Mark Scheme (Results)

Summer 2018

Pearson Edexcel GCE
In Geography (6GE03)
Unit 3: Contested Planet

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General Marking Guidance

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

SECTION A

Question number	Question
1a	Using Figure 1, suggest reasons for the trends in energy use shown. (10)

Indicative content

Answers should focus on explaining the 4 trends, not describing them.

- The overall increase in global energy use is evident i.e. all 4 sources increase, and taken together there has been an increase from around 290 QTU to 570 QTU between 1995-2020; this can be explained by increases in global population, affluence and development – especially of the BRICs / emerging countries.
- Some might note the dip in 2008-00, which can be explained by the economic fall-out from the global financial crisis i.e. recession in developed countries and a fall in demand – at least temporarily.

Specifically:

- Oil – has relatively slow and steady growth. It is a transport fuel predominantly so its increase tracks the rise in car ownership, global shipping / trade, and the steady rise in global air traffic. Some might argue the relatively slow increase is a result of high prices, at least since 2005.
- Coal – a much more uneven pattern, with dramatic growth between 2000 and 2010 (huge investment in Australian mining to export to China), but slowing since. Its popularity is partly explained by its ubiquity and low cost, and the industrialisation of China (to a lesser extent India) could be used to explain the early 21st century increase. Coal is shunned by developed countries e.g. EU, USA due to its environmental impacts so use has fallen here explaining the recent slowdown.
- Renewable – environmental issues / climate change targets could explain the rise in renewable especially the pace picking up after 2008; increasingly cost competitive with fossil fuels; huge investment in them in China e.g. solar, wind and HEP.
- Nuclear is steady as a result of older plants closing, and few opening to replace them – this is offset to some extent by China's building programme; widespread unpopularity in other countries as a result of high costs, long lead in times and public perceptions related to Fukushima and other incidents.

Level	Mark	Descriptor
Level 1	1-4	• One or two undeveloped reasons in a largely descriptive account. • Variable coverage of the 4 energy sources. • 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 range of reasons, with some developed but not all. • Covers at least 3 of the energy sources; some support offered. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	• Developed explanations; may also explain the overall increase. • Covers all 4 energy sources and offers support. • Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question	Question
1b	Using named examples, assess the contribution renewable energy sources could make to the future energy security of countries. (15)

Indicative content

Answers should focus on renewables (wind, solar, HEP, biofuels etc. nuclear is acceptable) in the context of energy security i.e.:

- Affordable energy
- Reliable supply
- Reduced dependency on imports

Stronger answers will focus in specific countries rather than just generally.

Wind	Widespread use and falling costs, especially in UK, China, Denmark but issues with intermittency and lack of public support (less so offshore). Some countries have a large wind resource (UK) but not all and back up supply may be needed e.g. gas.
Solar	Depends on the level of sunlight, but where this is high (southern USA, Spain) it can provide reliable power; high set up costs; takes up a lot of space but where the land is not used i.e. arid / semi-arid this is less of an issue.
HEP	Very widespread use already and a mature technology; provides reliable base load electricity but is geographically constrained; could be affected by future climate change; is competitive in terms of cost but large schemes often have a range of negative costs.
Biofuels	Popularity stems from the fact that it can replace liquid fuels for transport, whereas other renewables usually provide electricity only (so transport technology would also need to change); issues with available land for crops meaning it works well in USA / Brazil but less so in other countries.
Nuclear	Has high potential as continuous baseload, but environmental issues and very high costs have reduced its development to a few countries such as UK and China – questionable whether it will ever become more widespread.

Other renewables could be considered for specific countries, e.g. geothermal in Iceland. Fossil fuels should only be credited as part of an argument that renewables have a limited contribution in some places.
Candidates might argue that the COP21 Climate Agreement makes renewables more appealing i.e. meeting environmental and energy security obligations.
Overall judgement:

- The judgement could come in the form of some renewables being better than others on cost or reliability grounds.
- There is a question mark over how far renewables can replace oil / petrol / diesel; in areas of cheap fossil fuels from fracking they may be seen as having limited value.
- Judgement that some countries have a much higher potential than others.

Level	Mark	Descriptor
Level 1	1-4	• One or two general costs and benefits of renewables, poorly supported. • Not focused on energy security. • 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	• Outlines some pros and cons or renewable, with variable support. • Limited focus on 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.
Level 3	9-12	• Some focus on energy security with some support. • Begins to assess the contribution they could make, with variable depth. • Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	• Detailed focus on energy security for specific countries and renewables. • Genuine assessment of their contribution with clear judgements. • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question number	Question
2a	Using Figure 2, explain how the pattern of biodiversity is determined by **physical** factors. (10)

Indicative content

Answers should focus on explaining the levels of biodiversity, both high and low areas, across the map.
Physical factors include:

- Latitude, which broadly determines productivity. High temperatures and high rainfall in equatorial areas lead to rapid growth and nutrient cycling due to high levels of photosynthesis, growth and decay. Moving away from the equator productivity declines as limiting factors (temperature, rainfall, seasonality) reduce productivity.
- Altitudinal range has an influence in areas such as the Himalaya, Andes and East Africa due to the large variations in temperature and precipitation upslope, leading to a wide range of ecological niches in small areas and hence higher levels over all.
- Area has a role, as large areas have continuous biomes capable of supporting large numbers of species.
- Age of areas can be important; ancient continental interiors such as South America which have had a stable climate for millions of years have allowed continual evolution on very large numbers of species, in ecosystems with high structural complexity and numerous ecological niches.
- Isolation plays a role, such as the numerous high biodiversity islands of SE Asia where evolution has taken specific paths as species have been cut off from any outside influences and have evolved to generate a high degree of endemism; this is also the case in highland areas.
- Credit some discussion of biodiversity in terms of genetic, species or ecosystem diversity.

There should be a consideration of a range of explanations linked to locations on the map, Figure 2.

Level	Mark	Descriptor
Level 1	1-4	• One or two reasons, of a general nature, poorly linked to Figure 2. • Descriptive rather than explanatory. • 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 range of reasons, but with variable depth. • Some attempt to link reasons to the pattern shown. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	• Range of reasons with good explanatory detail. • Explanations are linked to the map. • Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question number	Question
2b	Using named examples, assess the value of ecosystem goods and services to people and the planet. (15)

Indicative content

Answers should focus on explaining the value of goods and services, and then making a judgement about this value. Answers could take a 'biome' approach by focussing on tropical forests or coral reefs, or take a more general approach selecting examples from a range of biomes.

Both a 'goods and services' and an 'ecosystem services' approach are equally acceptable:

Goods	Provisioning services	Often very important in subsistence economies where people still depend on hunting / gathering for some food (bush-meat), traditional medicines, fibres, fuel and building materials; less important in more advanced societies (but still used) but the genetic material of ecosystems is key to agricultural and pharmaceutical research.
Services	Cultural	A key part of traditional cultures that venerate parts of the natural world, but also equally important in terms of leisure and recreation in developed countries e.g. National Parks. Many economies depend on their ecosystems as an income earner from tourism, and this can be a very significant part of the economy in terms of income and employment.
	Supporting	Healthy ecosystems maintain soil health through nutrient cycling, and soil is vitally important in terms of global food production.
	Regulating	For the planet, the regulating of the atmosphere by ecosystems is a crucial part of the planetary life support system – key role as carbon sinks and therefore wider climate health; forests are especially important. The hydrological cycle, from rainfall patterns to flood risk and clean water supply is regulated by ecosystems – which is both globally and locally important.

Overall judgement:

- Could judge that for the planet as a whole, regulating services are critically important as these affect the health of the entire planet, and therefore people's wellbeing.
- Locally, goods are very important in some places and for some people, and this is also true for cultural services.

Level	Mark	Descriptor
Level 1	1-4	• One or two descriptive points about goods and / or services; not clear on either. • 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 range of goods and services in a descriptive account; may imply value. • 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 detail on both goods and services, with some variable support. • Begins to assess their importance. • Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	• Detailed explanations for both goods and services, detailed support. • Genuine assessment of importance, for both people and the planet. • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question number	Question
3a	Using Figure 3, explain the types of data that could have been used to produce the power index shown. (10)

Indicative content

Answers should focus on the data that may have been used to produce this index; the text on Figure 3 provides a structure i.e. economic, military, demographic and technology.
Stronger answers may explain / justify their suggestions with reference to the power trends shown.
Weaker answers may attempt to explain the trends, which is not the focus of the question. Data that could have been used includes:

Economic	• Total GDP / GDP per capita, based on the idea that wealth is a key component of power allowing spending on military and diplomatic assets: rise of China and India as their GDP grows; stagnation of the Russian and EU economies. • Economic sectors (P/S/ T/Q) i.e. the transition towards a mature post-industrial economy with high wealth creation; India moving from farming to manufacturing and services. • Number of global TNCs, which are key wealth creators.
Military	• Military spending as a proportion of GDP, plus more specific military measures like number of aircraft carriers, 'blue water' ships, nuclear missiles – especially those that relate to ability to operate globally rather than just regionally; development of China's blue water navy.
Demographic	• Total population (rise of India) although this might be considered less important than concepts such as the demographic dividend (India) versus population decline / ageing in Russia and the EU (even China by 2050).
Technology	• This could be related to investment in R&D by TNCs, or government spending on education and R&D. • Investment in military technology. • Patents granted, as a measure of how innovative countries are.

Accept suggestions that go beyond Figure 3, such as membership of IGOs, cultural influence and other types of soft power as long as these are linked to the idea of power.

Level	Mark	Descriptor
Level 1	1-4	• One or two general ideas, tends to describe and / or explain the trends rather than focus on contributing data. • 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 focus on data types, but variable i.e. some are general rather than specific. • Covers some range of categories with variable detail. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	• Clearly focussed on data, most of which are specific and there may be some links to the trends. • Covers the different categories with good detail. • Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question number 3b	To what extent is trade important in explaining the influence of superpowers? (15)

Indicative content

Answers should focus on the importance of trade as a source of power; there could be a consideration of trade within a wider consideration of the 'pillars' of superpower status. Answers should focus on the existing superpowers (EU, USA) but also emerging powers e.g. BRICS and MINTs. One approach would be to consider the pillars of power, and consider the extent to which trade is the most important:

Trade

- Crucial source of wealth e.g. USA economy, the rise of Chinese GDP through manufacturing exports, the importance of oil / gas exports for Russia, the softer service / cultural exports of the UK (which can be very important in cultural power e.g. brands, art etc.). China is likely to be the world's largest economy by 2030, with India not far behind – much of this driven by trade; China is already a production superpower and in future could threaten the USA's economic hegemony.
- Trade blocs tend to assist growth in inter-bloc trade, wealth accumulation – which can then be used to support other aspects of status e.g. military spending. Some might question whether trade blocs are that beneficial as they can restrict extra-bloc trade (Brexit, Trumps views).
- TNCs could be discussed as generates of trade and wealth; US TNCs are still very important globally and have cultural influence too (unlike China's large but state owned TNCs).
- China's trade with Africa is an important source of raw materials needed to fuel its growth, but also brings China political influence and a more global outlook (which is not without its critics).
- Neo-colonial trade relations could be discussed (and past colonial ones are acceptable as part of the discussion) and the power that comes from control sources of raw materials and prices.

Answers could focus solely on trade, but stronger ones are likely to consider some other sources of influence such as:

- Military: Size of armed forces, global reach ability (navy, ICBMs, nuclear weapons), the threat of force or actual use of hard power (Russia in Ukraine and Georgia), military budgets and technology among others.
- Cultural: Dominance in terms of global culture through media, the arts, TV, streaming news and their western ideology; China is much less culturally influential; some might argue that India is more influential through food, Bollywood and its involvement in global services.
- Geopolitical : The global geopolitical system (UN, NATO, WB, G7, IMF etc.) and military alliances and the global influence these bring, diplomatic soft power and its importance.

Overall judgement:

- Trade might be considered as a crucial source of wealth that underpins power, or a case might be made for wealth alone not bringing influence (Japan).
- Some might argue military influence is more important e.g. Russia's seat at the top table despite its weaknesses.

Level	Mark	Descriptor
Level 1	1-4	• One or two general ideas in terms of economic power, but weak on trade specifically. • 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 focus on trade, and other sources of power. • Partial explanations, lacking detail. • 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 details of trade, with some support and considers other aspects of power. • A partial attempt at making a judgement about extent. • Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Level 4	13-15	• Detailed consideration of trade, and other aspects of power. • Well supported, allowing a clear judgment to be made. • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question number	**Question**
4a	Using Figure 4, explain the global pattern of life expectancy shown. (10)

Indicative content

Figure 4 shows life expectancy in 2015 and answers need to focus on explaining this pattern. The most likely approach is to explain by category from the key.

- Under 50: this category consists of many of the world's least developed countries (LDCs) which are concentrated in sub-Saharan Africa; they have low per capita incomes and low levels of sanitation and access to healthcare; subsistence farming / low levels of urbanisation make for a high number of vulnerable, rural poor. Some countries have a history of conflict e.g. Afghanistan, Somalia and very poor governance (Zimbabwe) meaning basic needs are not met.
- 50.1-63: Quite a mixed group of countries including India and South Africa, concentrated in S Asia and Africa. Poverty is endemic in all countries, as is discrimination (India's caste system, racial segregation in South Africa); many of the counties have cities with huge slum populations (Lagos, Mumbai, Karachi) where sanitation and quality of life is poor.
- 63.1-80: many of these countries are emerging / middle income – some are BRICs; tend to be urbanising and industrialising so incomes are rising and because of this access to clean water, sanitation and healthcare are improving – reducing IM and overcoming early deaths due to basic illnesses.
- 80.1 and above: The developed / OECD countries which have high incomes, generally very good healthcare and high quality of life. Strong governance and high levels of education are critical factors in life expectancy.

Some anomalies could be discussed:

- The USA, despite its wealth, is not in the highest category – high healthcare costs and high inequality exclude some people leading to poverty and poor health for some.

Level	**Mark**	**Descriptor**
Level 1	1-4	• One or two general reasons, will tend to focus on one area e.g. SSA. • 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 attempt to explain several categories and has a range of explanations, with variable depth. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	• Explanations for most categories with good detail. • Refers to specific countries; may attempt to explain some anomalies. • Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question number	Question
4b	Using named examples, assess the extent to which different players have contributed to reducing the development gap. (15)

Indicative content

Answers should focus on explaining how different players have attempted to reduce the development gap. The focus could be global, or more local. They need to make a judgement about how successful this has been. There are a wide range of players that could be discussed:

NGOs	Wide range of examples and approaches, NGOs often focus on the poorest and meeting basic needs, improving gender equality, health and education. Use of intermediate technology.	Limited funding, so limited numbers. Basic needs rather than economic development? Fairtrade could be discussed.
MDG / UN & National Governments	Global strategy to reduce hunger, poverty and disease. Goals / targets set by UN and then implemented nationally.	Success in some areas (poverty, maternal health) less so in others (hunger). Some might argue governments e.g. China have done better.
TNCs	Indirect but possibly important role through FDI especially into Asia, encourage by WTO work on free trade. Investment has created millions of new jobs.	Very much a discussion as to whether the costs outweigh the benefits in terms of jobs versus working conditions.
WB / IMF	Lending money for development (WB) and restructuring economies (IMF); key global organisations in terms of global lending especially for large-scale projects.	Criticised on grounds of waste and corruption, debt and the problems of SAPs / HIPC but may have helped 'modernisation'.
Governments as aid givers (bilateral aid)	Aid from one country to another directly, often due to pre-existing ties e.g. colonial.	Issues of tied aid; aid given to countries that do not really need it. Neo-colonialism.

Accept discussions of other relevant players. China's role in terms of investing in Africa via its state-owned companies could be discussed.

Overall judgement:

- There should be some judgement in terms of which players have been the most successful.
- This might depend on location and aims e.g. NGO success at meeting basic needs at least meets the initial aim.

Level	Mark	Descriptor
Level 1	1-4	• One or two general ideas about some players, lacking support, not focussed on success. • 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	• Focussed on several players with variable detail; discussion of some ways / schemes. • May comment on success but with little 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	• Some detail on several players and some focus on the development gap. • Begins to assess success, with 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	• Detailed coverage of a range of players and how they have attempted to narrow the gap. • Genuine assessment of success, with supported judgements. • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question number	**Question**
5a	Using Figure 5, suggest reasons for the ratings given to the three technologies designed for the developing world. (10)

Indicative content

Figure 5 shows 3 technologies which could be used in the developing world. Answers need to explain how they might contribute to transforming lives, and in addition comment on the rating given.
Credit answers that question the rating.

Lifestraw	An example of appropriate technology. It has the potential to reduce water-borne diseases and the crippling illnesses that result, especially among children and other vulnerable groups. • The relatively low 3 / 5 rating could be related to cost, as this is high at $25 (many are donated by NGOs) for people in LDCs; it also only provides personal water, not water for cooking, sanitation and farming so while it reduces the dangers of illness it doesn't provide all of the water needed to transform lives.
Hello Tractor	This is basically a sharing App, which allows farmers with tractors to earn extra income, while those without get access to the technology at a low cost (but could earn much more, by producing more). • The high 4 / 5 rating could be criticised, as the system relies on an App and therefore a smartphone – some impoverished rural areas will lack this technology so its potential is limited to emerging areas rather than LDCs? However, it could help farmers dramatically improve farm production, and incomes – with potentially transformative impacts on quality of life.
Obi Worldphone	Can be seen as an example of technological leapfrogging, as people skip the landline technological phase and move straight to mobiles. The phone could be used to track market prices so farmers know when to buy / sell; it could be used for hazard warning, education, keeping in touch with families. • The high rating might be argued to reflect its multiple uses and potential to reduce isolation and connect people more widely, however it is high cost so might not be accessible to all.

Level	**Mark**	**Descriptor**
Level 1	1-4	• One or two general ideas, with some basic explanations of the value for some of the technology. • Limited attempt to address the ratings. • 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 how the technologies could transform lives, with variable detail. • Attempts to explain the ratings. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	8-10	• Detailed explanations of how the technologies could transform the lives of people. • Explains the ratings, and may question some.

		• Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question number	Question
5b	To what extent is the technology gap narrowing between the developed and developing world? (15)

Indicative content

Answers should focus on the degree to which the technology gap is narrowing; this is the idea of technological convergence versus divergence between the rich and poor worlds. One approach would be to consider evidence for widening versus narrowing:

Narrowing:

- In some areas, such as mobile phones there is evidence of widespread adoption in the developing world and technological convergence as leap-frogging makes mobile phone use increasingly ubiquitous; this is also being seen with social media.
- The global digital divide still exists, but it is perhaps being narrowed as internet access comes to more areas (EASSy cable in East Africa) and the hardware become more accessible (OLPC and other initiatives).
- There are some examples of developing world 'home grown' technologies that could be said to be narrowing the gap, such as the Tato Nano.
- Some technologies, such as GM crops, have been very widely adopted in the developing world even when they have been shunned in the developed (e.g. the EU).

Widening

- Although falling costs mean that ICT technology is widely available in the developing world, the pace of technological change could mean the gap is still widening.
- Some technology is still far too costly for many in the developing world e.g. pharmaceuticals, although generic copies often overcome this; the fact that much new technology is quickly copied by China might be mentioned.
- The patent and royalty system can be argued to make the situation worse, by adding costs to developing world users; the vast majority of fees are made by developed world companies.
- Farming technology in terms of the GR and GM has so far failed to have much impact on Africa, although this is not the case in Asia and Latin America.
- It could be argued that in some cases it is not the availability of technology that is the issue, just the basic problem of finance to pay for it e.g. flood and sea defences.

Overall judgement:

- Will depend on the examples chosen: mobile and footloose technologies like renewable energy and mobile phones might be seen as evidence of convergence.
- Another approach is to argue that convergence can be seen in emerging and middle-income countries, but less so in poorer parts of the developing world.

Level	Mark	Descriptor
Level 1	1-4	• Descriptive answer focussing on a few narrow areas; limited consideration of narrowing / widening. • 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	• One-sided answer, which uses some examples of technology. • Variable support for the view taken. • 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 examples of technology, partly applied to the question.

		• Begins to consider extent. • Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	13-15	• Detailed range of examples, applied to the idea of narrowing. • Genuine assessment with supported judgements. • 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**
6a	Explain the importance of the River Nile to different countries in this region. (12)

Indicative content

Answers should use the Resource Booklet to explain the importance of the river to the countries in the drainage basin.

- Figure 2 shows that for some countries, like Sudan and especially Egypt, the Nile is essentially the only significant water supply – so it is vital to life rather than just being 'important'. This is less true in upstream countries that have higher annual rainfall.
- As the basin consists of developing countries, farming is an important economic sector (Figure 3) employing from 30% of the workforce in Egypt up to over 90% in Burundi; water is critical to the success on these farmers and in many countries this means Nile water for irrigation.
- Figure 5 shows that water supply is very tight in many basin countries, especially Sudan, Egypt, South Sudan and Kenya – meaning that Nile water is very important to countries in the region.
- HEP represents a key power source to many countries (Figure 4) so they harness the power of the Nile and its tributaries to provide electricity; this is a key part of the development process in countries such as Ethiopia.
- The Nile has an important cultural significance, especially in Egypt and is an important part of that country's tourism industry.
- For riverside communities, fishing is locally important providing an important source of protein.
- As the river is transboundary, it looms large in the politics of the region and forms an important part of the diplomatic relationships between nations – in some cases helping them work together but in others representing a barrier.

Synoptic linkages:

- Unit 3 Energy Security
- Unit 3 Bridging the development gap

Level	**Mark**	**Descriptor**
Level 1	1-4	• Limited use of the Resource Booklet to provide evidence to support the answer. • Outlines a few ways in which the river is important. • Structure is poor or absent. Geographical terminology is rarely used with accuracy. There are frequent grammar, punctuation and spelling errors.
Level 2	5-8	• Use of the Resource Booklet to provide evidence to support the answer. • Explains a range of ways in which the Nile is important, with reference to different countries. • Structure is satisfactory. Geographical terminology is used with some accuracy. There are some grammar, punctuation and spelling errors.
Level 3	9-12	• Detailed use of the Resource Booklet to provide evidence to support the answer. • Explains the importance, by recognising the river is more important to some countries than others.

		• Structure is good. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.

Question number	Question
6b	Assess the relative severity of the threats to future water supply in the Nile Basin. (14)

Indicative content

Answers should consider the range of threats facing water supply in the region, which include:

Population growth	Figure 6 shows that significant population growth is expected, especially in some countries e.g. Ethiopia, which will add to pressure on the existing finite water supply; more people will also require energy adding to pressure for more HEP. Can the Nile sustain these increases?
Water quality	Water quality issues tend to be relatively localised at present, with problems most acute downstream in Egypt and to a lesser extent in Sudan. Increased development and urbanisation could worsen the problems – but on the other hand water quality is easier to manage than the other threats.
Climate change	Very much an unknown quantity; Figure 7 suggests drought could get much more common but this is just one projection (and it suggests wetter conditions on some upstream countries); drier conditions would add to pressure although Egypt essentially gets no rainfall even today.
Dams	Perhaps a key threat, especially upstream as the Nile is more and more controlled and upstream extraction / evaporation leads to lower discharge downstream; the large number of planned Ethiopian and Sudanese dams could lead to huge changes in river flow and threaten regional stability.
Hydro-politics	Figure 9 shows that over time, the countries have divided into upstream and downstream blocks which do not see eye to eye; this could destabilise the region – on the other hand there are many examples of water sharing agreements worldwide.

Accept other relevant threats, which might come from research, but the focus needs to be on water supply.

Overall judgement:

- Answers need to order / rank the threats in order to fully answer the question; threats that can be managed might be argued to be of lesser significance.
- Long-term threats might be seen as more significant than short term ones; the latter might be easier to manage.

Synoptic linkages:

- Malthus and Boserup style arguments
- Parallel examples of water sharing agreements e.g. Mekong, and their problems.

Level	Mark	Descriptor
Level 1	1-3	• Limited use of the Resource Booklet to provide evidence to support the answer. • Considers a limited range of threats in a cursory way. • 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	4-7	• Use of the Resource Booklet to provide some evidence to support the answer. • Considers a range of threats with variable detail. • 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	• Use of the Resource Booklet to provide evidence to support the answer. • Considers a range of threats in detail and begins to assess their relative significance. • ***Some reference to wider links.***

		• Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	12-14	• Detailed and thorough use of the Resource Booklet to provide evidence to support the answer. • Considers a range of threats in detail and makes clear judgements on their relative significance. • ***Synoptic.*** • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

Question number	**Question**
6c	Evaluate the contribution the three options shown in Figure 10 could make to sustainable water security in the region. (14)

Indicative content

Answers need to consider the three options below, in detail with reference to sustainability of water supply:

A Desalination	Only suitable for countries with access to the sea e.g. Egypt and Sudan, so limited applicability across the whole region (these two countries are likely to face the worst supply problems in the future, being downstream). High cost, so affordability is an issue – plus water could be too expensive for low income people. Potentially very large amounts required to keep pace with population / economic growth and it is unlikely to meet the needs of farming. Question marks over the environmental sustainability of this approach; technological versus attitudinal fix argument.
B Water conservation	Perhaps has the most widespread applicability, because drip irrigation has large potential and can be low cost when combined with rainwater harvesting – it could help meet the growing food demands of the region while making existing water go further. Urban systems are more complex and might require high investment, which could be problematic in low income countries – how likely could Singapore style systems be applied in Cairo or Khartoum? Might be considered the most sustainable option environmentally and socially.
C Privatisation	Very controversial option. Proponents argue that market forces can create a more efficient water supply system that focuses on reducing waste and maximising supply. However, the extent to which this could benefit rural farming areas is probably quite limited and in urban areas it could prove unaffordable for the poorest. Question marks over its economic sustainability in terms of equity.

Good answers might also consider how far a lack of agreement over future water sharing in the Nile Basin might reduce the applicability of the options A-C.

Overall judgement:

- Some answers might conclude conservation is best as it attempts to make the existing supply go further; alternatively some options might be seen as more appropriate in some places than others.

Synoptic linkages:

- Parallel examples from research, e.g. water privatisation in Bolivia or the UK; water conservation in Singapore.
- Other methods of water conservation from research.
- Technological Fix – examples of water technology / intermediate technology.

Level	**Mark**	**Descriptor**
Level 1	1-3	• Limited use of the Resource Booklet to provide evidence to support the answer.

		• One or two ideas on one / some of the options; no meaningful consideration of their applicability. • 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	4-7	• Use of the Resource Booklet to provide some evidence to support the answer. • Covers the options in variable depth, but with limited consideration of how useful they might be. • 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	• Use of the Resource Booklet to provide evidence to support the answer. • Covers all three options in some detail and shows understanding, and begins to make judgements about their usefulness. Some reference to sustainability. • ***Some reference to wider links.*** • Structure is good. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are rare.
Level 4	12-14	• Detailed and thorough use of the Resource Booklet to provide evidence to support the answer. • Detailed consideration of all three options, with a full evaluation of their contribution to sustainability of water supply in the region. • ***Synoptic.*** • Carefully structured. Explanations are always clear. Geographical terminology is used with accuracy. Grammar, punctuation and spelling errors are very rare.

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