Version 1.0

General Certificate of Education (A-level)
June 2013

Geography GEOG3

(Specification 2030)

Unit 3: Contemporary Geographical Issues

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from: aqa.org.uk

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334).
Registered address: AQA, Devas Street, Manchester M15 6EX.

GEOG3 General Guidance for GCE Geography Assistant Examiners

The mark scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communication but where questions are 'Levels' marked, written communication will be assessed as one of the criteria within each level.

Level 1: Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2: Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3: Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Level 4: Accurate and mature use of language; descriptions and explanations are expressed coherently and confidently

Marking – the philosophy
Marking is positive and not negative.

Mark schemes – layout and style
The mark scheme for each question will have the following format:
a) Notes for answers (nfa) – exemplars of the material that might be offered by candidates
b) Mark scheme containing advice on the awarding of credit and levels indicators.

Point marking and levels marking
a) Questions with a mark range of 1-4 marks will be point marked.
b) Levels will be used for all questions with a tariff of 5 marks and over.
c) Two levels only for questions with a tariff of 5 to 8 marks.
d) Three levels to be used for questions of 9 to 15 marks.
e) Four levels to be used for questions of 40 marks.

Levels Marking – General Criteria
Everyone involved in the levels marking process (examiners, teachers, students) should understand the criteria for moving from one level to the next – the 'triggers'. The following general criteria are designed to assist all involved in determining into which band the quality of response should be placed. It is anticipated that candidates' performances under the various elements will be broadly inter-related. Further development of these principles will be discussed during the standardisation process. In broad terms the levels will operate as follows:

Level 1: attempts the question to some extent (basic)
An answer at this level is likely to:

- display a basic understanding of the topic
- make one or two points without support of appropriate exemplification or application of principle
- give a basic list of characteristics, reasons and attitudes
- provide a basic account of a case study, or provide no case study evidence
- give a response to one command of a question where two (or more) commands are stated e.g. “describe and suggest reasons”
- demonstrate a simplistic style of writing perhaps lacking close relation to the terms of the question and unlikely to communicate complexity of subject matter
- lack organisation, relevance and specialist vocabulary
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2: answers the question (well/clearly)
An answer at this level is likely to:

- display a clear understanding of the topic
- make one or two points with support of appropriate exemplification and/or application of principle
- give a number of characteristics, reasons, attitudes
- provide clear use of case studies
- give responses to more than one command e.g. “describe and explain...”
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter
- demonstrate relevance and coherence with appropriate use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3: answers the question very well (detailed)
An answer at this level is likely to:

- display a detailed understanding of the topic
- make several points with support of appropriate exemplification and/or application of principle
- give a wide range of characteristics, reasons, attitudes
- provide detailed accounts of a range of case studies
- respond well to more than one command
- demonstrate evidence of discussion, evaluation, assessment and synthesis depending on the requirements of the assessment
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/ tentativeness of explanation
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

Level 4: answers the question with depth, flair, creativity and insight
In addition to the requirements of Level 3, an answer at this level is likely to:

- provide strong evidence of thorough, detailed and accurate knowledge and critical understanding of concepts and principles and of specialist vocabulary.
- give explanations, arguments and assessments or evaluations that are direct, logical, perceptive, purposeful, and show both balance and flair.
- demonstrate a high level of insight, and an ability to identify, interpret and synthesise a wide range of material with creativity.
- demonstrate evidence of maturity in understanding the role of values, attitudes and decision-making processes.

Annotation of Scripts
It is most important that examiners mark clearly, according to the procedures set out below.

- All marking should be done in red (except online marking).
- The right hand margin should be used for marks only.
- The overall mark for a question must be ringed at the end of the answer.
- The total mark for the question must be transferred to the front of the script.
- Where an answer is marked using a levels response scheme, the examiner should annotate the scripts with 'L1', 'L2', 'L3' or 'L4' at the point where that level has been reached in the left hand margin. In addition, examiners may want to indicate strong material by annotating the script as "Good Level… ". Further commentary may also be given at the end of the answer. The consequent mark should then appear in the right-hand column. Where an answer fails to achieve Level 1, zero marks should be given.

Other mechanics of marking

- All errors and contradictions should be underlined.
- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.
- Use a wavy line to indicate weak dubious material (avoiding crossing out).
- If the rubric is contravened, then all answers should be marked, but with the best answer being counted and the mark transferred to the front of the script. Then cross out the material which has been discounted.
- Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

Section A

01 **AO2 - 5** **AO3 - 2**	**Notes for answers** Candidates may make a series of simple comparisons on the basis of the data – the mean size of earthquake in Japan is greater than that of Italy; and the range is smaller, which would suggest that earthquakes in Japan have greater consistency and predictability. There is also the Mann Whitney U Test data which suggests that the null hypothesis should be rejected (3.5 is much less than 23), and therefore, there is a significant difference in the size of earthquakes between the two areas. Comment could then extend into the reasons for this difference – the location and nature of the plate boundaries. Comments could also refer to the degree of activity on them. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements arising from the data, such as simple comparative points, with basic or general statements of the reasons for/type of activity that would be associated with the plate boundaries. **Level 2 (5-7 marks) (mid-point 6)** Some sophistication of comment showing a clear understanding of the outcomes of, for example the mean values, ranges and Mann Whitney U test. Clear interpretation and/or description/reasoning, together with evidence of geographical thinking.	***(7 marks)***

02	**Notes for answers**	***(8 marks)***
AO1 - 8	**Tsunamis** are giant sea waves generated by shallow-focus underwater earthquakes (the most common cause), volcanic eruptions, underwater debris slides and large landslides into the sea. To generate a tsunami, the earthquake has to cause a vertical displacement of the sea bed. This in turn displaces water upwards which generates a tsunami at the ocean surface. Tsunamis have a very long wavelength (sometimes over 100km) and a low wave height (under 1 metre) in the open ocean, and they travel quickly at speeds of over 700km per hour (some tsunamis take less than a day to cross the Pacific Ocean) but, when reaching shallow water bordering land, increase rapidly in height. Quite often, the first warning given to coastal populations is the wave trough in front of the tsunami which results in a reduction in sea level, known as a drawdown. Behind this comes the tsunami itself, which can reach heights in excess of 25m. The event usually consists of a number of waves, the largest not necessarily being the first. When a tsunami reaches land, its characteristics will depend upon: • the height of the waves and the distance they have travelled • the length of the event (at source) • coastal physical geography, both offshore and in the coastal area. As water depth decreases, friction between the tsunami wave and the sea bed slows the wave down. As the wave slows, wavelength dramatically decreases but wave height increases. This produces a series of huge waves, metres high. Many tsunamis have an effect at least 500-600 metres inland, depending upon the coastal geography. Around 90% of all tsunamis are generated within the Pacific Basin, associated with the tectonic activity taking place around its edges. Most are generated at convergent plate boundaries where subduction is taking place, particularly off the Japan-Taiwan island arc (25% of all events). Candidates are very likely to refer to the Japanese tsunami of March 2011. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of characteristics/causes, lacking detail or sophistication of either features or processes. **Level 2 (5-8 marks) (mid-point 6)** Both elements must be present, detailed statements of characteristics and/or explanation, possibly with some use of supportive material. The answer progresses through the level as more is added at this level. Full mark answers show breadth of knowledge.	

03 **AO2 - 8** **AO3 - 2**	**Notes for answers** Management of seismic hazards may take the form of prediction, prevention or protection. Precise detail will depend on case studies selected. The **prediction** of earthquakes is very difficult. Regions at risk can be identified, but attempts to predict earthquakes are unreliable. Such prediction is based upon monitoring groundwater levels, release of radon gas and unusual animal behaviour. Fault lines can be monitored and local magnetic fields can be measured. Areas can also be mapped on the basis of geological information and studies of ground stability to produce a hazard zone map that can be acted upon by local and national planners. Trying to **prevent** an earthquake is thought by most people to be impossible. This, however, has not stopped studies into the feasibility of schemes to keep the plates sliding past each other, rather than sticking and then releasing. Suggestions so far for lubricating this movement have focused on using water and/or oil. **Protection.** Being prepared for an earthquake involves everyone from civil authorities to individuals. Protection can include any of the following: • Hazard-resistant structures: buildings can be designed to be aseismic or earthquake-resistant (a great deal of detail can be given here) • Education: instructions issued by the authorities explain how to prepare for an earthquake by securing homes and contents, and getting together earthquake kits • Fire prevention: such as the use of Smart meters • Emergency planning: of the use of the emergency services; civilians given first-aid training; the establishment of computer programs that will identify which areas the emergency services should be sent to first • Land-use planning: the most hazardous areas can be identified and then regulated • Insurance: people are urged to take out insurance to cover their losses though this can be very expensive for individuals • Aid: emergency aid in the few days after the event - providing medical services, tents, water purification equipment, and search and rescue equipment. Aid over the longer term - to reconstruct buildings and redevelop the economy. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of management which could apply to any earthquake hazard. No specific detail provided. **Level 2 (5-8 marks) (mid-point 6)** Specific statements of management strategies which can be clearly attributed to named areas and/or earthquakes access this level. Discussion must be clearly recognisable for 7/8 marks. **Level 3 (9-10 marks) (mid-point 9)** A fully developed answer, with good elaboration of the management strategy of a range of seismic events. A rounded answer with a full discussion.	***(10 marks)***

04 **AO2 - 5** **AO3 - 2**	**Notes for answers** The weather was going to be affected by an area of low pressure as a depression moved over the area. The low pressure is centred over NW Scotland. A warm front has already passed over, so that the bulk of England, Wales, and southern Scotland are in the warm sector. Northern Scotland has an occluded front. A cold front extends across western Scotland to the west of Wales, and so Ireland is in the cold sector. England is likely to experience mild weather, with low cloud and maybe some light rain. Winds are from the south west, and are blustery. More rain is likely, spreading from the west – this could be heavy due to the uplift of warm and moist air of the warm sector. Winds in Ireland are from the north west, and will bring colder temperatures. There is likely to be rain in Scotland, which may be prolonged. Variation within the British Isles equals comment. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of description. Limited or basic statements of commentary on the likely weather. If no description given, then credit one good comment within this level. **Level 2 (5-7 marks) (mid-point 6)** More sophisticated description with appropriate commentary on the likely weather. Award this level for each correctly attributed statement of commentary.	***(7 marks)***

05 **AO1 - 8**	**Notes for answers** In winter anticyclones result in: • Cold daytime temperatures- from below freezing to maximum of 5°C • Very cold night-time temperatures- below freezing with frosts • Generally clear skies by day and by night. Low level cloud may linger and radiation fogs (caused by rapid heat loss at night) may remain in low lying areas • High levels of atmospheric pollution in urban areas, caused by a combination of subsiding air and lack of wind. Pollutants are trapped by a temperature inversion (when air at altitude is marginally warmer than air at lower levels) Reasons include: • The air in an anticyclone subsides, warming as it sinks. This produces a decrease in its relative humidity which leads to a lack of cloud development, and dry conditions • Isobars are usually far apart, and therefore there is little pressure difference between the centre and edges of the anticyclone. Winds are weak, and flow gently outwards in a clockwise direction in the northern hemisphere. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of characteristics/causes, lacking detail or sophistication of either characteristics or processes. **Level 2 (5-8 marks) (mid-point 6)** Detailed statements of characteristics and explanation, possibly with some use of supportive material. The answer progresses through the level as more is added at this level. Full mark answers show breadth of knowledge and understanding.	***(8 marks)***

06 **AO2 - 8** **AO3 - 2**	**Notes for answers** The British Isles lie approximately between latitudes 50ºN and 60ºN. This locates them in the temperate low pressure region at the boundary between the Polar and Ferrel cells and under the influence of the jet stream. The temperate nature of the climate is further moderated by the maritime position of the British Isles and the warm North Atlantic Drift ocean current. This all gives a pattern where there are no extremes of temperature. The west of the British Isles will tend to be slightly cooler in summer and considerably warmer in winter than the east. The average annual rainfall varies enormously over the British Isles from about 5000mm in parts of the western highlands of Scotland, to about 500mm in parts of East Anglia and the Thames Estuary. Overall, the wettest areas are in the western half of the country. The reasons for this are: • The most common (prevailing**)** winds are from the south-west and west. They are moist from blowing over the Atlantic Ocean. • The western side of the British Isles has the highest relief. The moist air rises over the high relief and produces relief (orographic) rainfall on the mountains and a rain shadow to the east. • The major cause of rainfall in the British Isles is depressions. These mainly approach from the west. The British Isles are also subject to anticyclones which bring settled weather in both winter and summer. In winter, anticyclones bring cold days, very cold nights, ground and hoar frosts and fogs. In summer they bring hot days, warm nights, clear skies and sometimes thunderstorms. Discussion may include role of factors such as urban areas. Vertical air circulation related to British Isles is relevant. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of atmospheric/oceanic circulation systems which influence the climate of the BI. No specific detail provided. Accounts of air masses, max Level 1. **Level 2 (5-8 marks) (mid-point 6)** Specific statements of atmospheric/oceanic circulation which influence the climate of the BI. Discussion must be recognisable for 7/8 marks. **Level 3 (9-10 marks) (mid-point 9)** A fully developed answer, with good elaboration of the atmospheric and oceanic circulation systems influencing the BI. A rounded answer with a full discussion.	***(10 marks)***

07 **AO2 – 5** **AO3 - 2**	**Background** This image of the Carajás mine (of iron ore for info.) was taken in 2009. Terraced layers of red earth reveal the method of mining. Carajás is an open-pit mine, in which minerals are removed from the surface one layer at a time. There is evidence of this layering - the parallel lines that can be seen - though these could be roadways down into the mine. The Carajás mine sits in the Carajás mountain range in northeastern Brazil. Companhia Vale do Rio Doce, the company that runs the mine, preserves the forest immediately around the mine. **Notes for answers** The forest terrain is evident in the untouched land around the mine. The red-tan exposed earth contrasts sharply with the deep green rainforest. There is a clear separation between mine and forest for much of the perimeter. There is possibly an area of buildings (smelters) in the centre top of the photo. There also appears to be a lake behind a dam – HEP scheme for power? Candidates may be able to see that it is the higher areas that are being mined. Candidates may also comment on the impact on the vegetation (large scale clearance), and on social and economic aspects of the mining. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of description. Limited or basic statements of the impact of human activity. **Level 2 (5-7 marks) (mid-point 6)** Appropriate commentary on the impacts of human activity. Clear links made. Award this level for each correctly attributed statement of commentary.	***(7 marks)***

08 **AO1 - 8**	**Notes for answers** The UN Earth Summit in Rio de Janeiro, in 1992, defined 'biodiversity' as 'the variability amongst living organisms from all sources including terrestrial, marine and other aquatic systems, and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems'. Biodiversity can also be recognised at three different levels, which are interlinked: • genetic diversity • species diversity • ecosystem diversity. Humans can influence it by: • protecting the best sites for wildlife - e.g. 10% of the UK has been designated as a Site of Special Scientific Interest (SSI) or Area of Special Scientific Interest (ASSI) • targeting action on priority species and habitats - in 2007 the UK Biodiversity Partnership published a list of 1149 priority species and 65 habitats with a focus on their conservation over the next decade. The Millennium Seed Bank Project sought to conserve species • modifying genetic diversity – e.g. GM crops and the Green Revolution • the destruction of rare habitats and the over-exploitation of species (whales) • embedding proper consideration of biodiversity and ecosystem services in all sections of policy and decision-making, e.g. support for Kew Gardens • engaging and educating people to encourage behaviour change in relation to environmental issues – candidates may refer to local initiatives (e.g. Breathing Spaces). Negatively, some environmental groups are warning that if current global consumption levels continue, they could result in a large scale ecosystem collapse by 2050. They say that the natural world is being degraded at an unprecedented rate. There are several areas where biodiversity is under pressure from human activities. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simplistic statements regarding the concept which are generic, and non-contextual. Limited specific detail or depth provided on influence of human activity. **Level 2 (5-8 marks) (mid-point 6)** Specific or sophisticated statements regarding the concept and human influences which can be clearly attributed to named areas and/or contexts. There is some evidence of depth of understanding.	***(8 marks)***

09 **AO2 - 8** **AO3 - 2**	**Notes for answers** Routeways are distinctive because they allow the incursion of exotic species of plant and insects, brought in by road traffic and trains. Routeways act as wildlife corridors, comparable with rural hedgerows. Railway lines enable animals to move around an urban area with little or no interference from traffic. During the days of steam there were frequent fires which burnt off tall species of plant and allowed the light in encouraging light demanding species e.g. primroses and foxgloves to establish. Windborne seeds are sucked along by the trains e.g. Oxford Ragwort. Spiders are moved along the line in the same way. Also, lack of human disturbance created by the fencing enables foxes and badgers to thrive. On land that has not been burnt, brambles have established and these provide nesting sites for a wide variety of bird-life. Road traffic acts in the same way with regard to the distribution of animals and insects. They also provide food for kestrels and scavenging birds (e.g. magpie). The nitrogen rich fumes boost the growth of some wildflowers and they in turn increase insects and animals further up the food chain. Many embankments and cuttings are well managed. There has been planned planting of trees and shrubs to act as noise screens. Grass is also mown regularly. This can reduce the number of wildflowers and fauna. Motorway verges have some salt-tolerant species in some areas (e.g. sea spurge). This is due to regular salting in winter. Canals may also feature. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of development along one or more routeway which are generalised. Limited detail of location or context is provided. **Level 2 (5-8 marks) (mid-point 6)** Specific statements of development which can be clearly attributed to named areas and/or contexts. Discussion must be clearly recognisable for 7/8 marks. This may refer to different routeways, or variations within the same type of routeway. **Level 3 (9-10 marks) (mid-point 9)** A fully developed answer, with good elaboration of the development of a variety of distinctive ecologies. A range of routeways and/or variations within them is given. A rounded answer with a full discussion.	***(10 marks)***

Section B

10 **AO2 - 5** **AO3 - 2**	**Background** Any definition of the term mega city is arbitrary; however, the most widely used definition is 'an urban agglomeration of 10 million people or more '(UN). 'Meta cities' have more than 20 million inhabitants. **Notes for answers** Figure 4 shows that the majority of such cities can be found in the developing world – with only 9 or 10 in total in Japan, Europe and North America. There are similar numbers of mega cities in Africa as in each of Europe and North America. When looking at the largest mega cities, the distinction is more stark – there are only two with 15+ million outside the developing world – New York, Tokyo. China and India dominate these. Rapid industrialisation in these countries has stimulated urban growth. Urbanisation in the developing world, particularly since 1970, has spawned the rapid growth of mega cities. The driving forces behind urbanisation have been massive rural-urban migration and natural increase rates that are higher in urban than rural areas. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of description. Limited or basic statements of commentary on the distribution. If no description given, then credit one good comment within this level. **Level 2 (5-7 marks) (mid-point 6)** More sophisticated description with appropriate commentary on the distribution. Award this level for each correctly attributed statement of commentary.	***(7 marks)***

11 **AO1 - 8**	**Notes for answers** Although world cities also have large populations they are functionally very different from mega cities. Whereas mega cities have regional or national influence, the reach of world cities is global: they have become the command and control centres of the international economy. World cities dominate the global urban hierarchy and unlike mega cities are mainly located in the developed world. The three top ranking world cities are New York, London and Tokyo. Typically, world cities are leading business centres and the preferred headquarter locations of leading TNCs. They are also global service centres, specialising in advanced producer services such as finance, banking, accounting, management consultancy, law and advertising. In order to deliver these services to global markets, world cities are major telecom, information and transport hubs. They are also magnets for highly educated, skilled workers, and home to world class universities. World cities often have a political and cultural dimension housing foreign embassies, consulates and international organisations; hosting international sporting events, and supporting a wide range of performing arts venues as well as renowned museums and galleries. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simplistic statements regarding the concept which are generic, and non-contextual. Limited specific detail or depth provided on the role of world cities. **Level 2 (5-8 marks) (mid-point 6)** Specific or sophisticated statements regarding the concept with statements on the global role which can be clearly attributed to named areas and/or contexts. There is some evidence of depth of understanding.	***(8 marks)***

12 **AO2 - 8** **AO3 - 2**	**Notes for answers** The relationship is not straightforward. At a global scale, rapid urbanisation has occurred over the last 50 years. 50% of the world's population lives in towns and cities; over 20% of the population lives in cities of over one million. The most urbanised continents are Europe, North America, South America and Oceania (mostly developed); the least urbanised are Asia and Africa (mostly developing). However, in terms of urban growth, the number of urban dwellers is by far the largest in Asia, with 1.6 billion people living in towns and cities, which is over 40% of the population. Urbanisation is increasing most rapidly in Africa and Asia – economically developing areas. This trend is expected to continue, so that by 2025 almost half the population of these continents will live in urban areas and 80% of urban dwellers will be in these areas of the world, most of which are currently developing. However, a consequence of the rapid economic development that is taking place in parts of China, India and south-east Asia is that the level of urbanisation is increasing very rapidly. Rates of economic development and rates of urbanisation are rising simultaneously in these countries. Large cities, mostly in developing nations, have been faced with problems. These problems, which include inadequate infrastructure (housing, sewerage, water supply etc.) and lack of employment are rooted in their explosive population growth over the past four decades; a growth so rapid that it outstrips the resources of urban authorities to provide even the most basic needs to millions of their citizens. The result is poverty on an unimaginable scale. Although world cities also suffer problems of pollution, unemployment and housing shortages, their scale and severity is much smaller than in mega cities in the developing world. Ironically, world cities face challenges due to their success in the international economy. Most obvious is growing income inequality between the minority of workers engaged in the global service economy and the majority who are excluded. The outcome has been the emergence of 'cities within cities'. So, it all depends on the scale at which the relationship is being studied. Hence, we will have to credit material relating to suburbanisation, counter-urbanisation and re-urbanisation where the link to economic development is made clear. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simplistic statements regarding the relationship which could apply to any area of the world, and to any context. No specific detail or depth provided. **Level 2 (5-8 marks) (mid-point 6)** Specific or sophisticated statements regarding the relationship which can be clearly attributed to named areas and/or contexts access this level. There is some evidence of depth of understanding. Tentative statements of evaluation. **Level 3 (9-10 marks) (mid-point 9)** A developed answer, with good elaboration and discussion of a variety of aspects of the relationship each clearly attributed and being different from each other. There is strong evidence of depth of understanding. Explicit statements of evaluation.	***(10 marks)***

13 **AO2 - 5** **AO3 - 2**	**Notes for answers** Apple has a distinctive global geography. All but four of its retail stores are in developed countries. There are large numbers of retail outlets in the USA and Canada. Final assembly plants are based in both the developed and developing world. Research and development takes place in California and North Carolina, USA – the country of origin. Cork, Ireland, is the European location for call centre activities + R&D. Like many TNCs, Apple out-sources most production to eastern Asia, both in terms of component suppliers and final assembly of iPods, iPads, iPhones and iMacs – low labour costs, yet high levels of skill? There are also component suppliers in western Europe and Israel. A final assembly plant exists in eastern Europe – relatively cheap again? It is noteworthy that the company separates Japan as a sales area, and yet there are more retail stores in Australia. Europe, Africa and the Middle East are one sales area – a huge area. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Statements of description. Limited or basic statements of commentary on the information. **Level 2 (5-7 marks) (mid-point 6)** More sophisticated description with appropriate commentary on the information. Award this level for each correctly attributed statement of commentary.	***(7 marks)***

14 **AO1 - 8**	**Notes for answers** Companies expanded from their home base to become TNCs for some of the following reasons: • To take advantage of spatial differences in the factors of production at a global scale. One reason is to look for cheaper labour costs • To take advantage of government policies such as lower taxes, subsidies and grants • To take advantage of less stringent legislation on employment and pollution • To circumvent trade barriers • To locate in markets where they want to sell • To grow to a size where they achieve economies of scale, allowing them to reduce costs, finance new investment and compete in global markets • To acquire geographical flexibility so that they can shift resources and production between locations at a global scale in order to maximise profit. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of reasons for the growth of TNCs. Limited depth of understanding of factors responsible. Max Level 1 for one fully developed reason. **Level 2 (5-8 marks) (mid-point 6)** More specific or detailed or sophisticated reasons for the growth of TNCs. Understanding of factors responsible is more clear. Support may be given.	***(8 marks)***

15 *(10 marks)*

AO2 - 8
AO3 - 2

Notes for answers

NB. The impacts are on the host country only.

Positive Impacts	Negative Impacts
• TNCs are a vital source of FDI – in the UK in 2007, FDI generated over 50 000 jobs. (E) • TNCs stimulate the multiplier effect. The company itself may require locally produced components and other supply and distribution services. Meanwhile, increased wealth and disposable incomes will generate domestic demand and stimulate further growth. (E) • TNCs not only provide employment, they increase local skills. In some cases, this may help to offset large-scale unemployment caused by the mechanisation of agriculture. (S) • They are often responsible for the transfer of technology such as 'Just in Time' production. (E) • They may construct or improve local infrastructure such as roads, bridges etc. which benefits not only the company, but the local area overall. (S, Env) **Key:** (S) - Social (E) – Economic (Env) - Environmental	• TNCs can prove lethal competition for local firms which may go out of business, creating local hostility. (E) • TNCs often face negative attitudes from local authorities, residents and environmentalists. The Chinese car industry has received heavy investment from Ford and VW, but this has been partly responsible for increasing pollution levels and contributing to congestion and growing traffic problems in cities such as Shanghai. (Env) • Many of the jobs offered are low skilled. Managerial positions are often filled by people who have moved with the TNC, providing little prospects for locals to develop within their jobs and gain promotion. (S/E) • Moreover, some TNCs stand accused of exploiting cheap, flexible, non-unionised labour in sweatshops in developing countries. (S) • TNCs can be fickle employers – moving elsewhere in the interest of profitability with little concern for locals. Much of the capital generated will, in any case, find its way back to the country of origin. (E)

Mark scheme

Level 1 (1-4 marks) (mid-point 3)
Simple and generalised statements of impact which could apply to any TNC in any location. No specific detail provided.

Level 2 (5-8 marks) (mid-point 6)
Specific and/or sophisticated statements of impacts which may be clearly attributed to named areas and/or TNCs access this level. At least two of social, economic and environmental impacts are addressed. Discussion must be clearly recognisable for 7/8 marks.

Level 3 (9-10 marks) (mid-point 9)
A fully developed answer, with good elaboration of a range of impacts of a range of TNCs and/or within different areas. Each of social, economic and environmental impacts is addressed, though not always to the same standard. A rounded answer with a full discussion.

16 **AO2 - 5** **AO3 - 2**	**Notes for answers** Across these developing regions, children from the poorest households are twice as likely to be underweight as children from the richest households. The disparity is most dramatic in regions with a high prevalence of underweight children. This is the situation in Southern Asia, where as many as 60% of children in the poorest families are underweight, compared to about 26/27% in the richest households. Sub-Saharan Africa also has large differences between the richest and the poorest, but less pronounced than Southern Asia. Northern Africa has by far the lowest proportion of underweight children in all income groups – only 5% different between the poorest and richest. Comments could relate to difficulties of producing, supplying and distributing food, levels of economic development, oil resources (for Northern Africa). **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Simple statements of description. Limited or basic statements of commentary on the information. **Level 2 (5-7 marks) (mid-point 6)** More sophisticated description with appropriate commentary on the information. Award this level for each correctly attributed statement of commentary.	***(7 marks)***

17 **AO1 - 8**	**Notes for answers** The causes of poverty are complex and interrelated. Poverty is caused by a low level of income which contributes to low levels of nutrition and health. Education levels, including literacy, are key indicators of poverty and areas which have low levels of school enrolment tend to be poor. Such areas also have low levels of economic diversification – they are dependent on the export of commodities which are subject to price variations. As well as economic vulnerability, many poor areas are subject to natural hazards. Least Developed Countries (LDCs) are very much dependent on external finance, and are subject to high levels of international debt. Much of the poverty in the developing world occurs in rural areas. In these areas there are long-term problems of malnourishment made worse by shorter-term disasters. Floods, drought, plagues of locusts and wars take place in many countries at different times and in different years. These add to the endemic problems arising from low economic development. **Mark scheme** **Level 1 (1-4 marks) (mid-point 3)** Generalised statements of causes which are either simplistic or lacking in a sense of place or exemplification; or one developed cause. **Level 2 (5-8 marks) (mid-point 6)** Detailed, specific and/or sophisticated causes that clearly apply to the causes of poverty. A greater range of causes could move the answer up the level, as could recognition of the complexity of the topic.	***(8 marks)***

18 **AO2 - 8** **AO3 - 2**	**Notes for answers** The Millennium Development Goals (MDGs) are eight goals to be achieved by 2015: Goal 1: Eradicate Extreme Poverty and Hunger Goal 2: Achieve Universal Primary Education Goal 3: Promote Gender Equality and Empower Women Goal 4: Reduce Child Mortality Goal 5: Improve Maternal Health Goal 6: Combat HIV/AIDS, Malaria and Other Diseases Goal 7: Ensure Environmental Sustainability Goal 8: Global Partnership for Development. But, how good has progress been so far? The number of women dying due to complications during pregnancy and childbirth has fallen by a third in the past eighteen years from an estimated 546 000 to 358 000 in 2008, according to the WHO. While progress has been made, the decline is less than half of what is needed to achieve the MDG target of reducing the maternal mortality ratio by 75% between 1990 and 2015. However, women in poorer countries are 36 times more likely to die from pregnancy-related causes than those in the rich nations. Some 99% of the 358 000 maternal deaths reported in 2008 were in developing countries, and more than half were in sub-Saharan Africa. In sub-Saharan Africa maternal deaths decreased by 26%; in Asia they decreased by 52%. Improvements were attributed to better training for midwives, improved family planning services and better delivery and post-natal care in hospitals and health clinics worldwide. A survey of seven countries with the highest numbers of malnourished children – including India and Nigeria, which are home to almost half the malnourished children in the world – shows that in five of them, the poorest are being left behind. In Nigeria, which has the most underweight children in Africa, the gap almost doubled between 1990 and 2008, while in India – despite strong economic growth – it grew by more than a third up to 2006. The global recession and spiralling food prices are likely to have widened this gap even more, jeopardising any fragile progress being made towards the target of halving the number of the world's hungry children by 2015. The poorest families are much more vulnerable to market fluctuations or crop and livestock failure, due to natural disasters like droughts or floods. In addition to a lack of purchasing power, malnutrition is affected by a lack of access to quality health services, clean water and sanitation. However, despite these reservations, several countries have made real progress in saving children's lives, including Malawi, Bangladesh, Nepal and Ghana. These countries have challenged the myth that a country's wealth directly relates to how many children's lives it is able to save. Political will seems to be the single most important thing in saving children. Malawi, for example, has a per capita income of less than (US) $1 a day but has more than halved child mortality from 22% in 1990 to 10% in 2008.	***(10 marks)***

	Level 1 (1-4 marks) (mid-point 3) Simple statements of policies to address poverty, which are generalised and non-specific to an identified area or issue. National policies, max Level 1. **Level 2 (5-8 marks) (mid-point 6)** Detailed statements of policies with a clear sense of place (or targeted issue) being generated. The answer may also make some evaluative comments on those policies, including chances of success. Some sense of global scale. **Level 3 (9-10 marks) (mid-point 9)** A fully developed answer examining a range of policies, with good elaboration and clear and appropriate detail. Recognition of the complexity of the issue. Possible recognition of changing priorities over time. Explicit sense of evaluation. Clear sense of global scale.	

Section C - Mark scheme for the essay questions

Assessment Criteria	Level 1 1-10 Midpoint 6	Level 2 11-20 Midpoint 16	Level 3 21-30 Midpoint 26	Level 4 31-40 Midpoint 36
Knowledge of content, ideas and concepts	Basic grasp of concepts and ideas; points lack develop-ment or depth.	The answer is relevant and accurate. Reasonable knowledge. Imbalanced theories.	Sound and frequent evidence of thorough, detailed and accurate knowledge.	Strong evidence of thorough, detailed and accurate knowledge.
Critical understanding of the above	Incomplete, basic.	Reasonable critical understanding of concepts and principles with some use of specialist vocabulary.	Sound and frequent evidence of critical understanding of concepts and principles, and of specialist vocabulary.	Strong evidence of critical understanding of concepts and principles and of specialist vocabulary.
Use of examples/case studies to support argument **Maps/diagrams**	Superficial. None.	Examples show imbalances and/or lack of detail or depth. Ineffective.	Examples are developed, balanced and support the argument. Effective.	Examples are well developed and integrated. Fully integrated.
Evidence of synopticity: **Connections between different aspects of the subject** **'Thinking like a Geographer'**	No evidence.	Limited. Some ability to identify, interpret and synthesise some of the material. Limited ability to understand the roles of values, attitudes and decision-making processes.	Strong. Some ability to identify, interpret and synthesise a range of material. Some ability to understand the roles of values, attitudes and decision-making processes.	Full. There is a high level of insight, and an ability to identify, interpret and synthesise a wide range of material with creativity. Evidence of maturity in understanding the role of values, attitudes and decision-making processes.
Quality of argument - the degree to which an argument is constructed, developed and concluded	Language is basic; arguments are partial, over simplified and lacking clarity. Little or no sense of focus of task.	Arguments are not fully developed nor expressed clearly, and the organisation of ideas is simple and shows imbalances. Some sense of focus of task.	Explanations, arguments and assessments or evaluations are accurate, direct, logical, purposeful, expressed with clarity and generally balanced. Clear sense of focus of task.	Explanations, arguments and assessments or evaluations are direct, focused, logical, perceptive, mature, purposeful, and are expressed coherently and confidently, and show both balance and flair.

19 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** Appropriate **content** for a response to this question might include: • the concept of a hazard • knowledge and understanding of the two volcanic events studied, and possibly others, as hazards and the extent to which they impacted upon human economies and societies • areas at risk compared to the income/economic development of the people living there • variations in the capacity to adapt to, or manage, volcanic events and their impacts • different impacts on different groups within the same population such as the vulnerability of informal settlements • case study material/exemplars. **Synopticity** emerges with some of the following: • a critical understanding of the processes that produce volcanic events and the context in which they are produced • an understanding of the context of varying timescales and spatial variations • a critical understanding of the varying impacts of volcanic events – such as those based on magnitude, speed of onset, duration, areal extent and frequency • an understanding of the vulnerability of different populations to these events • an understanding of the capacity for resilience to these events • a critical understanding of the vulnerability of different regions, particularly an understanding of the differences between richer and poorer areas and the contrast between urban and rural environments • an understanding of the capacity and willingness of people to deal with these hazards. The question requires an analytical approach and the response may come to a view of relative weighting. Any conclusion can be credited as long as it is measured and reasonable, and related to the content of the answer.	***(40 marks)***

20 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** **Appropriate content** for a response to this question might include the following causes: • Knowledge and understanding of the changes in global temperatures both over long periods of time and in recent decades • Knowledge and understanding of the rates of increase in greenhouse gases (carbon dioxide, methane and nitrous oxide) • Critical understanding of the reasons for these increases, including reasons for recent trends including the burning of fossil fuels • Knowledge and understanding of the impacts of these increases, at a variety of scales • Critical understanding of the means by which mitigation and/or adaptation to combat climate change can be achieved • Case study material/exemplars to support the above. **Synopticity** emerges with some of the following: • Critical understanding of the causes of global warming in relation to historical records • Critical understanding in the context of varying time scales • Evidence in the breadth/depth of supporting evidence both for and against, using varying locations • Recognition of the range of organisations and individuals that have an opinion on this issue, and the variety of contexts from which they arise e.g. political, economic and scientific • Recognition of the complexity of the issue of global warming; some understanding of the debate surrounding the issue. This question clearly requires a discussion and the response should try to come to a view with regard to the statement. Any conclusion is valid and can be credited as long as it is measured and reasonable, and related to the content of the answer.	***(40 marks)***

21 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** **Appropriate content** for a response to this question might include reference to the following: • Knowledge and understanding of the variety of ways in which human activities can affect ecosystems at a local scale, such as the processes that operate in a plagioclimax, or due to urbanisation, development of routeways, and the creation of wasteland and ecological conservation areas • A clear understanding of each of the concepts of succession and ecosystem management • Recognition that human activity, either management or conservation, has both positive and negative consequences • References to examples of human activities in varying locations and/or contexts • Case study material/exemplars to support the above. **Synopticity** emerges with some of the following: • Evidence in the breadth/depth of case-study material • Detailed critical understanding of the underlying natural vegetation processes that also exist in a human environment • Recognition of the role of decision making on vegetation and ecosystem management within small scale areas. Some decisions may be to influence or modify natural processes directly; others may choose to let nature take its course • Recognition of variation in the attitudes of different groups of people in different areas, with varying social, economic and political systems and their view towards the management of ecosystems. The question requires a discursive approach and the response may come to a summative view. Any conclusion can be credited as long as it is reasonable and related to the preceding content and argument.	***(40 marks)***

22 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** Appropriate **content** for a response to this question might include: • definition of the term 'sustainability' • knowledge and understanding of sustainability issues in urban areas such as waste management and transport management. (NB these are quoted in the specification, and these are likely to dominate answers, but we should be prepared to accept other issues such as pollution, water, energy) • outlines of the solutions/management strategies adopted by identified areas • a comparison between contrasting urban areas in countries along the development continuum, and within the same level of economic development • case study material/exemplars to support the above. **Synopticity** emerges from some of the following: • evidence in the breadth/depth of case-study material • detailed critical understanding of the sustainability issues identified • detailed critical understanding of the responses to the issues above • detailed critical understanding of the management, where applicable, of the sustainability issues identified • a recognition of the importance of values and attitudes, and of the role of decision makers at a variety of levels • evaluative comments as to whether sustainability can be achieved. This question requires a discursive approach and the response may come to a view. Any conclusion is creditable as long as it is reasonable and related to the preceding content and argument.	***(40 marks)***

23 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** Appropriate **content** for a response to this question might include: • Knowledge of the characteristics of the countries at very low levels of economic development (least developed countries) • Understanding of the factors that have caused such countries to be at a very low level of economic development • Detailed knowledge and understanding of the issues facing these countries • Knowledge and understanding of the various ways in which least developed countries can be assisted by others, e.g. aid or trade • Knowledge and understanding of the means by which such countries can progress themselves, with low levels of assistance from other countries • case study material/exemplars to support the above. **Synopticity** is therefore achieved by: • Evidence in the breadth/depth of case-study material • Detailed critical understanding of characteristics of LDCs • Detailed critical understanding of issues faced by LDCs • A recognition that assistance can take a variety of forms (e.g. unilateral or multilateral; aid or trade) • A recognition that there are alternative ways in which countries can raise their levels of economic development • Awareness of the complexity of this issue, and of the importance of the role of decision makers, at a variety of scales. The question requires a discursive approach and the response should cover all elements and the candidate may come to an overall view. Any conclusion can be credited as long as it is measured and reasonable, and related to the preceding content and argument.	***(40 marks)***

24 **AO1 - 14** **AO2 - 16** **AO3 - 10**	**Notes for answers** Appropriate **content** for a response to this question should include: • Knowledge and understanding of the reasons causing separatist pressures around the world • Knowledge and understanding of the consequences of separatist pressures • Recognition and assessment of the variety of reasons/consequences in different parts of the world • Knowledge and understanding of the issues that have arisen – for the separatist area itself and for the other areas/regions/countries affected • Case study material/exemplars to support the above. **Synopticity** is therefore achieved by: • Critical understanding of the context and importance of varying timescales and locations • Evidence in the breadth/depth of case-study material • Detailed critical understanding of both the causes and consequences of separatism and their interconnections, and the issues associated with them • Awareness of the role of decision makers in the context of separatism, both at a regional, national scale and international scale • Analysis of both causes and consequences and a recognition that they may vary around the world and over time, and yet may have common elements. The question requires a discursive approach and the response may come to an overall view. Any conclusion can be credited as long as it is measured and reasonable, and related to the preceding content and argument.	***(40 marks)***