New Specification

Rewarding Learning

General Certificate of Secondary Education
2018

Geography

Unit 1

Understanding Our Natural World

[GGY11]

TUESDAY 22 MAY, AFTERNOON

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses. The mark schemes should be read in conjunction with these general marking instructions.

Assessment objectives

Below are the assessment objectives for GCSE Geography.

Candidates must show they are able to:

- recall, select and communicate their knowledge and understanding of places, environments and concepts (AO1);
- apply their knowledge and understanding in familiar and unfamiliar contexts (AO2); and
- select and use a variety of skills, techniques and technologies to investigate, analyse and evaluate questions and issues (AO3).

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 15- or 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If the answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range of any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 15- or 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response
Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another. In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.

- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.

- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Marking calculations
In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error.

Quality of written communication
Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is limited
Level 2: Quality of written communication is satisfactory
Level 3: Quality of written communication is of a high standard.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below.

Level 1 (Limited): Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. A limited range of specialist terms is used appropriately.

Level 2 (Satisfactory): Candidates present relevant information in a form and using a style of writing which suits its purpose. The text is legible. Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. A good range of specialist terms is used appropriately.

Level 3 (High Standard): Candidates present, and organise effectively, relevant information in a form and style of writing which suits its purpose. The text is fluent and legible. Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. A wide range of specialist terms is used skillfully and with precision.

Theme A: River Environments

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1 (a) Complete **Table 1** by naming a river feature found at the grid references given.

Table 1

Grid Reference	River Feature
GR 2092	Meander [1]
GR 0888	Waterfall [1] V Shaped Valley

(2 × [1]) [2]

(b) A drainage basin has inputs, stores, transfers and outputs. Complete **Table 2** by drawing arrows to show which components of a drainage basin are stores and which are transfers. One has been completed for you.

Table 2

Stores	Drainage Basin Component	Transfers
	Surface runoff	
	Infiltration	
←	Interception by vegetation	
	Groundwater flow	(Given)
	Percolation	

(4 × [1]) [4]

(c) Study **Fig. 1** which presents data collected by geography students on a field trip at three different sites on a river. Answer the question which follows.

Describe and explain the changes in the channel shape between Site 1 and Site 3.

Award [0] for a response not worthy of credit.

Level 1 ([1]–[2])
A basic response which deals simplistically with description or explanation only,
e.g. The river channel gets deeper [1] and wider. [1]
e.g. The change in channel shape is due to erosion [1] in particular hydraulic action and abrasion. [2]

Level 2 ([3]–[5])
A response at this level may be unbalanced, e.g. may deal with description only [3]. Alternatively, responses may address both aspects of the question but without figures [4]. A response which identifies the trend with figures using two sites and offers a basic explanation would gain top Level 2 [5],
e.g. At site 1 the river channel is narrow and V shaped. Here the river is just 160 cm wide and 22 cm deep. At site 3 the river channel is the widest at

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1400 cm. [3] This variation is due to increased erosion as the river erodes downwards and sideways into the banks. [5]
Description with figures for 1 aspect and a trend for the other plus explanation [5]

Level 3 ([6]–[7])
An answer which refers to the variation between sites and describes in detail the increase in depth and width shown in **Fig.1**. The response should also offer an explanation for this trend referring to the type of erosion using geographical terminology – abrasion and hydraulic action/vertical and lateral erosion. Reference needs to be made to width, depth, location and types of erosion for [7] marks,
e.g. At site 1 the river channel is narrow and V shaped. Here the river is just 160 cm wide and 22 cm deep. This contrasts to site 2 where the river has widened to 920 cm and is approximately 40 cm deep. At this point it has a steep side and a more gentle slope on the other side. At site 3 the river has a more rounded profile and at its widest is 1400 cm, and over 50 cm deep. This variation in width and depth is partly due to the location of the three sites. Site 1 is close to the source and this explains the narrow V shaped valley where vertical erosion is dominant while site 3 is close to the mouth and is therefore much wider and deeper due to increased lateral erosion. In particular the river erodes its banks more downstream due to the force of water (hydraulic action) and abrasion, the grinding of rock fragments against the bed and banks. [7]

(d) Explain how levees are formed.

Award [0] for a response not worthy of credit.

Level 1 ([1]–[2])
A simple statement relating to the formation of levees that may include only basic explanation,
e.g. These form when a river overflows its banks. [1]
e.g. These are ridges formed when a river overflows its banks. [2]

Level 2 ([3]–[4])
A simple explanation relating to how levees are formed [3] which refers in some detail to the process of deposition [4],
e.g. When a river overflows the coarsest/heaviest material is deposited first. [3] This builds up ridges along the banks called levees. [4]

Level 3 ([5])
A detailed explanation of how levees are formed, referring to the process of deposition and a reason why deposition may have occurred:
e.g. When a river overflows in the lower course the coarsest/heaviest material is deposited first. This builds up the ridges called levees. This is because energy is reduced due to increased friction or slower velocity. [5]

(e) With reference to a river in the British Isles, explain the physical and human causes of a flood on your named river.

Award [0] for a response not worthy of credit.

No mark for name of river in the British Isles, e.g. Derwent.
Max Level 1 if river outside British Isles or if no named river.
Max [4] if only physical **or** human factors mentioned.

Level 1 ([1]–[2])
A basic response relating to either a physical or human cause of flooding. There may be no reference to a named river in the British Isles.
e.g. It flooded in England due to heavy rain, building and peat extraction.
Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. A limited range of specialist terms is used appropriately.

Level 2 ([3]–[5])
A limited explanation of both the physical and human causes of flooding for a named river in the British Isles. One cause may be explained in greater detail than the other,
e.g. In March in England there was flooding. There were several physical causes such as the heavy rainfall at the time of the flood, also there was a lack of infiltration as this rainfall fell onto ground that was almost saturated from previous rainfall events. Human factors also played a part. Areas of the floodplain were being urbanised and this reduced infiltration and increased surface run-off. Max [4] if only physical **or** human factors used.
Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. Candidates present relevant information in a form and using a style of writing which suits its purpose. The text is legible. A good range of specialist terms is used appropriately.

Level 3 ([6]–[7])
The causes of flooding are explained in detail for a named river in the British Isles,
e.g. In March 1999 people near the River Derwent experienced severe flooding. There were several physical causes such as the heavy rainfall, at the time of the flood over 250 mm of rain fell on the North York Moors; also there was a lack of infiltration as this rainfall fell onto ground that was almost saturated from previous rainfall events. Human factors also played a part. Areas of the flood plain were being urbanised, such as the new estate built at Malton; this reduced infiltration and increased surface run-off.
Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. Candidates present and organise effectively relevant information in a form and using a style of writing which suits its purpose. The text is fluent and legible. A wide range of specialist terms is used skilfully and with precision. [7]

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Theme A **25**

Theme B: Coastal Environments

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2 **(a)** Study the Ordnance Survey extract of part of the coast of Cornwall, England and answer the questions which follow.

(i) State the height of the land shown by the spot height at the top of Rusey Cliff, GR 128935.

247 m [1]

(ii) State the straight line distance from the campsite near Ringford Farm GR 126926 to the bridge on the River Ottery at Trengune GR 189933.

6.2–6.4 km [2]
6.1–6.19 or 6.41–6.5 km [1] [2]

(iii) State the direction of Pencannow Point GR 1397 from Boscastle GR 0990.

North east [1]

(iv) Coasts are shaped by waves. State **two** facts about destructive waves.

Accept any valid characteristic as listed below:

- They have a strong backwash compared to their swash.
- They are high (in relation to their length).
- They are frequent waves (break at a rate close to 15 per minute).
- More common in winter
- Have strong erosive power

(2 × [1]) [2]

(b) **(i)** Study **Fig. 2**, which shows Northern Door, an arch located near Cambeak at GR 1296. Complete **Table 3** below by placing the statements in order to show how the arch shown in **Fig. 2** was formed. One has been completed for you.

Table 3

Statement	Order
Cracks in the rock are widened by wave action to form a cave	**2**
A line of weakness in a cliff is widened by erosion	**1 (given)**
Eventually the cave will be eroded all the way through the cliff to form an arch	**4**
Over time the back wall is further eroded	**3**

(3 × [1]) [3]

(ii) Name the feature which will be formed when the roof of the arch collapses.

Stack/stump [1]

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(c) **Fig. 3** is a photograph of a wave cut platform at Pencannow Point, GR 1397.

Explain how a wave cut platform such as this formed.

Award [0] for an answer not worthy of credit.

Level 1 ([1]–[2])
A basic response relating to the formation of a wave-cut platform,
e.g. It is formed by erosion [1], it is a flat area in front of cliffs formed by erosion. [2]

Level 2 ([3]–[4])
A limited explanation relating to the formation of a wave-cut platform,
e.g. It is formed by erosion when a cliff is undercut and the cliff face collapses. [3] Wave action gradually erodes the rubble at the foot of the cliff and the cliff retreats to leave a flat area. [4]

Level 3 ([5])
A full explanation of how a wave-cut platform is formed, referring to the repetitive process of erosion creating the flat area of the platform,
e.g. It is caused when a notch in a cliff created by erosion such as abrasion and hydraulic action, is further eroded undercutting the cliffs.
The upper cliff is repeatedly undercut and eventually collapses causing the cliff to retreat (creating a wave-cut platform/a flat area of rock at the base of the cliff). [5]

(d) Coasts often need protection against erosion.

(i) State **two** reasons why a stretch of coastline may need to be protected against erosion by the sea.

Any valid reason such as:

- to protect property (such as homes)
- to protect businesses
- to protect the beach
- to protect cliffs [2]

(ii) Evaluate the sustainability of a named coastal management strategy in the British Isles, which you have studied.

Award [0] for an answer not worthy of credit.
If coastline not named or outside British Isles – Max Level 1.
Detailed reference to only one coastal management method and evaluation max Level 2.

Level 1 ([1]–[2])
A basic description of a coastal management strategy. The answer may not make reference to a specific case study from the British Isles. No evaluation and no reference to sustainability,
e.g. The council built a sea wall to stop the sea eroding the coastline. Groynes and gabions are used as well.
Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. A limited range of specialist terms is used appropriately.

Level 2 ([3]–[5])
A limited descripton of a coastal management strategy for a specific case study from the British Isles. The answer must evaluate the strategy so there must be analysis of both positive and negative aspects of the strategy. The emphasis of the answer must be on how sustainable the strategy is. Possible answers may have:

- Good detail on the strategy used for coastal management but no evaluation or sustainability [3]
- Limited information on one strategy with some evaluation [3]
- Reference in good depth about the strategy used with a basic attempt to evaluate either the good or bad aspects of the strategy [4]
- Answer with some limited evaluation but lacking in factual detail [4]
- Good depth of information in a detailed answer but one which is one-sided and deals with the positive aspects and how they are sustainable or the negative aspects [5]

e.g. In Newcastle Co. Down there have been a number of developments over the years which have been part of a sustainable strategy to manage the coast in Newcastle. The main feature in recent years has been the building of a sea wall. In 2007 a new Newcastle promenade development was built which included a sea wall which was built 1 metre higher than the old sea wall. The programme cost £4 million and it was designed to stop the sea from flooding the town.
Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. Candidates present relevant information in a form and using a style of writing which suits its purpose. The text is legible. A good range of specialist terms is used appropriately.

Level 3 ([6]–[8])
An answer which includes detailed information on the coastal management strategy for a specific case study from the British Isles. The answer has a balanced evaluation which clearly analyses the ways that this strategy has attempted to be sustainable. Differentiation in this level is based on the breadth of evaluation in relation to sustainable development. The detailed answer will have a full evaluative comment and conclusion,
e.g. In 2007 a new Newcastle promenade development was built which included a sea wall which was built 1 metre higher than the old sea wall. The programme cost £4 million and it was designed to stop the sea from flooding the town. The sea wall is a long-term hard engineering solution. It is hoped that it will last 50 years and will require minimal maintenance making it sustainable over many years. In addition, gabions and rock armour are used in sensitive areas to reduce the impact of the erosive power of the waves and also help the beach build up deposited material making it more sustainable. However, some local people are concerned that the changes to the beach front have had an impact on animal life along the shore. Overall the strategy has been successful and although it cost a lot of money it is allowing the seafront to flourish again with the beach as the focal point of tourism.
Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. Candidates present and organise effectively relevant information in a form and using style of writing which suits its purpose. The text is fluent and legible. A wide range of specialist terms is used skilfully and with precision.

[8] 25

Theme B **25**

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3 (a) (i) Name the sources of data illustrated in **Fig. 4**.

Award [1] for each correct answer:

A Rainfall Radar
B Geostationary/Polar Satellite (also accept satellite)
C (Weather) Buoy [3]

(ii) Distinguish between weather and climate.

Award [0] for a response not worthy of credit.

Award [1]
A basic response which defines either weather or climate,
e.g. Weather is the day to day changes in the atmosphere. [1]

Award [2]
A limited response which briefly defines both weather and climate,
e.g. weather is the day to day changes in the atmosphere whereas climate is the average weather conditions. [2]

Award [3]
A detailed response which clearly distinguishes between weather and climate,
e.g. Weather is the day to day changes in the conditions of the atmosphere. However, climate is the average weather conditions taken over a longer period of time,
(e.g. 30–35 years). [3]

(b) Describe and explain the temperature and moisture characteristics of a Polar Maritime air mass.

Award [0] for a response not worthy of credit

Level 1 ([1])
A simple description relating to one characteristic of a Polar Maritime air mass,
e.g. It is cold or it is wet. [1]

Level 2 ([2]–[3])
A response that describes both characteristics without explanation or alternatively explains one characteristic fully,
e.g. It is cold and wet [2]
e.g. It is cold as the air is coming from a northerly direction. [2]
e.g. It is cold as the air is coming from a northerly direction and it also brings moisture. [3]

Level 3 ([4])
A detailed description and explanation of both the temperature and moisture charateristics of a Polar Maritime air mass,
e.g. It is cold as the air is coming from a northerly direction and it also brings moisture as the air mass travels over the Atlantic Ocean enabling the air mass to pick up moisture. [4]

(c) (i) Complete **Table 4**, to show the weather being experienced at weather station **A** (Newcastle upon Tyne) on **Fig. 5.** One has been completed for you.

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Table 4

Weather Element	Weather conditions
Temperature	**25 °C (Given)**
Wind Speed	**1–2 Knots**
Wind Direction	**West**

[2]

(ii) State fully **one** reason why the weather system in **Fig. 5** brings high temperatures.

Award [0] for a response not worthy of credit.

Award [1] for a basic statement relating to anticyclonic conditions
e.g. There are no clouds. [1]

Award [2] for a limited explanation
e.g. There are no clouds in the sky so heat builds up quickly. [2]

Award [3] for a detailed explanation
e.g. In Newcastle Upon Tyne the temperature is 25 °C. Temperatures are high due to the clear sky (no clouds) therefore allowing solar radiation to heat the ground, which in turn, heats the air.
Credit also answers which mention high pressure and the position of the sun at the Tropic of Cancer. [3]

(d) Describe how and explain why altitude influences temperature.

Award [0] for a response not worthy of credit.

Level 1 ([1])
A basic description of how altitude influences temperature,
e.g. Temperature decreases as altitude increases.

Level 2 ([2]–[3])
A sound description of how altitude influences temperature with limited explanation. Alternatively, at this level, an answer may address only one aspect of the question. If the response only describes the temperature change it is restricted to bottom of Level 2. If a brief explanation is provided the response can access top of Level 2,
e.g. With an increase in altitude, temperature decreases. At 3000 m the temperature is 7 °C however temperature drops to –23 °C when altitude increases to 6000 m. [2] This is because air is thinner in higher altitudes. [3]

Level 3 ([4])
A detailed response which describes the changes in temperature using figures from the resource and explains in full why temperature decreases,
e.g. With an increase in altitude, temperature decreases. At 3000 m the temperature is 7 °C however temperature drops to –23 °C when altitude increases to 6000 m. When the sun's rays are absorbed by the Earth's surface it is radiated back to the atmosphere. As more heat is absorbed closer to the ground, temperature is higher here. Energy is lost as it travels higher into the atmosphere causing temperatures to decrease with altitude.[4]
e.g. With an increase in altitude, temperature decreases. At 3000 m the temperature is 7 °C however temperature drops to –23 °C when altitude increases to 6000 m. Air pressure decreases with an increase in altitude. This lowers the ability of the air to hold its heat. Therefore, temperature decreases. [4]

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(e)	With reference to an extreme weather event outside the British Isles you have studied (tornado, drought or hurricane), describe the impacts this event had upon people. The extreme weather event must relate to one of the following: • Drought • Tornado • Hurricane Do not credit answers which outline a flooding or earthquake event. Max Level 1 if no place is named Award [0] for a response not worthy of credit. **Level 1 ([1]–[2])** A basic description of the impact of a relevant extreme weather event, e.g. Hurricanes have strong winds which destroy homes. [1] e.g. Hurricanes have strong winds which destroy homes. This results in people becoming homeless. [2] Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. A limited range of specialist terms is used appropriately. **Level 2 ([3]–[4])** A limited description of the impact of a specific extreme weather event with some elaboration, e.g. Hurricane Sandy in 2012 affected many countries including Jamaica and USA. In New York widespread flooding meant roads, subways and public schools were closed costing the government a lot of money to repair. [3] In Jamaica a total of 15,000 homes were destroyed with many of these being in shanty town areas. This caused widespread homelessness. [4] Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. Candidates present relevant information in a form and using a style of writing which suits its purpose. The text is legible. A good range of specialist terms is used appropriately. **Level 3 ([5]–[6])** A detailed description of the impact of a specific extreme weather event on people, e.g. Hurricane Sandy (2012) affected many countries including, e.g. Jamaica and USA. In Jamaica a total of 15,000 homes were destroyed with many of these being in shanty town areas. 70% of homes were also left without electricity as many homes had their roofs removed due to strong winds. This caused widespread social disruption and homelessness. In New York a storm surge caused widespread flooding leading to a state-wide state of emergency. Roads, subways and public schools were closed and many people were evacuated to one of the 76 evacuation centres created. This cost the US a total of $74.1 billion. Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. Candidates present and organise effectively relevant information in a form and using a style of writing which suits its purpose. The text is fluent and legible. A wide range of specialist terms is used skilfully and with precision. [6]	25
	Theme C	**25**

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4 **(a)** Study **Fig. 7** which shows the structure of the Earth. Answer the questions which follow.

(i) Name the section of the Earth indicated by **X** on **Fig. 7**.

Mantle/asthenosphere [1]

(ii) Underline the correct word in the following statements relating to the structure of the Earth. One has been completed for you.

The Earth's surface is divided into **tectonic plates**/**convection currents. (given)**

The crust is the **thickest** / **thinnest** layer of the Earth.

Convection currents / **plate margins** occur underground.

The **outer** / **inner** core is solid.

Fault lines are areas of **strength** / **weakness** in the Earth's crust.
(4 × [1]) [4]

(b) Study **Fig. 8** which shows the location of igneous rocks in Northern Ireland. Answer the questions which follow.

(i) Describe the distribution of granite in **Fig. 8**.

Award [0] for responses based on basalt.

Award [1] for a simple statement on either the distribution or amount.

Accept Co. Down if mentioned.

e.g. It is situated in the south east of Northern Ireland. [1]

e.g. There is not a lot of granite in Northern Ireland. [1]

Award [2] for a statement on each.

e.g. Granite is only found in the south east. [2]
e.g. There is a small area [1] of granite in the south east of Northern Ireland. [1] [2]

(ii) Explain how granite forms.
Note: response must relate to granite.

Award [1] for a response that gives a basic explanation of how any igneous rock might form,
e.g. It's made from molten rock that hardens.
e.g. Made from magma [1]

Award [2] for a limited explanation of how granite is formed,
e.g. Granite is made from molten rock which hardens under the ground.
e.g. Made from magma which cools (slowly) underground. [2]

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Award [3] for a detailed explanation of how granite is formed,
e.g. Granite is made from molten rock which hardens deep under the ground, so it cools slowly allowing large crystals of minerals like (quartz to fuse together). [3]

(c) Study **Fig. 9** which shows a diagram of a shield volcano. Answer the questions which follow.

(i) State two characteristics of a shield volcano.

Any two valid characteristics

Fluid or runny lava [1]. Basic lava or non-viscous
Gentle slopes [1]
Cover a wide area [1]
Found at constructive boundaries [1]
Not very tall/high [1]
Frequent eruptions [1]
Non violent/gentle.[1]
(2 × [1]) [2]

(ii) Name one other type of volcano.

Composite or supervolcano [1]

(d) Study **Fig. 10** which shows information about an earthquake in Ecuador in April 2016.

(i) State the name of the city furthest away from the epicentre.

Guayaquil [1]

(ii) State the meaning of the term **epicentre**.

Award [1] for a brief statement,
e.g. The point directly above the focus. [1]
e.g. The point where the strongest shaking is felt. [1]
e.g. The point on the surface above where the earthquake happened. [1]

Award [2] for a detailed statement,
e.g. The point on the Earth directly above the focus. It is where the strongest shaking is first felt in an earthquake. [2]

(iii) Ecuador lies on a destructive plate boundary.
Explain why earthquakes often occur at a destructive boundary.

Award [1] for a simple explanation regarding destructive boundaries,
e.g. Plates are moving towards each other.

Award [2] for a limited explanation of the processes occurring at a destructive boundary that lead to an earthquake,
e.g. Plates are moving towards each other and one plate is forced under the other. This causes pressure to build up.

Award [3] for a detailed explanation of the processes occurring at a destructive boundary that lead to an earthquake,
e.g. Plates are moving towards each other and one plate is forced under

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	the other. Usually oceanic crust is subducted under the continental crust. This causes pressure to build up. Eventually the pressure will get released in the form of shockwaves. These waves cause the ground to shake violently, i.e. an earthquake. [3]	
(e)	Name an earthquake in a MEDC or LEDC which you have studied. Outline the cause of this earthquake and evaluate the success of one precaution used before the earthquake happened. Accept any valid MEDC or LEDC earthquake, e.g. Japan 2011 Max Level 1 if no named earthquake, or precaution only, or cause only. **Level 1 ([1]–[2])** A basic answer which briefly outlines the cause and/or the precaution used without any evaluation, e.g. Japan is on a destructive boundary [1]. They hold an earthquake drill each year. [1] **Level 2 ([3]–[4])** A limited response which outlines the cause and precaution used, in some detail for a named earthquake in a MEDC or LEDC, e.g. Japan sits on a destructive plate boundary. A large amount of pressure built up between the plates and was released. The Japanese invest a large amount of money in trying to plan for earthquakes [3]. They spend over £70 million on seismometers, tilt meters/earthquake drills or earthquake-proof buildings to help predict where it will occur. [4] **Level 3 ([5]–[6])** A detailed respnse covering both the cause and the precaution used for a named earthquake in a MEDC or LEDC. An evaluative comment is needed on the success of the precaution for [6] marks, e.g. Japan sits on a destructive plate boundary between 3 plates (Pacific, Eurasian and Philippine plate). A large amount of pressure built up between the plates and was released in a 9.0 earthquake. This triggered a large tsunami. The Japanese invest a large amount of money in trying to predict earthquakes. They spend over £70 million on seismometers, tilt meters/ earthquake drills/earthquake-proof buildings to help predict where it will occur. [5] However, despite all this investment, over 20,000 people died and 5,000 people were injured. This precaution was not a success. [6]	25
	Theme C	**25**
	Total	**100**