edexcel
advancing learning, changing lives

Mark Scheme (Results)
January 2011

GCE

GCSE Geography (6GE04) Paper 1

Edexcel Limited. Registered in England and Wales No. 4496750
Registered Office: One90 High Holborn, London WC1V 7BH

A PEARSON COMPANY

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:

http://www.edexcel.com/Aboutus/contact-us/

Alternatively, you can speak directly to a subject specialist at Edexcel on our dedicated Geography telephone line: 0844 372 2185

January 2011
Publications Code UA026354

Edexcel Limited. Registered in England and Wales No. 4496750
Registered Office: One90 High Holborn, London WC1V 7BH

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.

For all 6 questions, credit the inclusion of fieldwork when applied to the question.

Unit 4: Geographical Research Mark schemes

Question Number 1	**1. Explain why tectonic processes produce a variety of contrasting landscapes.** **Research focus:** • **Explore** the varying impact of both volcanic (extrusive and intrusive) and seismic processes on landscapes. • **Research** different locations to draw out the importance of tectonic activity in creating a variety of contrasting landscapes.
Indicative content plus generic mark scheme- be prepared for different types of approach to this Question	
FOCUS:	• **The focus of this title** is the reasons for the wide variety of landscapes created by tectonic activity: intrusive, extrusive activity + earthquakes and secondary tsunami: i.e. WHY • The **framework** chosen may be by type of process, landscape, scale, location and possibly over time. Candidates may focus on landforms rather than whole landscapes, but at best this is a partial answer to the question. • **Better candidates** justify their focus and framework more effectively and will identify landscapes.
Key ideas / concepts which 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 New Scientist, or reputable websites like the USGS. Better candidates may develop the importance of topical, biased sources e.g. blogs and NGOs versus academic researchers, or have a comparison of sources in accuracy 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. Better candidates will weigh up the contrasting nature 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. • Key reasons = type of plate boundary, associated faults and intra-plate hotspots. • 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. Depends on case studies: often explosive may produce more distinctive, often larger features (e.g. large caldera only recently discovered by satellite) However long term more effusive eruptions may produce very distinctive and large scale features too e.g. Mauna Loa or Deccan Plateau. • 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- erosion coastal landscape, coral reefs • Secondary effect of Volcanic eruptions e.g. lahars, floods • These landscapes may be quasi-natural: they may include human responses to the landscape-agricultural- fertile land, landscape quality + tourism, geothermal use creating distinctive landscapes but not the main focus. Better candidates will look at whole landscapes, understand concept of scale. They may be more vigilant in referencing e.g., USGS, Geography Review, National Geographic, New Scientist, United Nations ISDR. They will use accurately specialist geographical/ associated terminology such as hazard profile, subduction zone, Benioff Zone, explosivity index, fault scarps, liquefaction, secondary hazard, asthenosphere, quasi-natural, sills, strato-volcanoes.

Question Number 2	**2. Explain why the distribution of cold environments was more widespread in the past than it is at present.** **Research focus:** • **Explore** the links between climatic processes and the distribution of cold environments today and why that distribution has been different in the past. • **Research** a range of different active and relic glacial and periglacial environments which are the product of specific climatic processes and climate change.
Indicative content plus generic mark scheme - be prepared for different types of approach to this Question	
FOCUS:	**The focus of this title** is the reasons for the changes in scale and extent and type of cold environments over time, i.e. WHY The **framework** chosen may be by past/present or types of cold environment (upland, lowland, glacial/periglacial, active/ relict), or process(climate e.g. global air circulation, long term changes, meteorological processes, even anthropogenic induced climate change changes altering glacial/periglacial areas) **Better candidates** will justify their focus and framework more effectively and may introduce repeated glaciations/periglaciation zones with ice advances and retreats and stress spatial changes in **distribution** i.e. contrasting a past time (s) and the present
Key ideas /concepts which 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 New Scientist, or reputable websites like the BAS. **Better candidates** may develop the importance of topical, biased sources e.g. blogs and NGOs versus academic researchers, or have a comparison of sources in accuracy Case studies/examples likely to feature: active and relict cold environments: E African Highlands, Alps, Iceland, Arctic, Antarctic. For periglaciation expect as above surrounding areas –frost active areas even in Britain above 800 m e.g. Cairngorm). Credit relevant fieldwork/primary research e.g. to Snowdonia, Iceland, Alps and topical examples if appropriate: for example global warming resulting in changes to/loss of glacial /periglacial landscapes. Models may feature, e.g. glacier system **Better candidates may understand** the relationship to processes (may go into factors of location: latitude, insolation, altitude, continentality, ocean currents albedo) and why some are glacial, and some are periglacial. The may discuss feedback mechanisms. **Key ideas:** Spatial distribution and characteristics of cold environments depend on: • Climatic causes of cold environments: global atmospheric circulation, polar anticyclones, influence latitude, altitude on climate, seasons, day/night…. • Long term changes in global climate have created active and relict environments. Only 0.5 / 1°C drop average temps can trigger Ice Age (Milankovitch theory orbital changes), volcanic eruptions, sunspot activity, role of plate tectonics cutting off of warm ocean currents. • Location today may affect local meteorological processes-temperature extremes, winds, nature of precipitation e.g. Antarctica versus Alps or Siberia • Spatial-temporal relationships between glacial-periglacial environments • 2m yrs for Quaternary: Pleistocene ended c 10,000yrs ago, since when net retreat globally ice sheets and glaciers. 17 glacial cycles in Pleistocene. Most extensive advance = 18000 yrs ago in the Devensian. **Better candidates** will go beyond viewpoint that cold environments were more large scale in past than present. They may be more vigilant in referencing e.g., BAS, Geography Review, National Geographic, New Scientist. They will use accurately specialist geographical/ associated terminology such as glacial, anticyclone, Milankovitch cycle, ablation, atmospheric processes.

Question Number 3	**3. Many attempts to reduce food insecurity by increasing food production are controversial. Discuss.** **Research Focus:** • **Explore** the costs and benefits of strategies to increase food production in order to improve food security. • **Research** contrasting locations to draw out the range and scale of issues associated with increasing food production
Indicative content plus generic mark scheme - be prepared for different types of approach to this Question.	
FOCUS:	**The focus of this title** is how negative impacts may occur to both natural and human environments **from food production** techniques. The **framework** chosen may be by level of controversy / scale of impact (local, regional, global), type of production- irrigation, chemicals etc, or by location; terrestrial/fishing and fish farming, by place e.g. country and area based. **Better candidates** will justify their focus and framework more effectively and may use scale of issues, economic development, scale, timeline, source (local, imports). A range of contrasting locations could be used: land and water, tropical to dryland and possibly even urban, or economic development groupings
Key ideas /concepts which candidates may discuss + possible case studies/ examples	**Food insecurity** exists when people do not have adequate physical, social or economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. (FAO). **Food production increases** by increasing intensity, spatial extent and types of food production. **Controversial**- different viewpoints of green groups, TNCs, NGOs and increasingly world organisations e.g. UNEP. There are a large number of environmental and social issues currently causing problems globally from efforts to increase supplies. Current food production is: • Increasingly technologically dependent, large scale, and often capital intensive and profit driven with less consideration of environmental impacts. • Inappropriate for local ecosystem stability without chemical subsidies-fertilisers, pesticides etc • Environmental impact may be local but increasingly global (deforestation and methane from cattle-greenhouse gases). • Inappropriate food production techniques have escalated in destruction/alteration of both natural and human environments, e.g. desertification, deforestation, biodiversity loss, salinisation, eutrophication, and food miles/ foodprints, waste and greenhouse gas emissions, animal welfare (factory and fish farms). • Some MEDC turn around e.g. in latest EU agricultural policies on decoupling, on stewardship, set-aside etc and rise in organic foods (needs to be linked to increased production) and also LEAF Linking Environment with Farming. • Meanwhile the majority of farmers in developing counties are still rooted in subsistence and small scale production methods which are often organic too because of poverty. These may cause major environmental problems simply because of the pressure on land e.g. Haiti. Cuba may feature as a success story • Current energy crisis (2008+) may change some oil dependent techniques to become more environmentally friendly. However parallel food crisis means more pressure on marginal lands especially in poorer countries. • Increasing food production on its own may be ineffective without equity in distribution, price, access etc There may also be socio-economic issues e.g. increased mechanisation reducing labour demands or plantations using child labour. Models may feature e.g. Malthus, Boserup, limits to growth/diminishing returns **Better candidates** will weigh up which attempts have been most controversial e.g. Green Revolution and New Green Revolution in Africa, GM crops. They may differentiate spatial and time scales. They may identify different people/organisations who are the players in the food security problem. They may include food distribution and access as well as production, and the debate over increased red meat consumption particularly in NICs. They may pick up on the '**many'** aspect and include mention of less controversial attempts- organic, animal welfare friendly, Fair Trade farms. They should see that increasing food production on its own may be ineffective without equity in distribution, price, access etc. They may include current **land grabbing** e.g. China in Africa. They will go beyond simplistic viewpoint that all food production is controversial and use accurately specialist geographical/associated terminology such as intermediate technology, desertification, degradation, salinisation, marginal food supply areas, organic, grassroots, bottom up, LEAF, organic.

Question Number 4	4. Explain why some cultures and cultural landscapes are more vulnerable and threatened than others. **Research focus:** • **Explore** how external threats and internal vulnerability vary in their impacts on cultures and landscapes. • **Research** contrasting locations and examples to show why the impacts of these pressures vary in their severity and type.
Indicative content plus generic mark scheme- be prepared for different types of approach to this Question	
FOCUS:	**The focus of this title** is the reasons for differential vulnerability / threat of / to both cultures and cultural landscapes. The **framework** chosen may be by type/strength of threat, location, time scale, type of culture/landscape, economic development , level of vulnerability, or actual reason: globalisation, government, TNC, etc **Better candidates** justify their focus and framework more effectively and will weigh-up the mixture of factors especially political and socio-economic.
Key ideas /concepts which 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, journals or reputable websites like the UNESCO; plus more bias blogs and websites e.g. Survival International. Credit should be given to topical /current examples, and fieldwork if relevant. Place, as opposed to just space is created by cultural values. Cultural landscapes can be: • Historic , Modern , Mixed • Urban-fringe-rural-remote-wilderness • Ethnoscape, Financescape, technoscape, commodityscape, mediascape, ecoscape. • People's cultural perceptions of landscape value determine how land and resources are used or abused: Landscape may be seen as sacred and preserved. Or Landscape is conserved, but may become degraded and polluted. It may have resources to use for profit + degraded and even destroyed. Landscapes need to be cultural rather than purely ecological /physical. Ideas may focus on: • Culture is not fixed/rigid but evolves with inputs: new people/ideas/ technology advances, so could argue that change is inevitable • Cultural imperialism is an increasing threat, linked with globalisation and consumerist culture. • Threats can be both internal and external. • Theories / theoretical frameworks may be applied e.g. globalisation causes and consequences (hyper-globalisers / sceptics). • Increasing protection globally, e.g. in form of National parks, UNESCO sites. Culture and landscape may generate income by tourism, so may be artificially supported. But who decides**?** • Some cultures are vulnerable e.g. Tibet, Bhutan, and subcultures. • Some cultures are deliberately protected, national scale: e.g. Wales, N Korea. • Vulnerable landscapes found today especially in rapidly developing transition economies, although signs of change e.g. increased National Park designation China, and Aral Sea Restoration Expect case studies on e.g. Bhutan, Wales, France, China towns, Amish, Nepal, Basque country. **Better candidates** may introduce a time scale into their discussion, and argue increasing protection e.g. by UNESCO is saving many landscapes. They may introduce the differing people or players involved .they may go beyond simplistic viewpoint that vulnerability and threats are the same, and accurately use specialist geographical/associated terminology such as, globalisation, ethnoscape, financescape, consumerist society, anthropocentric, environmentalism

Question Number 5	**5. Explain why the causes of current health risks in some locations are more complex than others.** **Research focus:** • **Explore** the complex environmental and socio-economic causes of different health risks. • **Research** current causes of differing health risks in contrasting locations at different levels of development.
Indicative content plus generic mark scheme- be prepared for different types of approach to this Question	
FOCUS:	**The focus of this title** is the variation in the level of complexity in **causes** of health risks today at any scale. The **framework** chosen may be by epidemiological model, economic development, urban/rural, global to local, chronic or short term risk, health risks reduced /eradicated by tackling causes, re-emerged and emergent risks. **Better candidates** justify their focus and framework more effectively.
Key ideas /concepts which 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 like the BMJ, New Scientist or reputable websites like the NHS, WHO or Blacksmith Institute. Should centre on topical /current examples, although older ones may be appropriate if health risk still there (e.g. Chernobyl, Bhopal or diseases like asbestosis which takes a long time to manifest itself). **Better candidates** will focus on **causes of risk,** not just the existence of, or patterns, of risk. **Better candidates** may venture into re emergent diseases, use epidemiology model or diffusion models, and time scales of causes and should focus on **current** health risks. **Key ideas** • Health risk (to longevity and quality of life) = health hazard exposure, + vulnerability – management. • There are a vast array /range of health risks, including infectious, chronic, degenerative acute and trauma. • Causes may be split into direct (i.e. exposure to pathogen, virus, trauma etc)and root (poverty, politics) • Geographical features/processes may be linked: e.g. rivers, global warming, transport routes, urban quality. Pollution causes many health risks, especially from air. Mixture of environmental, economic, social causes. Risk depends on: • Individual perception of risk- lifestyle choices e.g. smoking, wearing a seat belt, diet • External factors e.g. pollution, natural hazards, politics. • Causes range across environmental, economic(especially poverty ,although affluence and travel opens up risks of especially infectious disease) A simple classification of health risk by cause: • Physical poor sanitation and water supply, polluted water, (diarrhoea, malaria…. Vectored diseases e.g. mosquitoes) changing global conditions, e.g. ozone depletion, (skin Cancer) ; global warming, (malaria and more climate shocks of extreme heat or cold; more lethal natural hazards such as tsunamis and floods . Could argue these are **simple** - but poverty and politics create complexities • Pollution causes many health risks, from sustained and incidental sources. It alters in type according to the type of economy and management effectiveness. The Kuznet model may feature. Vectored and non vectored risks may be linked to geographical features both physical and human. • Human (more varied) involving lifestyle choices and external changes: e.g. Increased migration, especially air travel, and more rapid spread of infectious diseases. Rise in industrialisation and links to pollution. Overuse of antibiotics. Currently the biggest global health risk cause is non-communicable chronic diseases especially cardiovascular. Health transition changes means double health burden for transition economies like China, India .However more regional/local causes may vary- e.g. in very poor countries infectious disease is still a main killer. • Expect to see case studies on diseases like HIV/Aids • The lifestyle, Omram epidemiology and World Health Organisation Health Transition models may feature as a time related look at causes. **Better candidates** go beyond the simplistic viewpoint that all causes are equally complex and will accurately use specialist geographical/associated terminology such as chronic, epidemiology, health risk, health shock, prevalence, pandemic, epidemic, diffusion, source, sink ,sustained, incidental, DALYs,

<table>
<tr><td>Question Number 6</td><td>6. As more players use rural landscapes for leisure and tourism, conflicts become more complex. Discuss.
Research focus:
Explore how increasing and more diverse use of the rural landscape for leisure and tourism activities may lead to complex conflicts as more players are involved.
Research different leisure and tourism activities in contrasting locations which show a range of conflicts involving a variety of players.</td></tr>
<tr><td colspan="2">Indicative content plus generic mark scheme- be prepared for different types of approach to this Question</td></tr>
<tr><td>FOCUS:</td><td>The focus of this title is the variation in the level of complexity in conflicts over users of rural areas for leisure and tourism.
The framework chosen may be by type/strength of conflict, type of leisure/tourism or location, economic standing, or length of development, types of rural landscape, internal conflicts between leisure and tourism users versus these and all other groups(farmers, conservationists, locals etc).
Better candidates justify their focus and framework more effectively and go into more depth on the concept of conflict (clashes between different players).</td></tr>
<tr><td>Key ideas /concepts which candidates may discuss + possible case studies/ examples</td><td>An indication of Methodology should feature: why/ what particular material was used, reputable sources like academic text books and journals like the Geography Review or reputable websites like the World Tourism Organisation.
Credit should be given to topical /current examples and any relevant fieldwork, e.g. to a country park, National Park.
Better candidates will weigh up what level of conflicts there are. They may be more detailed in the differing people or players involved in this. They may introduce a time element with detailed evidence to support the aspect of ‘more’. They may, however, suggest mitigation reduces conflicts.
Expect case studies on National Parks, wilderness areas, urban fringe areas - NOT urban.
Key ideas
More players means more of the same type – i.e. more people going on holiday, more hotels, businesses etc but also more different types of players- as activities diversify, environmental and ethical champions grow.
Conflicts are almost inevitable, given the range of demands placed on rural space and the wide variety of user groups found there: including tourists, nature lovers, established residents, recent incomers, established and new start-up businesses, major landowners and government agencies. A simple matrix with players and strength of conflict may feature
Conflicts have increased with expansion of globalisation, extension of pleasure periphery and sheer numbers involved- NB rise of NIC market especially from SE Asia.
Conflicts have escalated as leisure and tourism becomes more diverse in activity-adventure sports especially
Negative impacts usually resulting in conflicts, may be reduced with effective management/ mitigation. The carrying capacity model may feature
Conflicts increasingly involving large scale national even international efforts e.g. WWF , Greenpeace, UNESCO
Candidates may recognise that the nature of the landscape and carrying capacity may influence complexity of conflicts
Models e.g. Doxey, Butler, Carrying Capacity, Pleasure periphery may feature.
Better candidates will go beyond simplistic viewpoint that conflicts are more complex for example in less economically developed countries and accurately use specialist geographical /associated terminology such as carrying capacity, pleasure periphery, resilience, degradation, leakage, wilderness/rural continuum</td></tr>
</table>

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481

Email publications@linneydirect.com

Publications Code UA026354
January 2011

For more information on Edexcel qualifications, please visit www.edexcel.com/quals

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: One90 High Holborn, London, WC1V 7BH