Mark Scheme (Results)

Summer 2016

Pearson Edexcel in GCE Geography
(6GE04)
Unit 4: Geographical Research
Edexcel and BTEC Qualifications

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate’s response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate’s response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

General Guidance on Marking

All candidates must receive the same treatment.

Examiners should look for qualities to reward rather than faults to penalise. This does NOT mean giving credit for incorrect or inadequate answers, but it does mean allowing candidates to be rewarded for answers showing correct application of principles and knowledge.

Examiners should therefore read carefully and consider every response: even if it is not what is expected it may be worthy of credit.
<table>
<thead>
<tr>
<th>Question Number 1</th>
<th>To what extent do contrasting tectonic processes produce different landscapes?</th>
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<tbody>
<tr>
<td></td>
<td>• Explore how volcanic and seismic processes result in a variety of landscapes.</td>
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<tr>
<td></td>
<td>• Research different locations to examine the role of tectonic activity in the formation of a range of distinctive landscapes.</td>
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**Indicative content to be used WITH the generic mark scheme- be prepared for different types of approach to this Question**

**FOCUS**

The **focus** of this title is the extent to which different tectonic processes lead to a recognisable set of landforms and landscapes that distinguish them from other landscapes, both other tectonic landscapes and non-tectonic landscapes. The **framework** chosen may be a number of contrasting landscapes, perhaps contrasting different types of volcanism, intrusive and extrusive perhaps, or different tectonic margin or different types of volcanic landscapes according to the exclusivity of the volcanoes. Deconstructing of the title should focus on what constitutes a distinctive or ‘different’ landscape. The ‘correct’ answer is that they are often but not always distinctive and that it is possible to draw some distinctions between extrusive and intrusive landscapes with the former perhaps more positive than the latter – a theme that could be picked up with the positive impacts of andesitic volcanoes but also negative impacts, as in lava flows which can produce fairly featureless landscapes. A sophisticated extension would be to address the impact of time on volcanic landscapes contrasting the landscape of Edinburgh with that of Naples.

**Key ideas that candidates may discuss + possible case studies/examples**

An indication of **Methodology** should feature: why/what particular material was used, including reputable sources including academic text books and journals such as the *New Scientist*, or academic websites like the *USGS*. Students will also use blogs and less obviously peer reviewed materials but they should note the risks associated with such sources.

**Key ideas/reasons**

- Clear identification of different tectonic processes – convergence, subduction and divergence creating different landscapes
- Contrasts between extrusive and intrusive landscapes and landforms.
- That landscapes are an assemblage of landforms
That different types of volcanoes may have distinctive landform/landscape characteristics

That there may be contrasts between the landscapes of active/dormant and extinct volcanoes

Large fault systems have different characteristics than smaller systems

Case studies/examples likely to feature: San Andreas fault line, mid Atlantic and E African rift valleys, Deccan plateau, Etna and Mauna Loa.

Credit relevant fieldwork/primary research e.g. to Arran, Iceland, Sicily, Vesuvius and topical examples if relevant.

Models may feature e.g. volcanic types.

Candidates might address;

- the contrasting nature of different landscapes e.g. obvious active volcanoes, extinct ones, or exposed intrusive features e.g. batholiths. They may differentiate distinctive forms from earthquakes, e.g. large scale features like transverse faults like San Andreas and more striking vertical features; volcanoes. Less distinctive, hence contrasting might be fumaroles, mud pools. They may introduce a time frame into their discussion and include effects of long term denudation reducing/exposing original tectonic form.
- the varying impact of extrusive igneous activity on landscape; volcanic cones, (eruption types,) fissures, lava plateau- and links to plate boundary type and hotspot. Effusive + explosive impacts. Depending on chosen case studies but often explosive volcanoes may produce more distinctive, often larger features (e.g. large caldera) However long term more effusive eruptions may produce very distinctive and large scale features too e.g. Mauna Loa or Deccan Plateau., albeit quite ‘negative’
- Varying impacts of intrusive igneous activity on landscape: major e.g. batholiths, major linear features e.g. sills/dykes minor e.g. small sills/dykes
- Earthquake activity: small to large scale fault-lines, scarps, rift valleys, ground displacement. Less obvious than igneous/volcanic?
- The older the landscape, the more likely to be modified by denudation/erosion
- Secondary hazard of earthquake = tsunami- leading to erosion of coastal landscape
- Secondary effects of Volcanic eruptions e.g. lahars, floods as with Icelandic floods and sandar plains
**Better candidates**

- will set up the debate in the introduction in which there is clarity about the view to be taken
- will justify their focus and framework effectively, setting up criteria to test/ evaluate the distinctiveness of landscapes
- will examine several different types of tectonic landforms
- will be able to see landscapes as a set of features that are related to the same set of processes provide a type of ‘landscape’ signature
- will use a range of topical sources in their **methodology** and evaluate these sources in terms of their reliability.
- will accurately use **specialist geographical/ associated terminology**

**BUT above all**

- come to a ‘view’ about the validity of the claim for ‘difference’.
<table>
<thead>
<tr>
<th>Question Number 2</th>
<th>To what extent can all cold environments be successfully managed in similar ways?</th>
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<td>- Explore a range of management strategies and how they vary in contrasting cold environments</td>
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<tr>
<td></td>
<td>- Research different cold environments to illustrate the different challenges of managing them successfully.</td>
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**Indicative content plus generic mark scheme- be prepared for different types of approach to this Question**

**FOCUS**

The focus of this title is the success of (a particular type of) management in across spectrum of cold environments.

The framework chosen is likely to be different types of management strategies from exploitation to preservation in different types of ‘contrasting’ cold environments e.g. high/low latitude – active/relict – glacial/periglacial or conceivably.

Deconstructing the title should focus on what constitutes a management strategy and the reasons why they might vary. It also needs to address what constitutes ‘success’ by offering some idea of how this is be measured e.g. economically and/or environmentally. The ‘correct’ answer is that they probably could be managed in similar ways but given the different values of these landscapes it is inconceivable that they will be managed in the same way. The nature of the cold environment is likely to be one of the factors but the main factor is likely to be both the cost of that management strategy and the economic and political aims that lie behind them.

**Key ideas/concepts that candidates may discuss + possible case studies/examples**

An indication of Methodology should feature: why/ what particular material were used, reputable sources like academic text books and journals including the United Nations or academic websites such as the British Antarctic Survey

**Key Ideas/reasons**

- That there are very many different types of cold environment
- Some of these cannot reasonably be managed except in the broadest sense – Antarctica/Greenland
- Management involves a set of decisions made at a political level
- These decisions almost always involve expenditure that will need budgeting
- Management strategies are likely to change over time
Case studies /examples likely to feature: Antarctica, Arctic-Denali, Cairngorms– credit recent/ up dated material
Credit relevant fieldwork/primary research e.g. to Iceland, Alps, relict landscapes of Scottish Highlands, Lake District, Snowdonia.
Models may feature : e.g. Core-Buffer/Biosphere model, adapted wilderness spectrum, continuum models showing exploitation-preservation

Candidates might address;

- Cold environments vary in nature/landscape/features/scale- may see a selection from these, too many to cover altogether
- The landforms produced from glaciations have partly been responsible for current management of tourism.
- Active landscapes in the Alps, Alaska, Iceland, Antarctic, Himalayas have a range of management from exploited- conservation-preservation.
- Common to many cold environments =core/buffer zoning concept of Biosphere reserves and in many National Parks However, management approaches may not vary greatly dependent on the cold environment per se- may be more related to politics, governance, economic wealth, international involvement
- Management approaches range from do nothing to preservation. Active conservation may occur. Antarctica is unique in its management (Antarctic Treaty). Some areas may have international management via UNESCO, others national management e.g. National Parks in Iceland or the ex-glaciated areas of UK.
- The reasons for management range from exploitation-preservation to conservation. Technology may play an active part in management- from oil pipelines on stilts and buildings adapted to permafrost to satellite imagery
- The people/players involved include governments, international organisations, statutory and NGO, pressure groups, local people, TNCs.....
- Increasing fears over exploitation of cold environments- hence UN role and conservation watchdogs like Greenpeace. International Polar Year (2007-8),

Better candidates
• Will recognise that there is a very wide range of cold environments that vary greatly in their accessibility to man

• ..and their utility to man

• but will see beyond the landscapes to the politics.

• may investigate how levels of development may affect the management policies that are chosen

• may explore why some environments have become more politically significant so management has changed e.g. Greenland

• may discuss feedback mechanisms.

• will use a range of topical sources in their **methodology** and evaluate these sources in terms of their reliability.

• will accurately use **specialist geographical/ associated terminology**

**BUT above all**

• will take a view about what constitutes success!

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**Question Number 3**

**Assess the view that the causes of inequalities in food supply are always complex.**

• Explore the political, socio-economic and environmental factors which may contribute to inequalities of food supply.

• Research contrasting locations at a range of scales to demonstrate a range of reasons for both famines and food surpluses.

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**Indicative content plus generic mark scheme- be prepared for different types of approach to this Question**

**FOCUS**  
**The focus** of this title is the varying complexity of food insecurity. The **framework** chosen may be by the processes that create food insecurities both in terms of supply and demand including supply
issues affected by climate change and desertification and ‘natural’ hazards but also human causes of both supply and demand changes including population growth, political processes and decision making and geopolitics. It might also be done through contrasting locations. Deconstructing the title involves understanding the complexities in the relationship between human and physical processes that affect both supply and demand and an assessment of what constitutes ‘complex’ in this context. It requires an understanding of what leads to food insecurity and show a more sophisticated knowledge of the complex relationship of food supply inequalities and population. The most problematic word in the question is ‘always’.

<table>
<thead>
<tr>
<th>Key ideas / concepts that candidates may discuss + possible case studies/examples</th>
<th>An indication of Methodology should feature: why/ what particular material was used including reputable sources including academic text books and journals, or reputable websites like the UN, WHO, FAO or WRI. Some candidates will use blog sites and recognise that they often lack peer reviewed credentials. Case studies/examples may come from marginal lands included decertified regions areas and urban areas as well as rural, as well as from areas with differing development status. Expect places like N Korea, Darfur, Kenya, Australia, Mumbai, Port au Prince and less obvious ones like New York, Detroit, London. Credit should be given to topical /current examples e.g. the biofuels- staple food debate.</th>
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<tbody>
<tr>
<td></td>
<td>Key ideas/reasons</td>
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<tr>
<td></td>
<td>• Ultimately we produce enough food for the global population</td>
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<td></td>
<td>• Most food supply crisis are crises of supply and not production</td>
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<tr>
<td></td>
<td>• Many ’natural’ reasons are not entirely natural and some of those may be exacerbated by human actions</td>
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<td></td>
<td>Candidates may address</td>
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<td></td>
<td>• Reducing food supply may feature, 2010 drought in Niger, transient physical factor of earthquake in Haiti overlying chronic food supply issues linked to human factors (politics, aid) and ongoing natural hazards.</td>
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<td></td>
<td>• Models of Malthus and Boserup may feature, the latter especially useful for assessing role of the two Green Revolutions and GM food. They may include food supply chain models, the root/proximate model, and adapted ‘Degg/Venn style’ model.</td>
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<tr>
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<td>• Food supply inequalities (exists when some people do not have adequate physical, social or economic access to</td>
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sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (FAO) whilst others have plentiful supplies. Inequalities refer to hunger hotspots versus areas of plenty or could even mean excess food supply.

- Supply refers more to production and distribution of food than access which focuses on especially disposable income....

- There is enough food to feed all at a global scale, but it is not distributed fairly/evenly/adequately to all thus food inequalities are now large scale and increasing but for a whole variety of natural-physical and human reasons: environmental/economic, social/political.

- Inequalities have often been generated by international strategies- e.g. unfair world including trade, debt repayments, inappropriate food aid.....

- Food production is increasingly globalised with land purchasing through Africa and Asia by richer nations and TNCs decreasing local food supply

- Direct causes also include natural hazards plus natural climate shifts, but often exacerbated by human actions including salinisation, desertification, deforestation and land degradation. Climate change (indirectly from human caused enhanced greenhouse effect) plus

- associated weather shocks (cyclones, droughts) affecting especially vulnerable sub-Saharan Africa may reduce food supply

- Rise in non food uses of land - from urban sprawl, tourism to biofuels may reduce food production.

**Better candidates**

- may note that global population growth rates are slowing down so supply problems will diminish

- ...if land is used appropriately and sustainably

- may note that population growth rates might be a consequence of food insecurity rather than a cause.

- will use a balanced, wider set of case studies, and evaluate the complex role of population growth and economic change at both a local/national level and a global level

- will use a range of topical sources in their methodology and evaluate these sources in terms of their reliability.

- will use accurately specialist geographical/associated terminology
• may introduce a time frame into their discussion and the differing people or players involved
But above all
• address the issue of complexity and offer contrasts between simple cause and effect and more multi-causal events/trends
| Question Number 4 | ‘There is no such thing as a global culture.’ To what extent do you agree?  
- Explore the meaning of the term global culture, its applicability and its main characteristics  
- Research contrasting locations at a range of scales that have been differently affected by globalisation and global culture |

### Indicative content plus generic mark scheme - be prepared for different types of approach to this Question!

**FOCUS**  
**The focus of this title** is the legitimacy of the idea of a common global culture.  

The **framework** chosen is likely to be locations with contrasting levels of globalisation/cultural diversity, connected and unconnected places.

Deconstruction will include a definition of the idea of global culture - they may introduce a time scale into their discussion, and argue global sharing of culture although certainly faster in last century (especially since the internet was developed for mass consumption in 1992) has always been a feature of invasions, takeovers, trade. They may introduce the differing people or players in this involved and how they fashion culture directly and indirectly address the meaning of both cultural diversity and globalisation before examining whether one inevitably leads to the other? The correct answer is yes – there isn’t one global culture but there is a growing trend to homogenisation of culture with distinctive local colour/flavour.

**Key ideas/concepts that candidates may discuss + possible case studies/examples**  
An indication of **Methodology** should feature: why/what particular material was used, reputable sources like academic text books and journals such as the *Geography Review*, or reputable websites like *UNESCO*. Expect a wide variety in this option from *National Geographic*, tabloid newspapers, pressure groups.

**Key ideas/arguments**  
- Global cultures as defined as a common set of values, lifestyles and belief systems clearly do not exist  
- The idea that ‘history’ has ended and that global capitalism was brought a consumer culture to all is obviously contested, sometimes with violence  
- The fact that global cultures have spread, not least as a consequence of technology is undeniable

Credit should be given to topical /current case studies/examples such as ban on smoking, asthma and China’s ‘grime belt’ and cancer villages and Harbin river incident, or older, well-known examples updated such as Minimata, Chernobyl, Love Canal and
Bhopal. Expect strategies such as Kyoto (GHGs), Basle (toxic waste), Montreal (cfcs)

**Candidates might address:**

- They may introduce a time scale into their discussion, and argue global sharing of culture although certainly faster in last century (especially) since the internet was developed for mass consumption in 1992) has always been a feature of invasions, takeovers, trade- ie voluntary and forced. They may introduce the differing people or players in this involved and how they fashion culture both directly and indirectly

- Globalisation is the increasing levels of interconnectedness of places - familiar measures include the KOF index – such measurements include ‘cultural’ elements e.g. Ikea stores, foreign movies etc.

- Globalisation is also a set of processes which include removal of restrictions of ‘free’ movement of goods and capital which may in turn suggest a concept of global culture

- Global corporations promote a global culture to increase sales; examples include media giants (Disneyfication) and retailers (McDonaldisation).

- The growth of English as international language may undermine local languages and dialects removing cultural identity and promote a ‘global’ culture

- However there is resistance to growth of global ‘culture’ although this may lead to international isolation (Iran, North Korea) – linked to strategic view of ‘one’ world e.g. an US vision of the future.

- Many NGOs are vociferous in preserving local cultures eg Survival International and will lobby governments for change.

- Governments are the key players, in their funding and strategies on cultural diversity- e.g. aim to assimilate or foster multiculturalism but have to consider their political survival.

**Better candidates**
will demonstrate a proper understanding of globalisation at a number of levels and address the complexities of the idea of global culture

will explore what constitutes cultural diversity and how it can be assessed.

will recognise that a global culture is growing but might argue that the impact of global cultures may generate different and new cultures.

may explore the long term/short term impact of globalisation.

may address the power of corporate ‘culture’ to dominate the media landscape thus affecting the reliability of sources used by promoting the idea of global culture

use more effectively specialist geographical/associated terminology

BUT above all

take a view – in this case a qualified ‘no’ is probably the most likely.

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**Question Number 5**

‘Controlling pollution is the most important strategy in reducing health risks’. Discuss.

- Explore the role of pollution control in the management of different health risks.
- Research a range of contrasting examples to investigate how pollution management may contribute to health risk reduction.

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**Indicative content plus generic mark scheme- be prepared for different types of approach to this Question**

**FOCUS**

The **focus** of this title is the relationship between pollution and health risks and more particularly whether this is the most important strategy.

The **framework** is likely to be a country by country analysis of health risks or a factor by factor approach

Deconstructing this title requires a sensible definition of pollution in all of its myriad forms. Health risks also need to be broken down into the nature of the risk. The correct answer is heavily dependent on how pollution is defined but in even in its broadest sense it should a conditional ‘yes’.
An indication of **Methodology** should feature: why/what particular material was used, reputable sources like academic text books and journals such as the *New Scientist* and *BMJ*, or reputable academic websites like the WHO or government sites like the NHS. Some candidates may explore topicality, reliability, and the very controversial elements embedded in this topic.

**Key ideas/arguments**

- Economic growth generally drives better health care although the relationship also works in the other direction because an unhealthy population is less productive the history of development suggests a very strong relationship with health improving this generating increases in productivity.
- But development also brings in new types of risk given growth of pollution in industrial phase, especially cancers
- Relationship works in both directions as economic development in industrial and post-industrial states requires a healthier population to be more productive but also can afford to invest in better health care
- Type of health risk also related to environmental conditions (i.e. physical environment can play a part)
- But not all diseases are pollution related – HIV, Malaria, Ebola etc

Expect a range of **case studies** of countries and, perhaps, global regions showing detailed knowledge. Locations should be specific and identifiable and cover a range of examples at different stages of development and with contrasting levels of health risk. Sub-Saharan Africa likely to feature with focus on HIV/AIDS and malaria inhibiting development. Haiti post earthquake cholera epidemic for impact of catastrophic events on inhibiting economic development and recovery. This might be contrasted with Cuba which has exceptional health care provision but weak economic development. **Credit relevant fieldwork/primary research as evidence.**

**Candidates might address;**

- Vast array/range of health risks, some more difficult to manage
- Many associated with pollution from both air, land and water sources: respiratory and waterborne diseases like cholera, diarrhoea
- The Montreal protocol is a good example of controlling pollution at the source, and hence reduction of melanoma
risk from ozone depletion. However policies of education on sunscreens etc also very important

- Some infectious diseases have no real link with pollution e.g. measles, HIV/AIDS or diseases associated with obesity although a polluted environment will add stress to health
- Some vectored diseases e.g. spread of malaria relates to climate change- so indirectly related to pollution control via Kyoto Protocol and Copenhagen are relevant. However strategies of roll back Malaria, nets etc. and possible future vaccine may be more important
- Hence management of the source is critical to longer term management. Shorter term treatment of symptoms probably more unsustainable. Control may be by prevention or treating symptoms.
- Lifestyle choices are critical as well as pollution control
- Management has had varying impact on health risk prevalence/ re emergence
- Models may be used e.g. Kuznets environmental curve and environmental transition model

Better candidates
- may look beyond GDP per capita measures to Gini coefficients and explore variations within countries which expose the impact of poor sanitation on poorer communities
- may use life expectancy data as a proxy for measuring the health of a population.
- will explore alternative causes of health risk from obesity to influenza.
- use more effectively specialist geographical/associated terminology.

BUT above all
- come to the view which in this case is a ‘it depends on scale and location’ but certainly not always!
**Question Number 6**

Assess the view that the impact of leisure and tourism on rural areas is usually negative.

- Explore the factors that influence the nature of the impact of both leisure and tourism on rural areas.
- Research a range of rural landscapes and settlements to demonstrate the positive and negative impacts of both leisure activities and tourism.

**Indicative content plus generic mark scheme - be prepared for different types of approach to this Question...**

**FOCUS**

The **focus** of this title is the consequence of increasing levels of tourism and leisure on rural landscapes and whether they are usually negative.

The **framework** chosen is likely to be by case-study showing a range of ‘impacts’ – both positive and negative.

Deconstruction of the question involves a distinction between leisure and tourism but most importantly an assessment of what constitutes a ‘negative’ impact – this is best seen in terms of the economy, social factors including community cohesion and, probably most centrally, the environment. The ‘correct’ answer is a conditional ‘yes’ although there are positives for some societies presupposing that the tourism/leisure is carefully managed.

**Key ideas / concepts that candidates may discuss + possible case studies/examples**

An indication of **Methodology** should feature: why/what particular material was used, reputable sources like academic text books and journals such as the *Economist. Geography* or reputable academic websites including the World Tourist Organisation. Candidates may explore blogs and NGOs encountering more challenging views that are less reliable in terms of peer reviewed support......

**Key ideas/arguments**

- different types of leisure and tourism (active or passive) may produce different impacts/threats i.e. different footprints.

- the carrying capacity of rural areas varies – their fragility is a consequence of both physical so negative impact depends on the landscape

- not all impacts are negative with significant economic benefit in some areas/regions albeit unevenly spread

- leisure and tourism has grown and is closely related to levels of economic development.

- different management approaches can help conserve rural landscapes to make them
sustainable despite the potentially negative impact

Expect a range of **case studies**. Popular choices are likely to be Antarctica, Machu Picchu, Galapagos, various UK national parks and country parks, golf courses, Olympic winter sports sites.

**Credit local research and other fieldwork as evidence**, which may have been carried out if Unit 2 Rebranding chosen. Likely to be in a Nature Reserve, National or Country Park

**Candidates might address;**

- the idea of carrying capacity and how it varies from one rural landscape to another which will in turn affect the negative impact
- the differentiation between leisure and tourism.
- details and data to support the idea of what might be a negative impact using economic and social data to support as well as environmental evidence
- differences of impact of different types of leisure and tourist activity.
- how fragility varies and that some landscapes have much lower carrying capacities as a consequence.

**Better candidates may;**

- differentiate between different types of impact form economic, through social and cultural to environmental
- establish a clear view of what constitutes ‘negative’ impact
- recognise positive impacts and offer evidence to support the contention that some impacts are positive
- introduce the idea of short term and long term costs and benefits in terms of sustainability.
- use accurately **specialist geographical/ associated terminology**

**BUT above all**
• come to a view about the complexity of these impacts!