

# Mark Scheme (standardisation)

January 2013

GCE Geography (6GE03/01)  
Unit 3: Contested Planet

## Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information, please visit our website at [www.edexcel.com](http://www.edexcel.com).

Our website subject pages hold useful resources, support material and live feeds from our subject advisors giving you access to a portal of information. If you have any subject specific questions about this specification that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

[www.edexcel.com/contactus](http://www.edexcel.com/contactus)

### **Pearson: helping people progress, everywhere**

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at:

[www.pearson.com/uk](http://www.pearson.com/uk)

Summer 2012

Publications Code xxxxxxxx\*

All the material in this publication is copyright

© Pearson Education Ltd 2012



## 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.

Candidates must make their meaning clear to the examiner to gain the mark. Make sure that the answer makes sense. Do not give credit for correct words/phrases which are put together in a meaningless manner. Answers must be in the correct context.

Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the Team Leader must be consulted.

### Using the mark scheme

The mark scheme gives:

- an idea of the types of response expected
- how individual marks are to be awarded
- the total mark for each question
- examples of responses that should NOT receive credit.

### Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- show clarity of expression
- construct and present coherent arguments
- demonstrate an effective use of grammar, punctuation and spelling.

Full marks will be awarded if the candidate has demonstrated the above abilities.

Questions where QWC is likely to be particularly important are indicated "QWC" in the mark scheme BUT this does not preclude others.

UNIT 3 Jan 13 Stand MS

SECTION A

Question Number	Question	
1a	<b>Using Figure 1, explain the contribution that the players make to ensure safe and secure water supplies for all. (10)</b>	
	Indicative content	
	<p>Figure 1 shows 4 players, with a brief comment on each. The question asks for <b>explanations</b> of their contribution to a safe (i.e. clean, unpolluted, disease free) and secure (i.e. reliable, constant) water supply. <b>'For all'</b> in the question hints at the idea that some people might be better served by some players than others – this might be referred to in Level 3.</p> <ul style="list-style-type: none"> <li>• <b>Governments</b> – water quality standards should ensure safety, major supply infrastructure such as dams, pipelines, transfer systems, desalination plants secure supply; possible role in resolving conflict.</li> <li>• <b>NGOs</b> – usually work in the developing world on a range of often small scale projects for those in water poverty i.e. clean water from wells (contrary case of arsenic-poisoned Bangladesh tube-wells could be mentioned); such projects increase security by making water available; might be seen as working 'for all' in the sense of those most in need to water. Alternatively could be seen as small scale – can't help everyone.</li> <li>• <b>Water companies</b> – responsible, in countries like the UK, for delivering water and managing water supplies. Could be seen positively i.e. water is low cost, safe, reliable in many developed countries. Privatisation (e.g. Bolivia) might be seen as negative for some i.e. profit before people. TNCs could be seen in a different light to more local companies.</li> <li>• <b>Consumers</b> – some may be seen as excessive users or users who return water in an unfit condition e.g. farming leading to eutrophication of supplies, or industry discharging pollution – so water is not safe for others to use. Demands for lower prices and / or more efficient supply. Consumers might be seen as paying the bills but with little power, or as environmentalists demands better standards / lower impact on the environment.</li> </ul> <p><b>At least 2 of the players must be covered to access Level 3.</b> Range might be achieved through examples of several NGOs or Water Companies.</p>	
Level	Mark	Descriptor
Level 1	1-4	One or two descriptive points on what some of the players do. Generalised and lacking detail. Unbalanced. Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-7	Explains a range of ways in which the players supply water, at the top end may imply 'for all'; may refer to safe and secure. Some exemplar support. Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	Range of explanations of contributions and may comment on 'for all'. Addresses safe and secure at top of level, as separate issues. Includes examples of players. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question Number	Question	
<b>1b</b>	<b>Using named examples, assess the extent to which conflict over water supplies is inevitable. (15)</b>	
	Indicative content	
<p>Answers can focus on conflicts over water supply at any scale. Some answers will tend to describe conflicts in detail, perhaps implying that they are inevitable. Better answers will recognise that agreements / treaties can be put in place to reduce or resolve conflicts.</p> <p>Conflict might be seen as being inevitable when <b>large water management schemes</b> produce winners and losers such as:</p> <ul style="list-style-type: none"> <li>• Large dams, where water supply is improved but people are displaced. There are numerous examples.</li> <li>• Supply is diverted e.g. Aral Sea and the inflowing river diversions.</li> <li>• Farrakka barrage in India which reduces the water flow to Bangladesh as well as water quality.</li> </ul> <p>When water resources are <b>transboundary</b> (sharing of surface / groundwater); especially if supply is falling and / or demand is rising.</p> <p>Answers could focus of the complex situation of multiple users demanding rights to the same water e.g. the SW of the USA (Colorado River, California and other states / groups).</p> <p>In addition some regions have water conflict is part of broader disputes in which case conflict may be seen as being very difficult to solve e.g. Israel and surrounding nations (Palestine, Syria, Jordan).</p> <p>On the other hand there are examples of well-known agreements which may be seen as wholly or partly successful:</p> <ul style="list-style-type: none"> <li>• <b>The Helsinki Rules / Berlin Rules</b> – all parties need to agree to respect and implement them.</li> <li>• <b>The Mekong River Commission</b> – generally viewed as a success but China plans to build dams upstream.</li> <li>• <b>The Colorado Compact</b> – may be viewed as out-dated and therefore unfair; an example of an agreement that benefits some more than others.</li> <li>• <b>Nile Basin Initiative</b> – complex, involving 9 countries.</li> </ul> <p>There are many other examples that might be used to support an answer.</p> <p><b>‘Assess the extent’:</b></p> <p>May use scale e.g. local situations are less likely to lead to conflict than regional / trans-boundary situations. Could argue that when water supplies are under pressure, conflict is more likely. May contrast developed (less likely?) with developing world (more likely?). Might see conflict as more likely when the argument is not just about water i.e. more complex political situation.</p>		
Level	Mark	Descriptor
Level 1	1-4	Descriptive of some conflicts, but with limited detail and accuracy. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Some conflicts explained with some descriptive detail, but likely to argue that conflict is inevitable so unbalanced. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	Some range of water supply situations and explanations of conflict; begins to assess e.g. by recognising some conflicts can be resolved. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	A genuine assessment, using a range of examples with details, which presents evidence for conflict but also resolution. Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question Number	Question	
2a	<b>Using Figure 2, explain why a spectrum of strategies is used to help conserve biodiversity. (10)</b>	
	Indicative content	
<p>There are several reasons why different conservation strategies are used, including:</p> <ul style="list-style-type: none"> <li>• The degree of threat / degradation to ecosystems of individual species.</li> <li>• The needs of humans versus the requirements of conservation.</li> <li>• Economic issues i.e. cost and raising the funds needed.</li> </ul> <p>Comments on specific strategies could include:</p> <ul style="list-style-type: none"> <li>• <b>Sustainable management</b> – attempts to strike a balance between human need to use biological resources (agriculture, hunting, logging etc) and conservation; often achieved through zoning; relatively large areas where biodiversity is still intact.</li> <li>• <b>Protected areas</b> – often deemed to have a special value (landscape, wildlife) and under threat from human activity (e.g. visitor pressure) so cannot be left alone; balancing public desire to visit with conservation needs. Can generate income for conservation.</li> <li>• <b>Restoration</b> – needed when ecosystems have been degraded by human actions and needed to be repaired e.g. coral reefs, afforestation, wetland restoration – need to be capable of being restored; some might state that its costly so rarely used.</li> <li>• <b>Zoos</b> – last resort when natural habitats have been destroyed and populations of species are endangered; captive breeding programmes (focus should be on conservation, not visitor experience).</li> </ul> <p>Better candidates will use examples to support their answers.  <b>At least 2 of the strategies must be covered to access Level 3.</b></p>		
Level	Mark	Descriptor
Level 1	1-4	Descriptive response which outlines what some strategies do; lacks focus on why different strategies are used. Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-7	Some explanations of why different strategies are used, may be unbalanced with variable support. Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	Range of explanations supported by examples, which explains why different strategies are used. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question Number	Question
<b>2b</b>	<b>Using named examples, assess the severity of global and local threats to biodiversity. (15)</b>
	Indicative content

Answers will need to focus on threats at both scales; local might include a small area / named ecosystem. Global threats are likely to focus on global warming and its consequences, but could include over-fishing / deforestation in a global context.

Local threats could take the form of:

- **Deforestation** – Amazonia and many other areas, for timber, cattle ranching, mineral exploitation; might be seen as a major threat as it is widespread in some areas and leads to complete destruction in some cases on the other hand it can be managed. Includes mangroves and conversion to farmland / aquaculture.
- **Tourism and Recreation** – especially in marine areas e.g. coral reefs; localized in some cases and can be managed e.g. St Lucia MMA, or have a positive impact in terms of funding conservation e.g. Great Barrier Reef.
- **Overfishing** – (and other forms of exploitation beyond sustainable yield) can cause food webs to collapse e.g. Grand Banks, but in some cases is being managed.
- **Pollution / eutrophication** – from sewage and farm runoff.
- **Invasive alien species** – such as the Chinese Mitten crab, or rats / goats in the Galapagos
- **Hazards** – tropical cyclones destroying reefs; wildfires.
- There are others including urbanisation and industrial development; conversion to farmland.

Global threats could include:

- **Global warming** leading to rising temperatures / changing rainfall patterns – increased stress on forests and other ecosystems; latitudinal shifts / changing migration patterns – Arctic and obvious example.
- **Rising sea levels** affecting coastal wetlands and coral reefs; increased **ocean temperatures** leading to widespread bleaching; impact of ocean acidification.
- **Desertification** encroaching on grasslands and savannas; linked to global warming but also local threats such as overgrazing, poor farming practice.
- **Global pollution issues** – such as acid rain, which is widespread, or marine pollution and waste.

Both a marine and terrestrial biodiversity focus is acceptable.

#### ‘Assess the severity’

Look for criteria for the assessment such as scale, degree of damage, immediacy: global threats may be seen as more severe because they are harder to manage internationally, or because there has been limited success so far i.e. lack of political will, funding etc. Local could be argued as more immediate and damaging to communities (so more serious), but perhaps easier to manage. Global might be seen as ‘future’ versus local being more ‘present’.

Level	Mark	Descriptor
Level 1	1-4	Descriptive answer which outlines some general threats, possibly hazards, unclear on local or global scale. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Explains some range of threats, which global / local implied but with limited detail and lacking focus on severity. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	A range of local and global threats explained but may be unbalanced; begins to assess severity and uses examples. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	Genuine assessment (e.g. overview / judgement) of severity with supported details of a range of threats at both local and global scales; carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.



Question Number	Question	
3a	<b>Using Figure 3 and your own knowledge, explain the possible consequences of the population projections for future superpower status. (10)</b>	
	Indicative content	
	<p>Figure 3 shows population change from 2005 to 2030 for 3 countries:</p> <ul style="list-style-type: none"> <li>• <b>Russia</b> – working age population falls by 15 million, young by 3 million, 65+ rises by 6 million; total falls.</li> <li>• <b>USA</b> - total rises by 65 million, increase in all age groups although 65+ doubles from 37 to 72 million.</li> <li>• <b>India</b>– increase overall of around 250 million; under 15 stable, but a rise in working age of close to 180; big 65+ increase.</li> </ul> <p>Countries such as India will gain a <b>population dividend</b> as their youthful population of today becomes a working age population in the future.</p> <p>Consequences and link to superpower status:</p> <ul style="list-style-type: none"> <li>• <b>Russia</b> – BRIC and former superpower – major problem with ageing population (and an unhealthy one) and therefore rising dependency; cost issues of caring for the elderly while working age population shrinks significantly; issues of shrinking workforce / military potential. Hard to see any positives</li> <li>• <b>USA</b> – superpower – fairly positive as the working age population rises as does under15 (future positive) therefore potential for continued economic growth and support for its TNCs and military; does have an issue with rising ageing and health care costs (very large in USA); could mention the benefits of immigration as accounting for youthfulness. Status likely to be maintained.</li> <li>• <b>India</b> – emerging power – huge growth; growth in working age exceeds the total for Russia; potential for economic growth (7-9% growth), middle class consumers supporting industry, skilled workforce. By 2030 the older population is significant and ‘new’ which will require resourcing e.g. old age care, health care, pensions (uncommon currently). Overall, growth provides potential (some even say more so than China, whose population is ageing). Some might see India’s rapid population growth as leading to water and food scarcity / stress, undermining its ambitions.</li> </ul> <p>Accept other factors that help maintain status (economic, cultural, military etc), <b>as long as</b> this is within a discussion of population.</p> <p><b>Maximum 7 if two countries only.</b></p>	
Level	Mark	Descriptor
<b>Level 1</b>	1-4	Descriptive with some partial reasons; unbalanced e.g. very negative. Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
<b>Level 2</b>	5-7	Some balance between countries and consequences; variable detail but some good explanations; weaker link to superpower status. Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
<b>Level 3</b>	8-10	Balanced coverage in terms of countries: range of consequences (e.g. positive/negative; economic / social) and detailed explanations linked to superpower status. Some use of own knowledge. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question Number	Question	
<b>3b</b>	<b>Assess the extent to which China is a threat to the USA's status as the only current superpower. (15)</b>	
	Indicative content	
<p>Essentially a question about how likely a move from a uni-polar to bi-polar world is, although there is room for some discussion of the EU and other BRICs in terms of a multi-polar world. Answers could be structured in terms of:</p> <ul style="list-style-type: none"> <li>• Eco / Soc / Pol strengths</li> <li>• Hard and Soft power</li> <li>• Military / Economic / Cultural / Geographical influence (the 'pillars')</li> </ul> <p>Expect a discussion of the relative positions of China and the USA, and an overview / judgment from better candidates:</p> <p><b>There are a number of ways China threatens:</b></p> <ul style="list-style-type: none"> <li>• Huge trade surplus generates money to invest in world class infrastructure.</li> <li>• Control over the USA and other countries through buying debt.</li> <li>• Increasingly moving out of China into Africa and other areas, so geographical influence is growing.</li> <li>• Huge internal market potential; major player in world trade.</li> <li>• Influence within G20 and talk of 'G2'.</li> </ul> <p><b>But China has a number of reasons why it may not be a threat:</b></p> <ul style="list-style-type: none"> <li>• Rural poverty still very prevalent; population is ageing rapidly.</li> <li>• Industrialisation has led to water shortages, pollution that will need to be cleaned up at some point.</li> <li>• Military – lack of global power projection e.g. blue water Navy (but constructing this)</li> <li>• Limited cultural influence (although 2008 Olympics, 2010 Shanghai Expo, Confucius Institutes) and lack of world class TNCs, although these are growing e.g. Lenovo, China Mobile.</li> <li>• Human rights issues</li> </ul> <p><b>The USA has a range of strengths which China will take some time to match:</b></p> <ul style="list-style-type: none"> <li>• Military – blue water Navy, nuclear power; global network of military sites: NATO alliance = powerful friends; allies in Asia (Japan, South Korea, Taiwan)</li> <li>• Global TNCs and brands (Nike, Coke, Apple) generate economic wealth and spread American culture. Control over global trade.</li> <li>• Power through IGOs e.g. IMF voting power; veto on UN Security Council – ability and willingness to intervene in attempt to 'get its own way'; more informal influence though G8 and World Economic Forum.</li> <li>• Power of the US\$ as the world's reserve currency, although this may decline.</li> </ul> <p><b>'Assess the extent':</b></p> <p>Some supported judgements / conclusions are required to access L3 and above e.g. China threatens in some ways but not others; a timescale for China's rise could be mentioned.</p>		
Level	Mark	Descriptor
Level 1	1-4	One sided, generalised comments on China as a threat, or similar; lacks support. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Some aspects of China and USA discussed but unbalanced but may lack support. States rather than assesses. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	Considers the USA and China in terms of relative positions with some assessment of China's threat; some support. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	Genuine assessment (e.g. judgement) which weighs up the relative positions of both countries; detailed support, may use language of superpowers. Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question Number	Question	
4a	<b>Using Figure 4, explain how the groups of players have both positive and negative impacts on the development process. (10)</b>	
	Indicative content	
<p>Do not expect a discussion of all of the players shown in Figure 4, but for Level 3 the 3 groups should be discussed.</p> <p><b>National Agencies:</b></p> <ul style="list-style-type: none"> <li>• Positive – some might recognise that national agencies often provide emergency aid during a crisis, saving lives.</li> <li>• Negative – sometime accused of being slow to respond e.g. 2005 Niger famine; in addition bilateral aid is /has been often tied aid and some question how appropriate this is (Pergau Dam is a well-known example); many governments are cutting aid budgets; USaid in particular might be seen as being given to allies rather than those in need.</li> </ul> <p><b>NGOs:</b></p> <ul style="list-style-type: none"> <li>• Positive – many will see this as the most positive on the basis that it is seen as independent, targeted at the poor and those in need; often small scale and using appropriate / intermediate technology to build on local skills. Different types of aid could be discussed e.g. emergency, food aid, development, water etc</li> <li>• Negative – possibly viewed as small scale and therefore not widespread enough to really help development; focus on basic needs rather than wealth generation. Non replicable / site specific; depends on local support / labour / capacity building to continue projects.</li> </ul> <p><b>IGOs:</b> the World Bank lends to the developing world whereas the IMF helps manage developing countries economies.</p> <ul style="list-style-type: none"> <li>• Positive – lending for major infrastructure projects which are often linked to development e.g. water supply, farming, electricity, roads. Would not be possible without some lending instrument. IMF, through PSRPs and HIPC helps stabilise economies in crisis.</li> <li>• Negative – debt issues i.e. getting into debt in the first place through loans and then painful restructuring of finances; many criticise IMF plans on the basis that they cut education and health programmes. Loans could be criticised on the basis of corruption, inappropriate schemes that fail to generate development.</li> </ul> <p>Accept other players e.g. other NGOs or IGOs, for instance the UN and the MDGs might be mentioned.</p>		
Level	Mark	Descriptor
<b>Level 1</b>	1-4	Generalised ideas on some of the players but unbalanced and lacking depth. Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
<b>Level 2</b>	5-7	Some links to development, but may be more general; recognises positives and negatives but may be unbalanced; some range and support. Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors. <b>Max 7 if two groups only.</b>
<b>Level 3</b>	8-10	Linked to the development process, balanced range of explanations for the 3 groups with some support; positive and negative impacts. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare

Question Number	Question	
<b>4b</b>	<b>Assess the extent to which models and theories, such as the North-South divide and dependency theory, are useful in helping to understand the development gap. (15)</b>	
	Indicative content	
<p>Expect some initial outlining of the North South divide (Brandt Line) idea which dates from the 70s/80. It basically divides the world into rich and poor, developed and developing. Better candidates might define the development gap. Dependency Theory dates from around 1970, when AG Frank among others argued that the developed world kept the developing world in a state of underdevelopment through mechanisms such as terms of trade. Expect reference to specific countries and regions in L3 and L4.</p> <p><b>North-South Divide</b></p> <ul style="list-style-type: none"> <li>• Might be argued as relevant in the past i.e. the 1980s when few of the NICs had developed strongly.</li> <li>• Today, the development gap is more complex; much of Africa has barely developed in the last few decades so the model is applicable, but elsewhere especially in Asia the pattern is more complex</li> <li>• Candidates might outline a range of development classifications on the 'ladder' i.e. LDC, LEDC, NIC, MEDC, G8 to show that a polarised division of the world is no longer realistic.</li> </ul> <p><b>Dependency Theory</b></p> <ul style="list-style-type: none"> <li>• Some countries, it might be argued, (especially SSA) are still in a state of dependency, relying on a few low value commodity exports e.g. Ghana (cocoa), Zambia (copper) sent to the developed world</li> <li>• These countries are overly reliant on aid, debt relief and other support and have failed to develop.</li> <li>• Neo-colonial relationships might be explained, including the current role of China in Africa</li> <li>• Many countries have 'broken free' and developed e.g. the Asian Tigers and others NICs, including India and China.</li> </ul> <p>Other models and theories could be discussed, such as:</p> <ul style="list-style-type: none"> <li>• <b>Modernisation Theory</b> (Rostow) – possibly to explain the development of some nations i.e. achieving 'Take Off', and the rise of RICs and NICs; a criticism is that it only goes in one direction.</li> <li>• <b>World Systems Theory</b> (Wallerstein) – could seen as more useful than the N-S divide as it allows for the existence of countries 'in the middle' in terms of development.</li> </ul> <p><b>'Assess the extent'</b></p> <p>Some candidates might argue that the two theories are strongly linked, and that the fact that some have become NICs and RICs suggests that the North-South divide has broken down and is less useful than it once was.</p> <p><b>NB</b> maximum marks could be achieved using e.g. Rostow and Wallerstein, as the question refers to 'such as'.</p>		
Level	Mark	Descriptor
Level 1	1-4	Description of models / theories, with no consideration of usefulness. Structure is poor or absent. Over simplified and lacks clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Description and some explanation of models/ theories linked to development; unsupported statements of useful / not useful. Limited support; Structure is satisfactory. There are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	Some demonstration of how models / theories can be linked to the development gap; begins to assess usefulness in understanding differences. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare. <b>Max 10 if one model / theory only.</b>
Level 4	13-15	Genuine assessment with good understanding of models / theories, which supports a discussion of usefulness and limitations in helping to understand the 'gap'. Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question Number	Question	
5a	<b>Using Figure 5 and your own knowledge, explain why some methods for ‘cooling the planet’ appear to be better than others. (10)</b>	
	Indicative content	
	<p>Figure 5 shows examples of what might loosely be called geo-engineering. Expect a range from Fig 5 to be discussed but Level 3 can be achieved without covering all 4.</p> <ul style="list-style-type: none"> <li>• <b>Space Mirrors</b> – very costly technology due to the complexity of launching mirrors into space – could we afford it? (Russia attempted this in the 1990s, with limited success and for a different purpose), but effective as it prevents heat getting into earth’s atmosphere; side effect score related to difficulty of controlling mirrors in space; might be argued that it encourages continued pollution and does not address issues such as ocean acidification.</li> <li>• <b>CCS</b> – costly due to the need to retrofit to power stations and continually capture and store; risk from ‘leaks’ although unlikely; effectiveness is not the best as it would take time to lower CO2 levels in atmosphere.</li> <li>• <b>Sulphate aerosols</b> – relatively cheap as sulphate particles could be ‘launched’ from aircraft or ships and the raw material is cheap; would have an immediate cooling impact rather like a major volcanic eruption; very high risk environmentally in terms of acid precipitation and unknown consequences depending on the path the aerosols take to earth. Pollution to solve a pollution problem?</li> <li>• <b>Afforestation</b> – arguably the ‘greenest’ method for sequestering CO2, and low cost as trees only need be planted. It is ‘known’ in terms of what trees to therefore low risk; however it is not very effective due to being slow; some might point out how much land would be required, although there are other positives such as flood control.</li> </ul> <p><b>At least 2 of the methods must be covered to access Level 3</b></p>	
Level	Mark	Descriptor
<b>Level 1</b>	1-4	Descriptive answer which focuses on the ‘scores’ and states which is best / worst method, with little reasoning. Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
<b>Level 2</b>	5-7	Some explanations for some of the methods with some support from the scores, but unbalanced and partial. Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
<b>Level 3</b>	8-10	Range of explanations for the scores, with some detailed reasons for why some methods may be more desirable than others. Balanced. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare

Question Number	Question	
<b>5b</b>	<b>Using named examples, assess the relative importance of political, economic and social factors in explaining unequal access to technology. (15)</b>	
	Indicative content	
	<p>This question focuses on barriers to technology / why access to technology is unequal. Many answers will focus on economic (i.e. level of development) reasons but in L4 there should be some discussion of social and political factors.</p> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>• Many technologies are related to ability to be e.g. electricity, cars, health care, refrigeration etc.</li> <li>• The patent / royalty system which limits access and increases costs.</li> <li>• Broadly speaking there is a strong link to the development gap i.e. the digital divide</li> <li>• Aids organisations might be seen as overcoming this e.g. health care, water technology.</li> </ul> <p><b>Political</b></p> <ul style="list-style-type: none"> <li>• Examples include political decisions to ban access to some technology such as GM crops in the UK</li> <li>• On a broader scale the nuclear non-proliferation treaty has 'policed' those countries who can access nuclear technology (not wholly successfully)</li> <li>• There are also examples of political decisions to provide access e.g. super-fast broadband in South Korea or universal immunisation.</li> <li>• The internet is essentially unknown in North Korea and censored in China for political reasons.</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>• Access to contraception is influenced by the social status of women as well as cultural / religious beliefs.</li> <li>• Level of education might be argued as a social factor that limits access to the written word, computer technology.</li> <li>• Some socio-cultural / religious groups have decided not to use certain technologies e.g. the Amish, although their number is small.</li> </ul> <p>There are many other examples. Some other factors might be discussed such as physical isolation, or even personal choice.</p> <p><b>'Assess the relative importance'</b></p> <p>In terms of assessment, it might be argued that economic factors are most important as money determines so much access – but that individual technologies, especially if they are controversial are influenced by political decisions. Alternatively it could be argued that leapfrogging means that economic barriers are less important for some technologies.</p>	
Level	Mark	Descriptor
Level 1	1-4	Descriptive answer; a few general comments about access to technology; limited reasoning – focus on economic. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Some reasons why some people lack access to technology but unbalanced across the three factors; limited support. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	Range of explanations, with some balance across the factors, with some support to explain unequal access to technology; begins to assess relative importance at top end. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	Good range of factors, covering economic, political and social reasons: detailed support and explanation for inequality of access; assessment of the relative importance clear. Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

**SECTION B**

Question Number	Question	
<b>6a</b>	<b>Explain why energy players have such different perceptions of nuclear power. (12)</b>	
	Indicative content	
<p>A range of players should be discussed, including:</p> <p><b>Government</b></p> <ul style="list-style-type: none"> <li>• Governments are divided over the issue, with some like the UK and France in support (high energy demand, low or falling security) but others against e.g. Germany, Italy, Switzerland – they are often reacting to public opinion or in some cases (Italy, Belgium) a vote – others seem more ambivalent e.g. Holland and Spain, perhaps waiting to see what others do.</li> </ul> <p><b>Public</b></p> <ul style="list-style-type: none"> <li>• Fig 3 show public opinion (note that View 2 from the IAEA states that public opinion is pro-nuclear); the public agree that nuclear power reduces dependency (less so in Spain) and are reasonably supportive of the limiting climate change argument. The risks (terrorism, explosions, leaks) are felt most strongly in Spain and Germany, and the issue of nuclear waste has very variable results. Locally, there is NIMBYism but there may also be support e.g. for a 2<sup>nd</sup> nuclear power plant in an area where nuclear provides jobs.</li> </ul> <p><b>Power companies / NIAUK / TNCs</b></p> <ul style="list-style-type: none"> <li>• View 6 from the NIA argues the low carbon case, and it could be argued that TNCs (Fig 7) want to sell their reactors – it’s good business and creates profits and jobs. Companies like EDF many see nuclear as reliable and clean.</li> </ul> <p><b>Environmental Organisations</b></p> <ul style="list-style-type: none"> <li>• View 1 and View 4 show that Greenpeace and FoE reject nuclear power on environmental groups, and Greenpeace argues that it is marginal in terms of energy security.</li> </ul> <p><b>Unions</b></p> <ul style="list-style-type: none"> <li>• View 3 illustrates that Unite supports UK nuclear power because it would increased jobs.</li> </ul> <p><b>Synoptic linkages</b></p> <ul style="list-style-type: none"> <li>• <b>Players</b> is one of the synoptic themes in Unit 3. The <b>TNCs</b> involved, or the views of <b>NGOs</b> and <b>pressure groups</b> could have been researched in more depth.</li> <li>• <b>UK government’s plans</b> could have been researched</li> <li>• Unit 1 Climate Change for details of <b>global warming</b> and nuclear as a <b>mitigation</b> strategy.</li> </ul>		
Level	Mark	Descriptor
Level 1	1-4	Limited range of players and a few views on nuclear power stated. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	Range of players with some explanations given for different views; some support from the resources and some details. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	Range of different players and different perceptions clearly stated, supported by detailed use of the resources. Synoptic. Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question Number	Question
<b>6b</b>	<b>Evaluate the economic and political costs and benefits of developing new nuclear power stations in Western Europe to increase energy security. (14)</b>
	Indicative content

Plans for new reactors are going ahead in France, the UK and possibly the Netherlands. Answers should focus mostly on the UK and France.

**NB** There is inevitably some overlap between economic and political costs and benefits:

	<b>Economic</b> Focussed on finance, money, GDP, jobs, long term economic security	<b>Political</b> Focussed on decision making, international obligations, popularity / votes, consensus
Costs	<ul style="list-style-type: none"> <li>• Most Uranium supply is in the hands of a few foreign companies, which could have implications for price and or supply (Fig 7).</li> <li>• The UK would have to rely on foreign companies to build reactors (Fig 8)</li> <li>• Past experience suggests major cost overruns / delays are possible / long lead-in time.</li> <li>• The costs are very high overall, although TNCs are paying.</li> </ul>	<ul style="list-style-type: none"> <li>• Public opinion varies, but there is widespread opposition from environmentalists.</li> <li>• The Fukushima disaster may increase pressure to pause or stop reactor construction.</li> <li>• Any accident (Fig 5) or terrorist incident would prove politically very costly.</li> <li>• Uranium mining is not environmentally friendly and the issue of nuclear waste is politically charged.</li> </ul>
Benefits	<ul style="list-style-type: none"> <li>• France has a much greater domestic nuclear industry than the UK – more self-reliant.</li> <li>• By the measure shown in Fig 8, nuclear is a relatively low cost source, although the costs are up front.</li> <li>• Building reactors would create many jobs.</li> <li>• Provides electrical base-load, so could replace fossil fuels.</li> </ul>	<ul style="list-style-type: none"> <li>• May help meet Kyoto/ Copenhagen (and successors) targets as well as national CO2 targets.</li> <li>• For the UK, nuclear could help plug the energy gap.</li> <li>• Reduced reliance on gas e.g. from Norway, Russia, Qatar.</li> <li>• Uranium can be sourced from ‘friendly’ nations (Fig 6)</li> </ul>

#### Synoptic linkages

- Could include **additional research** on Fukushima and UK reactor sites, or more detail on accidents or public opinion
- The search for a **nuclear waste repository** for the UK, as yet unresolved.
- **Energy security** issues such as **Russian gas** might be mentioned.
- Other **cost comparisons** (Figure 9) might have been researched.

Level	Mark	Descriptor
Level 1	1-4	Unbalanced, one sided on costs / benefits with limited detail. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-7	Range of costs and benefits of a more general nature with some support. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-11	Some economic and political balance, with some details on costs and benefits; more implied evaluation. Structure is good. Some reference to wider links. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	12-14	Balanced on economic and political costs and benefits; focus on energy security with good detail; detailed evaluation likely to include a judgement. Carefully structured. Strong synoptic links. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.



Question Number	Question	
6c	<b>Study the three options in Figure 11. Assess the possible impacts of their development on the energy security and the environment of Western Europe. (14)</b>	
	Indicative content	
	<p>Answers could use the framework above Figure 11 as a structure to help answer this question. Answers should cover the 3 options in Figure 11.</p> <p><b>Shale gas</b></p> <ul style="list-style-type: none"> <li>• Energy security – reliable fuel using known technology, although reserves of shale gas are not known with certainty as exploration has only recently begun. Domestic gas supplies would reduce import needs; gas can be used as a transport fuel (LPG) and the cost of gas is competitive.</li> <li>• Environment – gas is the cleanest fossil fuel, but there are serious concerns about developing shale gas in terms of water supply. France banned shale gas exploitation in 2010.</li> </ul> <p><b>Bioethanol</b></p> <ul style="list-style-type: none"> <li>• Energy security – used for transport and is small scale; supply is reliable but small and the closure in 2011 might suggest the market is not very stable (reliability); domestic production is reliable but some countries are more advanced than others in developing bioethanol; it does little to plug the UK energy gap. Food security issues could be mentioned.</li> <li>• Environment – in theory, it is carbon neutral but in reality less so (transport, processing, distribution); can the by products be used / is there a market?</li> </ul> <p><b>CSP</b></p> <ul style="list-style-type: none"> <li>• Energy security – relies on getting electrical power from overseas, in an unstable region so questionable in terms of security; the supply pathway could be vulnerable to political disputes and the costs could be high.</li> <li>• Environment – the sources are renewable although some might question the carbon footprint of the infrastructure.</li> </ul> <p>In terms of assessment, gas might be seen as relatively good in terms of security but questionable environmentally; bioethanol is just one small part of a much broader 'energy need' and could be seen as wasting resources – it is green up to a point. CSP is in theory 'green' but relies on massive infrastructure investment in an unstable region – does it really increase security?</p> <p><b>Synoptic linkages</b></p> <ul style="list-style-type: none"> <li>• Wider shale gas research in <b>USA</b>, France and UK (<b>Blackpool – Cuadrilla Ltd</b>)</li> <li>• Climate change from Unit 1 (mitigation)</li> <li>• Bridging the Development Gap Unit 3 (benefits / costs for the MENA area)</li> <li>• Life on the Margins Unit 4 – development in a desert environment</li> <li>• Unit 3 Technological Fix – types of technology (renewable, alternative, hi-tech) and externalities.</li> </ul>	
Level	Mark	Descriptor
Level 1	1-4	One or two ideas on some of the sources; basic comments on good or bad. Structure is poor or absent. Explanations are over simplified and lack clarity. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-7	General discussion of some advantages and disadvantages for the environment and / or energy security. Structure is satisfactory. Explanations are clear, but there are areas of less clarity. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors. <b>Max 6 if one only.</b>
Level 3	8-11	Considers environment and energy security with some balance and a range of ideas; begins to assess impacts. Structure is good. Some reference to wider links. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare. <b>Max 10 if two only.</b>
Level 4	12-14	Detailed, balanced assessment of both environmental and energy security impacts; likely to make a judgement. Carefully structured. Strong synoptic links. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

