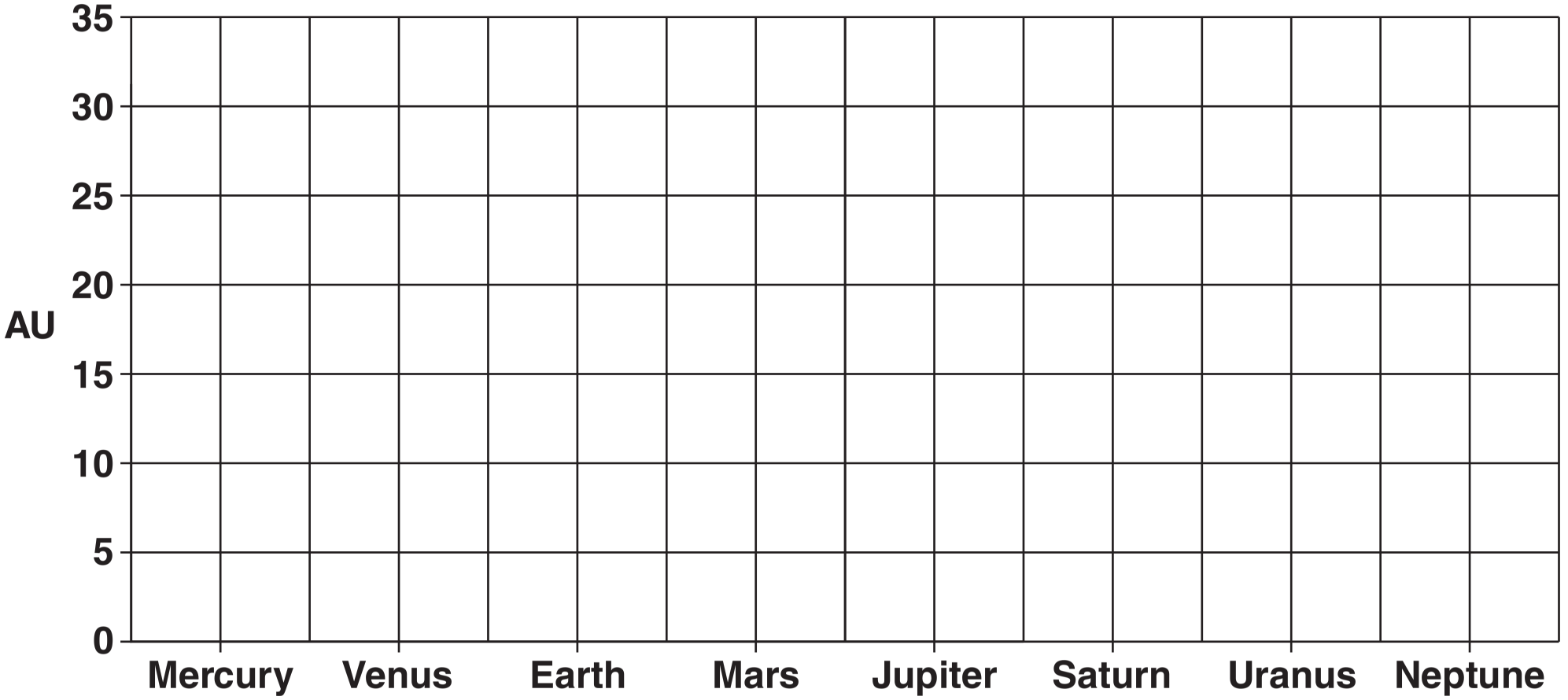
Answer ALL the questions.

1 (a) The data table below shows the distance from the Sun for each planet in the solar system.

PLANET	MERCURY	VENUS	EARTH	MARS
distance from the Sun (AU) (Astronomical Units)	0.4	0.7	1.0	1.5

PLANET	JUPITER	SATURN	URANUS	NEPTUNE
distance from the Sun (AU) (Astronomical Units)	5.2	9.5	19.2	30.1

(i) Plot the data in the table on the next page to show the distance of each planet from the Sun.



[2]

(ii) The asteroid belt occurs between the orbits of two planets. Name both planets.

_____ [1]

(b) Some meteorites are thought to originate from the asteroid belt.

(i) Name TWO types of meteorite.

meteorite 1 _____

meteorite 2 _____ [2]

(ii) For each type of meteorite, describe the information it provides for the composition of a specific layer of the Earth.

meteorite 1 _____

_____

_____

_____

meteorite 2 _____

_____

_____

_____

_____ [4]

(c) Describe TWO types of evidence for meteorite impacts on Earth.

_____

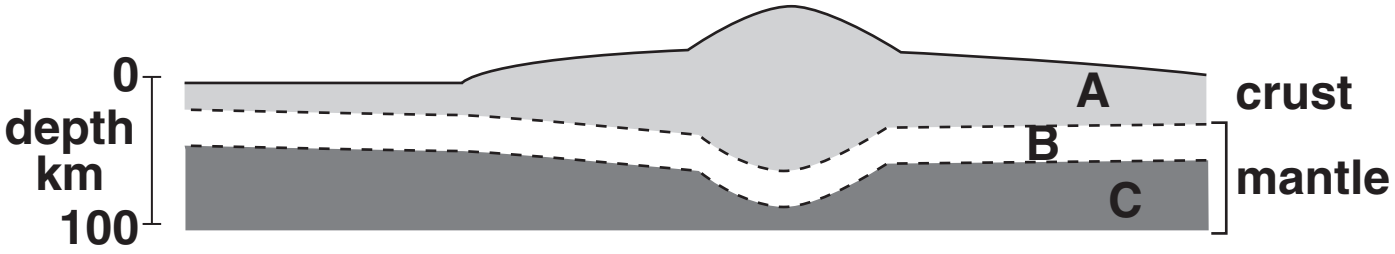
_____

_____

_____ **[2]**

[Total: 11]

2 (a) The diagram below shows a simplified cross-section through the crust and part of the mantle.



(i) Name the part of the Earth that consists of layers A and B.

In your answer, you should use an appropriate term, spelled correctly.

_____ [1]

(ii) Describe the physical state of this layer.

_____ [1]

(iii) Describe the physical state of layer C.

_____ [1]

(iv) Name the part of the Earth that consists of layer C.

_____ [1]

(b) (i) Label the Moho on the diagram on the previous page. [1]

(ii) Describe how the Moho is identified using seismic waves. You may draw a diagram to help your answer.

_____

_____

_____

_____ **[2]**

(c) Complete the table below showing the characteristics of crust from oceanic and continental areas.

	OCEANIC AREAS	CONTINENTAL AREAS
average composition		
average density (g/cm^3)		
age range (Ma)		
average thickness (km)		

[4]

(d) Choose the correct feature from the list below to match the definition in the table.

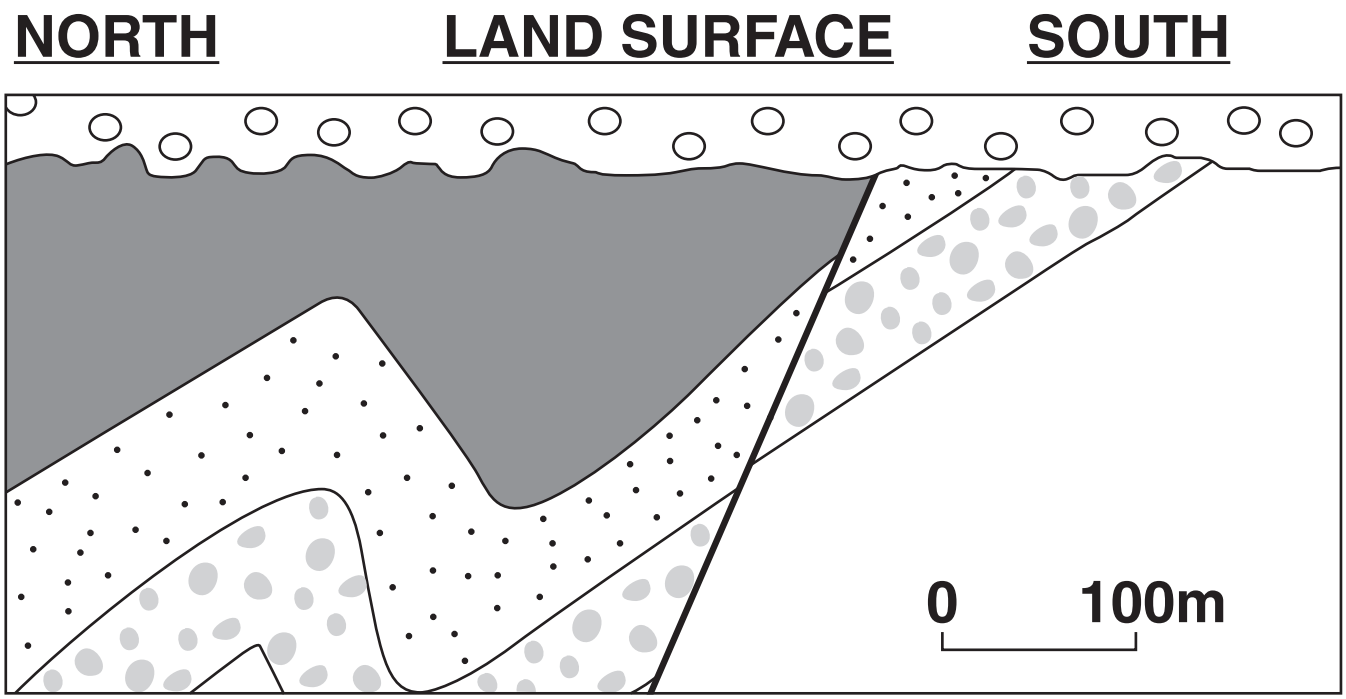
abyssal plain
deep sea trench
continental shelf
continental slope
mid-ocean ridge
seamount

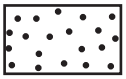
DEFINITION	FEATURE
deep ocean basin with a depth of between 3 and 5 km	
line of volcanic mountains rising 2 to 3 km above the ocean basin – has an axial rift valley	
very deep, linear valley in the ocean parallel to fold mountains and island arcs	

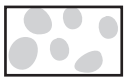
[3]

[Total: 14]

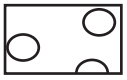
3 Below is a sketch cross-section of a cliff outcrop.

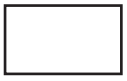



sandstone


conglomerate


mudstone


coarse sandstone


clay

(a) (i) Fully describe the northern fold.

_____

_____

_____

_____ [2]

(ii) Draw and label the axial planes on both folds on the diagram opposite. [1]

(b) (i) Name the type of fault shown on the cross-section.

_____ [1]

(ii) What kind of stress caused the fault?

_____ [1]

(iii) **With the aid of a diagram, name and describe a feature that can often be found along fault planes. If you can not draw the diagram you may provide a clear description which should include details of labels that you would include on a diagram.**

In your answer, you should use an appropriate term, spelled correctly.

name of feature _____

description _____

_____

_____

_____ **[3]**

The sketch cross-section of a cliff outcrop is provided again for parts (c)(i) and (c)(ii).

(c) (i) Label the unconformity on the cross-section of the cliff outcrop. [1]

(ii) Describe fully the order of events shown in the cross-section (start with the oldest).

_____

_____

_____

_____

_____

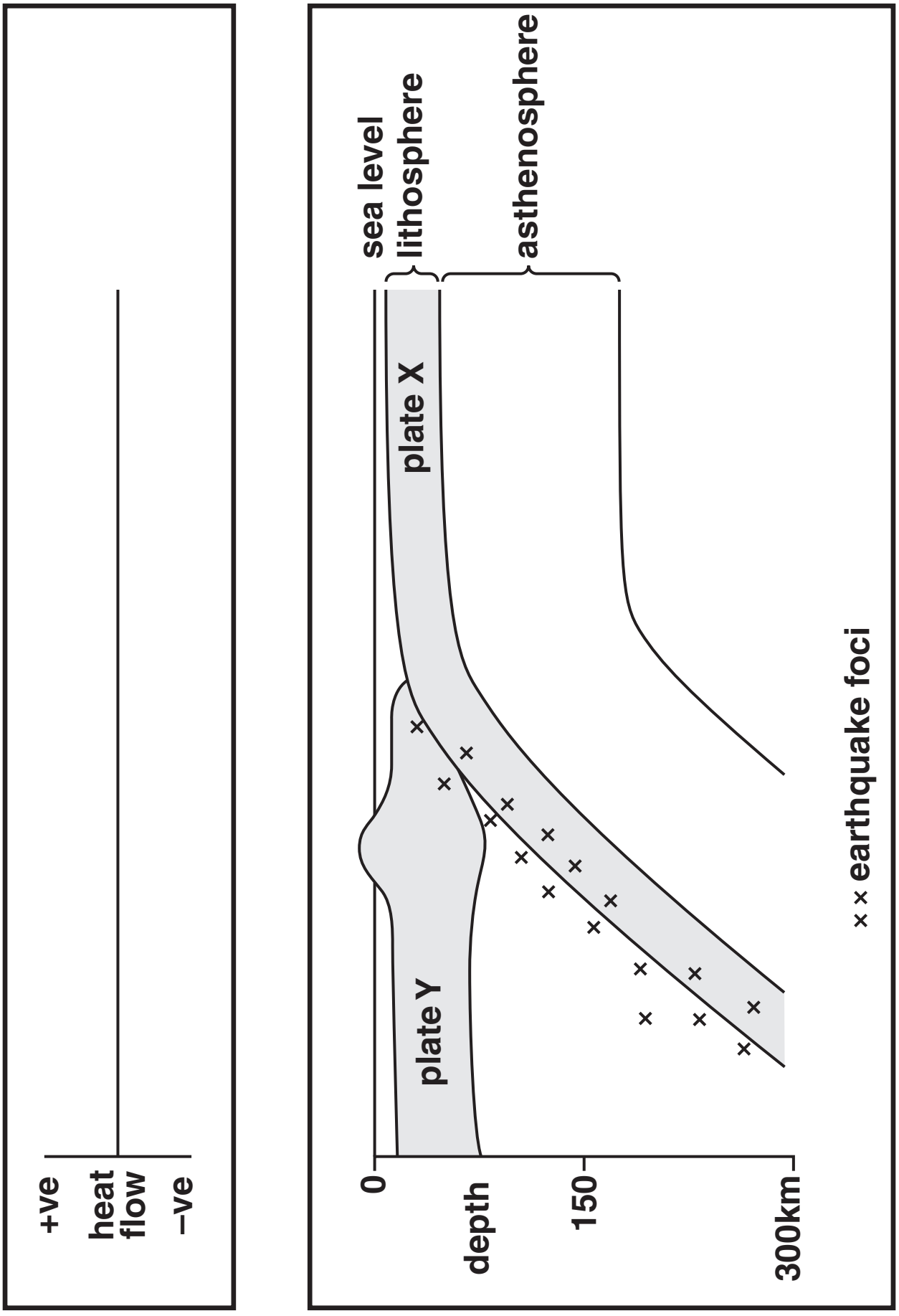
_____

_____

_____ **[4]**

[Total: 13]

4 **The diagram below is a cross-section through a plate margin.**



(a) (i) On the diagram shade and label:

- the Benioff zone
- an island arc. [2]

(ii) Draw arrows to show the direction of movement of plates X and Y. [1]

(iii) On the diagram draw and label the path of rising magma which forms active volcanoes. [1]

(iv) Name the type of plate margin shown in the diagram.

_____ [1]

(b) (i) Draw the variation in heat flow across the plate margin on the axis above the plate diagram. [1]

(ii) Explain the pattern of heat flow.

_____

_____

_____

_____ [2]

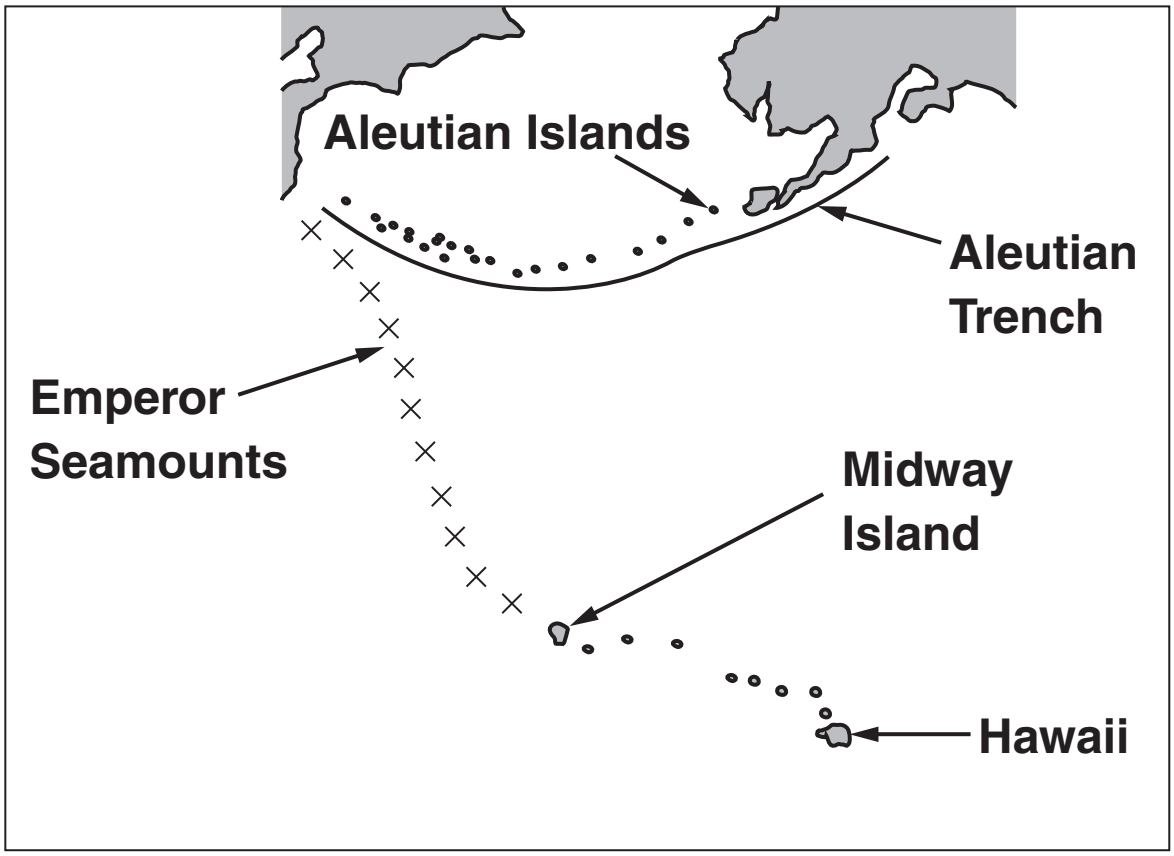
(c) (i) Give the name of an oceanic plate.

_____ [1]

(ii) Give the name of a continental plate.

_____ [1]

(d) The map below shows the Hawaiian and Aleutian island chains.



(i) Hawaii is an example of a *hot spot*. Explain what this term means.

_____

_____ [1]

(ii) **Explain how the pattern of islands and seamounts was produced by plate movement over the hot spot.**

_____

_____

_____

_____

_____

_____ **[3]**

[Total: 14]

5 **Describe three pieces of evidence for the movement of continents over time using the fit of Africa and South America. You may use diagrams to illustrate your answer.**

_____

_____

_____

_____

_____ **[8]**

[Total: 8]

END OF QUESTION PAPER

Optional extension sheet. If you use these lined pages to complete an answer to any question, the question number MUST be clearly shown.