National
Qualifications
2018

# 2018 Geography

# National 5

# Finalised Marking Instructions

**General marking principles for National 5 Geography**

*This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this paper. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.*

**(a)** Marks for each candidate response must **always** be assigned in line with these general marking principles and the detailed marking instructions for this assessment.

**(b)** Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

**(c)** If a specific candidate response does not seem to be covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.

**(d)** For credit to be given, points must relate to the question asked.

**(e)** There are six types of question used in this question paper, namely:
A Describe . . .
B Explain . . .
C Give reasons . . .
D Match . . .
E Give map evidence . . .
F Give advantages and/or disadvantages . . .

For each of these question types, the following provides an overview of marking principles and an example of their application.

**A Questions that ask candidates to *Describe* . . . (4–6 marks)**
Candidates must make a number of relevant, factual points. These should be key points. The points do not need to be in any particular order. Candidates may provide a number of straightforward points or a smaller number of developed points, or a combination of these.

Up to the total mark allocation for this question:

- Award **1 mark** for each accurate relevant point.
- Award **further marks** for development and exemplification.

**Eg**
**Question**: Describe, in detail, the effects of two of the factors shown. (Modern factors affecting farming.)

**Response:** New technology has led to increased crop yields, (**1 mark**) leading to better profits for some farmers. (**second mark for development***)*

**B Questions that ask candidates to *Explain* . . . (4–6 marks)**

Candidates must make a number of points that make the process/situation plain or clear, for example by showing connections between factors or causal relationships between events or processes. These should be key reasons and may include theoretical ideas. There is no need for any prioritising of these reasons. Candidates may provide a number of straightforward reasons or a smaller number of developed reasons, or a combination of these. The command word 'explain' is generally used when candidates are required to demonstrate knowledge and understanding.

Award up to full marks for sufficiently accurate and detailed, fully labelled diagrams.

Up to the total mark allocation for this question:

- Award **1 mark** for each accurate relevant point.
- Award **further marks** for developed explanations.

**Eg**
**Question**: Explain the formation of a U-shaped valley.

**Response:** A glacier moves down a main valley which it erodes (**1 mark**) by plucking, where the ice freezes on to fragments of rock and pulls them away. (**Second mark for development**)

**C Questions that ask candidates to *Give reasons* . . . (4–6 marks)**

Candidates must make a number of points that make the process/situation plain or clear, for example by showing connections between factors or causal relationships between events or processes. These should be key reasons and may include theoretical ideas. There is no need for any prioritising of these reasons. Candidates may provide a number of straightforward reasons or a smaller number of developed reasons, or a combination of these. The command words 'give reasons' are generally used when candidates are required to use information from sources.

Up to the total mark allocation for this question:

- Award **1 mark** for each accurate relevant point.
- Award **further marks** for developed reasons.

**Eg**
**Question**: Give reasons for the differences in the weather conditions between Belfast and Stockholm.

**Response:** In Stockholm it is dry but in Belfast it is wet, because Stockholm is in a ridge of high pressure whereas Belfast is in a depression. (**1 mark**) Belfast is close to the warm front and therefore experiencing rain. (**Second mark for development**)

**D Questions that ask candidates to *Match* . . . (3–4 marks)**

Candidates must match two sets of variables by using their map interpretation skills.

Up to the total mark allocation for this question:

- Award **1 mark** for each correct answer.

**Eg**
**Question**: Match the letters A to C with the correct features.

**Response**: A = forestry. (**1 mark**)

**E** **Questions that ask candidates to *Give map evidence* . . . (3–4 marks)**
Candidates must look for evidence on the map and make clear statements to support their answer.

Up to the total mark allocation for this question:

- Award **1 mark** for each correct statement.

**Eg**
**Question**: Give map evidence to show that part of Coventry's CBD is located in grid square 3379.

**Response**: Many roads meet in this square. (**1 mark**)

**F** **Questions that ask candidates to *Give advantages and/or disadvantages* . . . (4–6 marks)**
Candidates must select relevant advantages or disadvantages of a proposed development and show understanding of their significance to the proposal. Answers may give briefly explained points or a smaller number of developed points. Award marks for accurate map evidence.

Up to the total mark allocation for this question:

- Award **1 mark** for each accurate relevant point.
- Award **further marks** for developed points.

**Eg**
**Question**: Give either advantages or disadvantages of this location for a shopping centre. You must use map evidence to support your answer.

**Response**: There are roads and motorways close by allowing the easy delivery of goods (**1 mark**) and access for customers, (**second mark for development**) eg the A46, M6 and M69.

**Marking instructions for each question**

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
|---|---|---|---|---|---|
| **1.** | (a) | | 3 correct = 3 marks<br>2 correct = 2 marks<br>1 correct = 1 mark. | **3** | **827694** – arch<br>**812681** – stack<br>**843662** – cliff. |
| | (b) | | 1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>Well-annotated diagrams could get full marks.<br><br>No marks for reference to sand bars.<br><br>Maximum of 1 mark for a list of processes. | **4** | Sand spits (long narrow ridges of sand or shingle) form where the coastline changes direction (1). Longshore drift transports sand (1) and deposits it in a sheltered area (1). Deposited sand builds up over time until it is above sea level (1). This deposition continues until the beach extends into the sea to form a spit (1). Sand spits can also develop a hooked or curved end due to a change in prevailing wind/wave direction (1). Mud flats or salt marsh can develop in an area of calm water behind the spit (1).<br><br>**Or any other valid point**. |
| **2.** | (a) | | 3 correct = 3 marks<br>2 correct = 2 marks<br>1 correct = 1 mark. | **3** | **893618** – ox-bow lake<br>**883627** – v-shaped valley<br>**895589** – meander. |
| | (b) | | 1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>Well-annotated diagrams could get full marks.<br><br>Credit reference to pools & riffles and/or helicoidal flow.<br><br>Maximum of 1 mark for a list of processes. | **4** | In its middle and lower course, a river rarely flows in a straight line resulting in water flowing from side to side – meandering (1). The water flows faster on the outside and erodes the outside bend of the river channel to form a river cliff (1). This wearing away of the river banks by the river's load is called corrasion (1). Hydraulic action also takes place where water gets into small cracks forcing pieces to break off the river bed and banks (1). The river flows more slowly on the inside bend and deposits some of its load to form a river beach or slip-off slope (1). Over time continuous erosion of the outer bank and deposition on the inner bank forms a meander in the river (1).<br><br>**Or any other valid point**. |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| **3.** | | | 1 mark for each correct answer. | **3** | A = forestry<br>B = Halladale River<br>C = electricity transmission lines. |
| **4.** | | | Maximum of 3 marks if only 1 land use is mentioned. Mark as 3:2 or 2:3.<br><br>If suitability of more than two land uses is explained then award marks for the best two explanations.<br><br>Maximum of 1 mark for relevant grid reference. | **5** | For Recreation and Tourism:<br>There are a number of suitable places for people to stay. There are buildings such as Armadale House (790638) (1) which could offer bed & breakfast (1). Tourists would also be able to stay at the caravan & campsite at Melvich (887641) (1). There are a number of nice beaches which tourists would enjoy visiting such as at Strathy Bay (8366) and at Armadale Bay (7964) (1). There would be nice sea views for visitors to enjoy from Strathy Point at 828697 (1) and they might also be able to go fishing from the jetty at 831678 (1).<br><br>For Renewable Energy:<br>This area could be suitable for wind turbines as there are a number of hilly areas where there would be stronger winds (1). It is also a coastal area where winds tend to be stronger (1). There are a number of tracks which would provide access to hilly areas such as south of Bowside Lodge in 8360 (1). As it is a coastal area, it might be suitable for offshore wind power or wave power (1). An exposed area like this in the north of Scotland is likely to have stronger winds and therefore bigger waves (1). The pier at 883657 would provide local access for boats to maintain marine renewable devices (1). Strathy forest has the potential to provide wood for biomass (1).<br><br>For Forestry:<br>The land is not very flat, quite wet in places and so is not good for farming but trees can still be planted here (1) and they clearly grow quite well in this area as there are a number of coniferous plantations already (1) such as at Strathy Forest (8261) (1). Villages such as Melvich and Portskerra might be able to provide a labour force for maintenance and felling (1).<br><br>**Or any other valid point**. |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| **5.** | | | No marks for description of conflicts.<br><br>1 mark for a valid point, 2 marks for a developed point.<br><br>Maximum of 5 marks if no reference to specific area. | **6** | Answers will vary depending on the features chosen:<br>eg A number of conflicts have emerged around the **Dorset coast**.<br>Strategies include the increase in use of cycle routes and train lines which has helped to reduce traffic congestion on coastal roads (1). Giving the area World Heritage Site status emphasises its worldwide importance helps to protect the coastline (1). Turning a former abandoned quarry into the Townsend Nature Reserve has helped to protect wildlife, flora and fauna (1). It has also been designated a site of special scientific interest (SSSI) which has 7 different species of orchid (1). Marram grass is widely planted to conserve coastal vegetation and reduce the effects of human and physical erosion (1). Lulworth Estate has provided a large car park which has had the effect of reducing some of the parking issues (1). Charges for the car park are spent on improving services in the area which benefit both locals and visitors (1). A bus service has been provided from the nearest train station to encourage visitors to leave the car behind (1). A roundabout has been built at the car park entrance to allow traffic to turn and reduces congestion (1). Lulworth Estate also plans to screen the holiday park to reduce the visual impact on the landscape (1).<br>Footpath erosion has been resolved be placing limestone cobbles on paths to make them more durable (1). On steep descents wooden steps have been included to prevent further erosion (1). Reseeding and re-routing paths has protected particularly worn areas (1). Lulworth has no bins to encourage tourists to take litter home (1) and the local estate uses funds from the car park to educate and provide guided tours for tourists (1).<br><br>The MoD have agreed to avoid using the coast on the busiest days of the year: this reduces the impact on tourist experience although there are times when the coast remains restricted (1). The MoD has provided signage to inform visitors when the coastline is closed and which particular areas of paths cannot be used (1). The firing range reduces its practice during peak times to limit the noise from the range (1). The MoD argue that restrictions on access has preserved the natural beauty of the area (1).<br><br>**Or any other valid point**. |

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| **6.** | | | 1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>No marks for description.<br><br>Answers must refer to factors which affect **average** UK temperatures, not to factors which affect temperatures at one particular time eg the passage of a depression or Tc air mass.<br><br>Do not credit reversed points. | **4** | Latitude: places in southern England are warmer because they are nearer the Equator (1); temperatures generally decrease the further north you go because the sun's rays are less concentrated further away from the equator (1). It's colder in northern Scotland because there is more atmosphere for the sun's rays to pass through (1)<br><br>Altitude/Relief: upland areas are colder as temperatures decrease 1°C for every 100 metres gained in height (1) and wind speeds increase as altitude increases which can affect temperature (1).<br><br>Aspect: in the northern hemisphere south facing slopes can be warmer because they face the sun (1). North facing slopes are shaded from the sun and are therefore cooler (1).<br><br>Continentality/Distance from the sea: places closer to the sea have warmer/milder winters and cooler summers because oceans heat up slowly in summer and cool slowly in winter (1) oceans act as 'thermal reservoirs' (1) whereas places further inland have a greater annual range in temperature due to distance from the effects of the oceans (1). The North Atlantic Drift keeps the temperatures warmer on the west coast than on the east coast of the UK (1)<br><br>**Or any other valid point**. |
| **7.** | | | 1 mark for each valid point.<br><br>2 marks for a developed point. | **5** | Due to the approach of the warm front, Stirling's air pressure will fall (1) cloud cover will increase (1) and steady rain will fall (1). Winds will be stronger as the isobars are closer together (1). Because Stirling will be in the warm sector of a depression, temperatures will rise (1) and it will be mild with some cloud cover and occasional showers (1). Due to the cold front arriving,<br>cloud cover will increase (1) with cumulonimbus clouds bringing heavy rainfall to Stirling (1). Temperatures will drop as the cold front passes over (1). As the front begins to move away, the sky will become clear (1) rain will stop (1) air pressure will begin to rise (1).<br><br>**Or any other valid point**. |

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| **8.** | | | 1 mark for each correct answer. | **3** | A. From the public telephone in Henwood (4702) to the school near Rose Hill (5303) 6.25km.<br>B. From Forest Farm (5410) to the church in Stanton St John (5709) 3.75km.<br>C. From Waterperry Gardens (6206) to the College (5502) 8.25km. |
| **9.** | (a) | | No marks for grid references.<br><br>1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>Maximum of 3 marks for any one area.<br><br>Explanations linked to map evidence can be credited. | **4** | Area X – 5106 is the CBD as it has old churches (1) main roads leading to the CBD (1) there are museums here (1). Tourist Information centre (1). Bus station (1)<br><br>Area Y – 5502 is a modern suburb as it has a modern street pattern (cul-de-sacs) (1). It is located at the edge of the city as would be expected of the suburbs (1) there are two schools nearby for children of families living in the nearby housing areas (1) there are few main roads, only B class and minor roads (1). There is more open space than would usually be found in either the CBD or inner city (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark per valid point.<br><br>2 marks for a developed point.<br><br>If no reference to the Ordnance Survey map then mark out of 3.<br><br>Answer must refer to both valid advantages and valid disadvantages for full marks. Otherwise mark out of 4.<br><br>Answers must be explanatory.<br><br>No marks for description.<br><br>No marks for grid references. | **5** | **Advantages**<br>The land is flat, so easier to build on (1). There is reasonable flat land nearby for expansion or car parking if needed (1). Oxford is nearby, so there is a market for the shopping centre (1). People living in nearby areas, such as New Headington could provide a workforce (1). The A40 is close by to provide easy transport to the area (1). The land is on the outskirts of Oxford so should be cheaper to buy (1). Traffic congestion is also likely to be less of a problem outside of the CBD (1).<br><br>**Disadvantages**<br>There is a river running through Area Z and this could limit the land available for the development or increase building costs (1). Home Farm (GR 541100) may object to the plans (1). There is a small forest (537099) which would cost money to clear or may cause objections to be raised (1).<br><br>**Or any other valid point**. |

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| **10.** | | | 1 mark per valid point.<br><br>Maximum of 5 marks if no reference to a named city. | **6** | Answers will vary depending on case study chosen.<br><br>Much of Glasgow's housing stock was run down and in need of repair so the government invested money to renovate the old tenements by putting in new windows, bathrooms and double glazing (1). Some of the poorer housing/tower blocks were pulled down (1) and replaced by new housing to improve living conditions in regenerated areas like Glasgow harbour (1). Old grid iron streets plus increased car ownership caused congestion problems so new transport links like the Partick Interchange was built (1). To try to improve unemployment the government invested in the service sector with many jobs being created in call centres (1). Small industrial units replaced the old heavy industries improving employment in the area (1). Tourism has been encouraged with many new hotels appearing in the gap sites left by the demolished factories (1). Improvements made to the environment by landscaping and improving docklands (1).<br><br>**Or any other valid point.** |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| **11.** | | | Accept different reasons for higher yields/profits.<br><br>Maximum of 3 marks for any one factor.<br><br>1 mark for each valid point.<br><br>2 marks for a developed point. | **4** | In the Lower Ganges Valley, India, new technology such as tractors allows farmers to increase speed and efficiency (1) which provides better profits for some farmers (1). This money can then be used to improve the overall standard of living of the farmers (1). There is less physical work for people (1) but fewer jobs available (1). This can lead to rural depopulation in some areas such as people leave to find work (1). Machines are expensive and not all farmers can afford them, leading to inequality (1).<br><br>The use of irrigation channels can allow two to three harvests a year instead of one, this increases profits for farmers (1). However, as the land is constantly in use the soil quality becomes poorer over time (1).<br><br>The increased use of machinery and chemicals has created new industries and jobs, eg mechanics to fix tractors (1).<br><br>The introduction of GM crops can give the farmer a more reliable harvest as the seeds are designed to resist disease (1). Crops can be grown in adverse conditions, eg with less water, ensuring a better food supply for the people (1). However, the increased use of fertilizers and pesticides can damage the environment if they get into the water (1). Farmers become relient on multi-national companies (1).<br><br>**Or any other valid point**. |
| **12.** | (a) | | 1 mark for a general point.<br><br>1 mark for a list.<br><br>No marks for identifying places with 'no data'. | **4** | In 2015 India, China and the USA had the highest Gross National Income (GNI) in the world (1). The GNI of the USA was greater than $4.93 trillion (1). Most African countries for which we have data, had a GNI less than $1.06 trillion (1). The GNI for Brazil was between $2.75.06 – $4.93 trillion (1). Most other South American countries earned less than $1.06 trillion (1). Scandinavian countries all had a GNI of less than $1.06 trillion (1). Germany had a GNI of between $2.75 – $2.93 trillion (1). The UK's GNI was between $1.06 – $2.75 trillion (1).<br><br>**Or any other valid point**. |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| | (b) | | 1 mark for a valid point.<br><br>2 marks for a developed point.<br><br>Maximum of 3 marks if only one indicator is described. | **4** | Answers will vary depending on choice.<br><br>If number of people per doctor chosen:<br>A high number of people per doctor shows a lack of healthcare provision (1). The more people per doctor the less developed a country will be because there isn't enough money to educate them (1). Developing countries often have a poor education system and lack of universities to train qualified doctors (1). Governments in developing countries cannot afford to keep hospital stocked with adequate provisions (1).<br><br>If number of births per 1,000 women per year is chosen:<br>The lower the number of births per women the more developed a country will be because there is a low infant mortality rate and women do not need to have 'extra' children to ensure some survive (1). Children are not needed to work on the land so birth rates are low (1). Contraception is widely available and family planning clinics allow women to plan for a baby (1). Sex education in schools helps to prevent unwanted pregnancies (1).<br><br>If percentage of people working in agriculture is chosen:<br>The lower the percentage of people working in agriculture the more developed a country will be because most people work in factories or services (1). Developed countries have fewer people working in farming because they can afford to import food from other countries (1). People work in mainly secondary and tertiary industries as there is more money to be made in these sectors (1). More people work in agriculture in the developing world because of the lack of mechanisation (1).<br><br>**Or any other valid point**. |

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| **13.** | (a) | | 1 mark per valid point.<br><br>Marks should be awarded for use of statistics.<br><br>Only 1 mark should be awarded for an increase or a decrease (trend). | **4** | In 1990 carbon dioxide accounted for around 24,000 million tonnes of emissions. This had risen to around 34,000 in 2010 (1).<br><br>In 1990 methane + nitrous oxide accounted for around 10,000 million tonnes of emissions. This had risen to around 12,000 in 2010 (1).<br><br>The change in carbon dioxide emissions is more than methane + nitrous oxide or nitrous oxide with a change of around 10,000, compared to 2,000 for methane + nitrous oxide (1). Greenhouse gasses have increased from 1990–2010 (1) from 34,000 million tonnes to 46,000 million tonnes (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark per valid point.<br><br>2 marks for a developed point.<br><br>Maximum of 4 marks if either Human or Physical only mentioned.<br><br>No marks for description only. | **6** | **Physical Causes:**<br>Fluctuations in solar activity over time can increase or decrease global temperatures (1).<br><br>The Little Ice Age of 1650–1850 may have been caused by a decrease in solar activity (1).<br><br>Volcanic eruptions can impact on global temperatures as large quantities of volcanic dust in the atmosphere shield the Earth from incoming insolation which lowers global temperature (1). For example, the eruption of Mount Pinatubo in 1991 caused a dip in global temperatures when 17 million tonnes of sulphur dioxide was released into the atmosphere (1). This reduced global sunlight by 10% and resulted in a 0.5% temperature decrease globally (1).<br><br>Large eruptions may also enhance the greenhouse effect and lead to global warming in some instances (1).<br><br>Milankovitch cycles or variations in the tilt and/or orbit of the Earth around the Sun affect global temperature (1). More tilt means warmer summers and colder winters, less tilt has the opposite effect (1). |

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| | | | | | Changes in oceanic circulation such as the periodic warming (El Nino) and cooling (La Nina) of areas of the tropical Pacific Ocean can impact on global temperature (1).<br><br>Melting permafrost from Arctic areas can release large quantities of the greenhouse gas, methane (1). This exacerbates the natural greenhouse effect, increasing global temperatures (1).<br><br>**Human Causes:**<br>The burning of fossil fuels produces carbon dioxide which leads to global warming (1).<br><br>Car exhausts, nitrogen fertilisers and power stations all produce nitrous oxide which increases the amount of greenhouse gasses in the atmosphere (1). Worldwide deforestation also increases carbon dioxide levels, by reducing the storage of carbon (1).<br><br>CFCs found in fridges, air conditioning and aerosols contribute to global warming (1).<br><br>Increases in rice production and cattle farming contribute to atmosphere pollution (1). Because methane is a stronger greenhouse gas, small increases have a larger impact (1).<br><br>**Or any other valid point**. |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| **14.** | (a) | | Both deforestation and population must be mentioned for full marks.<br><br>Otherwise, mark out of 3.<br><br>1 mark for a valid point.<br><br>2 marks for a developed point.<br><br>General answers only mentioning increases and decreases award 1 mark. | **4** | **Deforestation levels:**<br>Deforestation rose from just under 1.2 billion hectares in 1900 to around 1.8 billion hectares in 2010 (1). Deforestation levels have steadily increased (1). From 1900 to 1980 deforestation increased from around 1.2 billion to 1.6 billion hectares (1) a difference of 0.4 billion (1).<br><br>**Population:**<br>World population rose from around 0.9 billion in 1900 to just under 7 billion in 2010 (1). Population increased relatively slowly from 1900 to 1950 from around 0.9 billion to 1.1 billion (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark for a valid point.<br><br>2 marks for a developed point. | **6** | **Rainforest:**<br>Plants such as fan palms have large leaves that are good for catching sunshine and water (1). The leaves are segmented, so excess water can easily drain away (1).<br><br>Rainforests have a shallow layer of fertile soil, so trees only need shallow roots to reach the nutrients (1). However, shallow roots can't support huge rainforest trees, so many tropical trees have developed huge buttress roots (1). These stretch from the ground to two metres or more up the trunk and help to anchor the tree to the ground (1).<br><br>Lianas are woody vines that start at ground level, and use trees to climb up to the canopy where they spread from tree to tree to get as much light as possible (1).<br><br>Strangler figs start at the top of a tree and work down. Gradually the fig sends aerial roots down the trunk of the host, until they reach the ground and take root (2). The figs branches will grow taller to catch the sunlight (1) and invasive roots rob the host of nutrients (1). Eventually the host will die and decompose leaving the hollow but sturdy trunk of the strangler fig (1).<br><br>Some plants grow thick leaves with drip tips and waxy surfaces to allow water to drain quickly to prevent rotting (1). |

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| | | | | | Some plants called 'epiphytes' get food from the air and water, and their roots hang in the air, eg orchids (1). Trees grow fast and straight to compete for sunlight (1).<br><br>Any other valid point.<br><br>**Tundra:**<br>Successful plants in the tundra are low growing, compact and rounded in order to help protect from the wind (1). Many grow close together for added protection from the weather (1).<br><br>The trees that can survive in the tundra are often small (1) and the snow acts as insulation for the trees and helps them stay warmer during the winter months (1).<br><br>During winter months, many plants go dormant to tolerate the cold temperatures (1). By going dormant during the winter, plants are able to save energy and use it during more favourable conditions, like the warmer summer months (1).<br><br>Plants grow rapidly during the short summer season, and they flower more quickly (1).<br><br>The flowers of some plants increase their heat efficiency by slowly moving during the day to position themselves in a direction where they can catch the most rays from the sun (1). Some plants have cup shaped flowers to trap the sun (1). Other plants have protective coverings, such as thick woolly hairs, that help protect them from wind, cold and desiccation (1).<br><br>A small leaf structure is another physical adaptation that helps plants survive. Plants lose water through their leaf surface. By producing small leaves the plant is more able to retain the moisture it has stored (2).<br><br>Cotton grass has narrow leaves helping to reduce transpiration (1) its dense flower heads reduce heat loss and darker leaves help absorb energy from the Sun (2).<br><br>**Or any other valid point.** |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| **15.** | (a) | | Trends/changes in estimated damage to be described with reference to figures and years.<br><br>Accept an implied change eg. Increased or decreased to / reached over.<br><br>No marks for highest or lowest.<br><br>1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>Maximum of 1 mark if no mention of figures (trend). | **4** | There was a general rise, before a spike in 1995, resulting in around $155 million (1). There was a drop to $30 million in 2001 (1), before rising to $220 million in 2005 (1). There was a high of $360 million in 2011, before it dropped to $150 million in 2012 (1). Overall, there was a rise in damage cost from 1990 to 2012 (1).<br><br>**Or any other valid point.** |
| | (b) | | 1 mark per valid point.<br><br>2 marks for a developed point.<br><br>No marks for description.<br><br>Mark out of 5 if no reference to specific area.<br><br>Marks may be awarded for reference to warnings given/evacuations taking place prior to volcanic eruptions. | **6** | Answers will vary depending on the case study chosen.<br>Scientists can monitor seismic activity. Tremors can give warnings as to an imminent eruption (1). If people are warned they can evacuate (1). Scientists successfully predicted the eruption of Mount St Helens in 1980 by measuring the frequency of earthquakes on the mountain. This enabled many locals to escape to safety (1).<br><br>Scientists can also monitor gas emissions, such as sulphur dioxide to predict an eruption (1). However, this is an inexact science and scientists can rarely predict too far in advance. Despite scientists noticing increased tremors and sulphur dioxide emissions before the eruption of Mount St Helens, scientists thought that it might still be a few weeks away (1).<br><br>Volcanoes sometimes expel lava bombs before an eruption, this would give the population warning to evacuate (1).<br><br>Temperatures around the volcano tend to rise as activity increases. Thermal imaging techniques and satellite cameras can be used to detect heat around a volcano (1). |

| Question | | | General marking instructions for this type of question | Max mark | Detailed marking instructions for this question |
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| | | | | | Volcanoes such as Mount St Helens in the USA and Mount Etna in Italy are closely monitored at all times. This is because they have been active in recent years and people who live nearby would benefit from early-warning signs of an eruption (1). Tilt meters which record changes in the shape of a volcano can also give early warning of an eruption (1).<br><br>People living in the shadow of a volcano have emergency plans in place and emergency supplies such as bottled water and tinned food are stockpiled to ensure they have vital supplies to survive in the event of an eruption (2).<br><br>In the event of a serious eruption, short term aid in the form of food, medicine and shelter could be sent to the area to treat the injured (1). In the case of Mount St Helens a 5-mile exclusion zone was enforced (1).<br><br>When the Pico de Fogo Volcano in Cape Verde erupted in 2014, more than 1,000 people were evacuated from the Cha das Caldeiras region at the foot of the volcano immediately after it first erupted (1). Officials closed the airport as the skies darkened with ash to prevent damage to aeroplane engines (1).<br><br>**Or any other valid point**. |

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| **16.** | (a) | | 1 mark for a valid point.<br><br>1 mark for a general trend.<br><br>2 marks for a developed point. | **4** | The number of people employed in the production Fair Trade flowers and plants has decreased by 1,000 (1) from 51,000 to 50,000 (1). Employees in seed cotton have decreased from 60,000 to 53,000 (1). Cocoa producers have increased by 5,000 (1) from 180,000 to 185,000 (1). The number of employees in the growth of Fair Trade tea has increased by about 65,000 people in one year (1) from 300,000 to 365,000 (1). Tea had the largest increase in the number of employees (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark for a valid point.<br><br>2 marks for a developed point.<br><br>If no case studies mentioned, mark out of 5. | **6** | Answers will vary depending on case study chosen.<br>Farmers are paid a fair wage for their hard work producing Fair Trade tea in Kenya (1) and safer working conditions are promoted to prevent accidents and injuries (1). Fair trade also encourages farmers to treat their workers well (1). Farmers receive a guaranteed minimum price for their cocoa in Cote d'Ivoire so they are not affected as much by price fluctuations (1) and can receive some money in advance so they don't run short (1). More money goes directly to the farmer as the 'middle man' is removed (1). Money from Fair Trade bananas in Latin America can be used to improve services in local communities such as schools and clinics (2) which improves peoples' standard of living (1).<br><br>**Or any other valid point**. |

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| **17.** | (a) | | Maximum of 1 mark for a list.<br><br>No marks for reference to places without world heritage sites under threat. | **4** | There are more endangered world heritage sites located in Africa than in any other continent (1). There is 1 world heritage site in danger in the UK (1). Madagascar has a site that is endangered (1). The Middle East has the second highest number of sites including locations in Afghanistan and Iraq (1). There is also one world heritage site in danger in the USA (1). There are 3 sites in danger in South America (1). Central America has 4 world heritage sites in danger (1). Indonesia has 1 site under threat (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark for each valid point.<br><br>2 marks for a developed point.<br><br>Candidates should refer to named examples. If no reference to named areas, a maximum of 5 marks should be awarded. | **6** | National parks are set up to protect fragile environments and to encourage sustainable economic development, including tourism (1). Local guides educate visitors on the importance of conservation (1) and can show them projects where their money is being spent to protect the environment (1). Limited numbers of people are allowed access to eco-tourist areas (1) eg in Peru daily numbers are restricted on the Inca Trail (1). Tours must be small-scale so companies have to limit group sizes to lessen environmental impact (1). Eco-tourists must follow local customs and respect local cultures (1) eg removing shoes before entering temples in Cambodia (1). Tourists are encouraged to follow the code 'take nothing but photographs, leave nothing but footprints' (1).<br><br>**Or any other valid point**. |

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| **18.** | (a) | | Maximum of 1 mark for reference to places without figures.<br><br>1 mark for a valid point.<br><br>2 marks for a developed point. | **4** | Answers may include:<br>HIV/AIDS is most prevalent in developing countries (1). The HIV/AIDS rate is over 10% in South Africa, Namibia and Botswana (1). Kenya and Tanzania have a rate of between 6-10% (1). Mauritania, Mali and Ghana have a rate of between 1-5% (1) South and Central American countries like Brazil and Mexico also have low rates of under 1% (1).<br><br>**Or any other valid point**. |
| | (b) | | 1 mark for a valid point.<br><br>2 marks for a developed point. | **6** | Answers may include:<br>AIDS is a debilitating disease which means that eventually those infected will not be able to work (1). This lowers productivity and hampers development of a country (1). This in turn leads to fewer jobs and less wealth in a country (1).<br><br>The death rate will increase and life expectancy decreases (1).<br><br>In areas where AIDS is endemic eg South Africa or Uganda, children may be left without parents and brought up by grandparents (1), meaning entire middle-aged populations may be missing from societies (1). Those affected will be mainly in the economically active group so the dependency ratio will increase; there will be less people to support the young and elderly (2).<br><br>With more adults ill and unable to work then the economically active population reduces (1), resulting in a shortage of labour (1).<br><br>Less food will be produced as less people are able to work the land (1).<br><br>There may be a loss of tourist revenue if there are known to be specific problems with disease in the area (1).<br><br>The young often become carers, therefore missing out on education (1). There will also be a large number of orphans and dissolved families (1).<br><br>Relatives of sufferers may be ostracised by their communities (1). |

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| | | | | | Lack of staff in schools means that many people don't receive enough education about AIDS (1).<br><br>**Or any other valid point.** |

**[END OF MARKING INSTRUCTIONS]**