Pearson
Edexcel

Examiners' Report
June 2023

International Advanced Level Geography WGE03 01

ResultsPlus

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk.

Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

ResultsPlus

Giving you insight to inform next steps

ResultsPlus is Pearson's free online service giving instant and detailed analysis of your students' exam results.

- See students' scores for every exam question.
- Understand how your students' performance compares with class and national averages.
- Identify potential topics, skills and types of question where students may need to develop their learning further.

For more information on ResultsPlus, or to log in, visit www.edexcel.com/resultsplus. Your exams officer will be able to set up your ResultsPlus account in minutes via Edexcel Online.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. 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.

June 2023

Publications Code WGE03_01_2306_ER

Introduction

Introduction

This exam series for WGEO3 'Contested Planet' was successful overall. Candidates, as always, wrote some interesting, well-informed answers. Technically competent answers were written by some candidates. Overall, the standard of answers was good, although where physical processes were concerned (such as Question 1a) there was considerable variability in standard. The majority of answers were focused on the questions as set. There is always a risk that 'news' rather than the Geography in the Specification dominates answers. However, almost all candidates were very selective in their references to both Covid-19 and the Russia-Ukraine conflict which was pleasing to see.

Most candidates wrote full answers to all questions and there was limited evidence of timing problems. There were a small number of 'blank' answers, most often in response to Question 1a).

In terms of the questions that are optional:

- Question 4 'Energy Security' was more popular (64% of answers) than Q5 Water Conflicts (36% of answers).
- Question 6 'Superpower Geographies' was more popular (65% of answers) than Question 7 'Bridging the Development Gap' (35% of answers).
- Difference in quality of answers between optional questions was not noticeable.

Some overall observations:

- Data stimulus questions (those using a Figure in the Resource Booklet) are still sometimes answered with limited reference to the data provided, although this has improved over time. These questions test the skill of interpreting geographical data and answers which fail to show this will score low marks. A few answers to Question 2 made very limited, if any, direct reference to Figure 2.
- Candidates often waste time describing data for which there is no marks: the questions always use the command words 'explain' or 'suggest reasons' i.e., *why* not *what*. This was true in both Question 1(a) and Question 2 with often up to half a page of description provided before any reasons were offered.
- Mark schemes refer to 'evidence': this can come in the form of examples, case studies, data, facts, detailed reference to places, concepts and geographical theory. This is important in terms of overall marks and was often lacking in answers to Question 3 and 4 (b) / 5 (b).
- 15 – and 20-mark questions that use the command words 'assess', 'to what extent' or 'evaluate' benefit from a conclusion which is often missing (or simplistic) from candidate answers.
- Some important Specification terminology used in questions was poorly understood by some candidates. This included 'water conservation' and 'radical approaches' in Section B.

Country classification

Centres should note that the country classifications used in the Specification (see page 75 of the Specification) are:

- **Developed**
- **Emerging**
- **Developing**

These divisions are based on the **Human Development Index**. Many candidates use the terms MEDC and LEDC, or HIC and LIC. These are acceptable terms to use in answers, but centres need to be aware that they will not be used in examination questions, or mark schemes.

Candidates should avoid use of the term '**Third World**' which still appears in some answers. This is a Cold War era term, largely referring to former colonies, and is anachronistic at best.

Question 1 (a)

Question 1(a): Atmosphere and Weather Systems

This question was, overall, the least successful in terms of quality of candidate response. Answers varied from highly detailed, technical responses to quite weak descriptions of Figure 1. There were a number of 'blank' spaces where no answer was attempted. Figure 1 relates very closely to the Specification content on page 35 (3.3.1.1.). However, it was not familiar to all candidates. Some answers simply described Figure 1 and offered no explanations or very basic ones. A number of answers confused the weather conditions associated with high and low pressures, stating incorrectly that low pressure equated to no precipitation and high pressure to high precipitation.

Quite a number of answers disregarded the phrase 'weather hazards' in the question. So, while their answers discussed temperature and precipitation they did not refer to hazards such as drought, mid-latitude depressions, tropical cyclones or landslides. It is worth noting that drought and aridity are not the same thing.

Answers, overall, tended to be quite polarised i.e. either weak or strong. A large number of candidates were able to link weather hazards to typical air pressure at 3 or 4 locations on Figure 1. A significant number could not do this for one location. There were some answers that focused their explanations on the atmospheric cells rather than the locations between the cells. By focusing on the cells these answers tended to use phrases such as 'pressure is low in the Hadley Cell' which is not actually the case. This led to contradiction and confusion. Having said all that, there were some highly competent answers with a strong understanding of atmospheric processes and good use of terminology.

1 (a) Using Figure 1, explain the relationship between the general circulation of the atmosphere and locations of weather hazards.

(10)

As shown in figure 1, the hadley cell sits above the equator. It receives a large amount of insolation. which causes air at the equator to heat up and rises. warm moist air at the equator rises and forms an area of low pressure for example ITCZ. The warm air rises, condenses and forms clouds leading to precipitation. Due to the low pressure in these areas it also encourages tropical cyclones as they form in areas of warm sea temperature around 27°c and depth of 60m in the hadley cell. the warm air then sinks at 30° N leading to an area of high pressure which leads to little precipitation and high risk of droughts. Trade winds are formed as wind blows from high pressure regions to low pressure regions and are deflected by the coriolis effect. In figure 1, the ferrel cell facilitates the movement of the air, allowing the heat from the equator to be transfered upwards. In 60N of the equator, there will be frequent depressions as warm air rises and sinks at 90N of the equator in the polar cell. When the wind travels polewards, it cools and dries. Trade winds from 90°N to 60° N will bring cold air to rise in the region. therefore, areas within the polar cell are cold and dry. However, due to the warm air rising at 60°N, there will be precipitation. Jet streams are narrow bands of strong winds in the atmosphere between the troposphere and stratosphere, which blows

from west to east. ~~Heat~~ The coriolis effect causes the jet streams to meander and leading to blocking weather conditions in some areas with high pressure which leads to clear skys. The polar front jet stream is stronger than the subtropical jet stream because there's a greater temperature gradient. Wind travels from high pressure to low pressure areas greater difference in temperature would lead to stronger winds and more extreme weather conditions, like blocking and heatwaves. As shown in figure 1, clear 30N of the equator are more prone to anticyclones as there's high pressure leading to clear skies and warm temperature, therefore leads to droughts.

ResultsPlus
Examiner Comments

This is a strong answer that makes direct and repeated reference to Figure 1. It wastes no time on description, but instead starts explaining straightaway. High and low pressure area processes are linked to drought, heatwaves and cyclones and use of process terminology is accurate and clear. It is not a 'perfect' answer but is enough for maximum marks.

ResultsPlus
Examiner Tip

With 'Figure' questions like Q1(a) do not waste time describing the Figure. There are no direct marks for this. You need to be giving reasons / explaining and referring to the Figure as you do so.

Question 1 (b)

Question 1(b): Atmosphere and Weather Systems

The majority of answers to this question were good. There was generally a good understanding of both prediction and evacuation although a small minority of answers grouped the two terms as one so the answers focused on a rather vague concept of 'prediction and evacuation.'

Questions such as this, which test AO2, do need to be supported by evidence i.e. named and located examples, facts, data, concepts. It is surprising how many answers – often quite long ones – at no point referred to a named place or named tropical cyclone. This lack of support undermines the argument being made. Many answers, of course, did refer to named places and named tropical cyclones such as Typhoon Haiyan, Hurricane Katrina and Cyclone Nargis. Hurricane Katrina (now pushing 20 years old) is interesting because some candidates used it as an example of highly successful prediction and evacuation, whereas others suggested it was a 'disastrous' example. The truth probably lies somewhere in the middle, i.e. successful prediction but poorly managed evacuation (and wider management). Very good answers to this question often referred to the Disaster Management Cycle. This concept is useful as it allowed candidates to consider prediction and evacuation in detail, but then move on to other factors that may also be important in successful management such as cyclone defences, landuse zoning, immediate response and aid. It's worth noting that in 2023 even developing countries have access to accurate predictions although these may be provided by other countries and of course the question of whether they can be acted upon is open to debate. Many answers made the quite reasonable argument that evacuation saves lives but not property and infrastructure, and therefore other management approaches are needed. Please try and learn example data accurately: Hurricane Katrina resulted in about 1,400 lives lost whereas numbers quoted by candidates ranged from 'no one died' to '50,000'.

(b) Assess the importance of prediction and evacuation in the management of tropical cyclones.

forecasts

prevent travel costs

prep for protection

(15)

Tropical cyclones are weather hazards which usually occur from 5-25°N/S in warm oceans of about 26°C with considerable depth (46m) and a strong Coriolis force. Prediction is an important aspect of managing tropical cyclones, meaning attempting to reduce disastrous impacts as much as possible through active interventions of different key players like the government, weather agencies and NGOs. Prediction often involves the use of technology such as supercomputers or computer modelling which would be able to crunch vast amounts of data and develop an 'uncertainty cone' showing possible tracks of a cyclone, indicating which areas need most immediate attention or evacuation. Hurricane Katrina, on 25th August 2005 was predicted using a supercomputer. Some meteorological agencies, like PAGASA in the Philippines, use groundstation weather ~~sta~~ centres ~~to~~ which use automated geographical tools like thermostats and weather vanes

to provide accurate details of wind speeds and temperatures. This helped predict Typhoon Haiyan in 2013 and allowed for evacuation plans to be formulated accordingly. However

However, there have been times when this technology has failed. The 'Great Storm' in the UK in the 1960s was inaccurately predicted, causing a 'cry-wolf Syndrome' as people lost trust in these predictions, and less people evacuated and took warnings seriously during St. Jude's Cyclone Christian in 2013.

Evacuations include ushering people into safer areas to limit social costs. During Hurricane Katrina, federal troops were sent to cajole people and assist them with shifting out of the cyclone track. Although social costs were minimised, it can be said that some people were disregarded as due to improper governance and racial tensions which did not allow for an efficient and complete evacuation. People in New Orleans were neglected, and many could not move due to poor socioeconomic conditions.

On the other hand, there are several other methods of management of tropical cyclones which must also be taken into consideration. Preparation is also important. People in areas such as Bangladesh must be educated of where their nearest cyclone shelter is and be aware of what to do before cyclone season approaches, such as trimming large trees and ensuring roof tiles are secure.

Further, protection must also be considered. This involves constructing cyclone shelters, which are often 'dual-purpose' in Bangladesh and foundations of buildings must remain

secure.

Overall, it can be said that although prediction and evacuation are extremely important in the management of tropical cyclones, other features such as protection and preparation must also be implemented to ensure risks are minimised. Countries should also aim to take the 'Hazard Management Cycle' approach.

(Total for Question 1 = 25 marks)

ResultsPlus
Examiner Comments

This is a good answer that just achieves Level 4 marks. There is a clear focus on both prediction and evacuation and examples (places / cyclones) support the explanation, plus there is reference to other factors that affect response. The answer has good evaluation (AO2) and a clear, brief conclusion. The UK examples used are not tropical cyclones, but are still partly relevant.

Level 4 = 13 marks

ResultsPlus
Examiner Tip

You must use named examples, named places and data to support your answers to 15-mark questions. This is an important part of the 'evidence' mark schemes refer to. Generalised answers will not score as well as exemplified ones.

Question 2

Question 2: Biodiversity under Threat

This question is a parallel data stimulus question to Question 1(a) but overall it was answered much more successfully.

If there was a weakness in some answers it was explaining the ***level*** of deforestation on Figure 2 rather than the ***trends*** on Figure 2. 'Trends' is the focus of the question so explanations / reasons for change are needed. There was also some confusion over the data on Figure 2 which is absolute data (million hectares) not relative data (e.g. percentage area deforested). The forest areas are, of course, not the same size across the 3 countries. Some weak answers argued that deforestation in D.R.C. was low because 'the Sahel has very few trees' but if this were the case annual deforestation of half a million hectares would be unlikely. The D.R.C. deforestation was consistently high between 2016 and 2021 (highest since 2010) suggesting continued, widespread forest loss so arguments that D.R.C. has undertaken widespread forest conservation and / or has moved into ecotourism are not supported by the data provided.

Reasons for forest loss were well-understood and often specifically and correctly linked to the three countries. Many answers also provided some good reasons for the trends, i.e. changes in government policy, public pressure, international pressure and policy. Overall many candidates provided a cogent set of reasons for the trends although in some cases not for all three countries.

2 Using Figure 2, suggest reasons for the different trends in deforestation shown.

(10)

By looking at Figure 2, we can see how three countries, Brazil, Indonesia and the Democratic Republic of Congo have experienced deforestation from 2010 to 2021.
First of all, by looking at Brazil, we can see that deforestation rates fluctuated from 2010 to 2015, reached its peak in 2016-2017, and then decreased rapidly until 2021. The reasons for the peak in deforestation might be because Brazil is an emerging country, meaning that they exploit their natural resources at fast rates because of increasing urbanisation, industrialisation and population growth. This increase in resource demand puts pressure on ecosystems, lead to ~~a~~ 3 million hectares of primary forest being deforested in 2016. Also, Brazil during this time was run by president Bolsonaro, who did not enforce strict regulations to protect the Amazon rainforest. However, pressure from governments and consumers has led to a decline in deforestation rates in Brazil as shown in the Figure. Moreover, we can see that Indonesia had a fluctuating pattern between 2010-2016, and then decreased until 2021. This decrease in deforestation might be because Indonesia is currently the ~~biggest~~ largest palm oil producer, and as this is done in forest area, it might not be considered as deforestation in figure 1. Finally, we can see that the

Democratic Republic of Congo is seeing a gradual increase in deforestation rates, reaching 0.5 million hectares in 2021. The reason for this is that the DR of Congo is a developing country, and hence ~~it has not~~ deforestation for industrialisation is not present yet. However, this gradual increase might be as a result of its high population growth of nearly 4% compared to 0.5% in Brazil and 0.7% in Indonesia, meaning that deforestation trends **(Total for Question 2 = 10 marks)** in DR of Congo are likely to increase in the future because of increased resource demand for a greater population.

ResultsPlus
Examiner Comments

This answer is very much focused on 'trends' from the question and uses terminology such as 'fluctuates' and 'decreases' to show this. A range of different reasons is provided for all 3 countries and these are sensible, and linked to development level, policies, urban and population change.

Level 3 = 10 marks

ResultsPlus
Examiner Tip

Figure 2 is a line graph. These are a common type of Figure on WGEO3. They most often show change over time, so when they appear the linked question will usually want you to explain change (not a 'static' situation).

Question 3

Question 3: Synoptic

The synoptic question always generates interesting, and often thoughtful, answers and this series was no exception. It's worth noting that many different combinations of themes from AS Unit 1 and A2 Unit 3 Section A are possible so this question does benefit from a few minutes spent thinking and planning.

If there was a weakness this time around it was that some answers focused too heavily on the 'migration' side of the question and not enough on the 'weather hazards' and 'global warming' side. Some answers were essentially a 'globalisation: costs and benefits of migration' answer which was not the question set. It was also interesting to see how many answers considered tsunami and earthquakes to be 'extreme weather hazards'. A small number of answers agreed with the contention in the question in a rather basic way and offered no counter argument and a number did not differentiate between 'weather hazards' and 'global warming'. Stronger answers argued that weather hazards might be better managed by mitigation, but that global warming was a greater long-term threat so in some cases migration might be the only option (low lying Pacific Islands, areas suffering desertification). Stronger answers often differentiated between internal migration (more possible) and international migration (much harder).

As with question 1(b) a number of answers offered no, or very cursory, support in terms of named places, named hazards and examples. This lack of 'real world' Geography support does undermine an argument. Many answers did have a realistic view of migration as a 'solution' arguing that it was impractical in many cases, could not be afforded by most, could cause overpopulation elsewhere, and in the case on international migration was in most cases just not possible. Many answers argued for another solution such as mitigation in the case of global warming or adaptation in the case of extreme weather. This style of answer often was supported by real-world evidence and reached a sensible conclusion. There were a number of interesting, well-argued answers.

3 To what extent is migration a solution for people affected by increasing risks from extreme weather hazards and global warming?

(15)

Migration is the movement of people from one place to another, may be economic migrants, but in this case is Environmental Refugees.

extreme weather hazards is increasing frequency and magnitude, may lead to an increased need for migration. By migrating out of hazard hotspots such as coastal cities in the Philippines, population density and the number of people exposed to hazards is decreased. However, this can lead to overcrowding and a large influx of people into neighbouring areas & putting strain on housing supply and resources such as food and water. Some countries may also be unwilling to accept masses of environmental refugees. Therefore, improved prediction and monitoring may be a better solution, by reducing those affected by allowing time for evacuation and giving warnings. However, this requires funding and technology which may be unavailable in low developing countries without the help of long term aid, such as those used to set up RIMES in Bangladesh. While long term aid can be successful, it often creates debt and decreases capacity to cope in developing nations, especially those with issues with corruption. Therefore, improved governance

could also help with mangement of extreme weather hazards. Finally, Migration is not a viable solution for many low income communities such as those in the Sahel, with lacking funds to put towards travel and many to leave behind land and livelihoods. Overall, while migration is one solution, this often not a viable one and increased monitoring and successful governance is often more effective.

Global warming is an increasing threat around the world. Migration away from high risk areas such as low lying coastal areas of Bangladesh likely to be impacted by sea level rises, may reduce losses as impacts of global warming begin to arise. However, this again will put strain on neighbouring areas resources and overcrowding neighbouring cities and towns. It can be argued that global warming is not an issue at present but a future issue. Therefore Mitigation is a much more viable solution. Such as turning to Renewable technologies, afforestation and reducing unsustainable agricultural practices. This could help to reduce future effects or with radical polices and climate agreements such as Paris 2015, reduce the need for migration by reducing the impacts caused by future global warming. Overall, this shows how migration is not a viable solution for Global warming risks.

(Total for Question 3 = 15 marks)

TOTAL FOR SECTION A = 50 MARKS

In conclusion, while migration could reduce some risk, this is not a viable solution to most people, communities and countries. Increased monitoring, mitigation and governance will all reduce risk from global warming and weather hazards to a larger ...

ResultsPlus
Examiner Comments

This is a good answer that considers extreme weather hazards and global warming separately and recognises their different timescales. It evaluates both the pros and cons of migration as a solution, considers other solutions and comes to a brief conclusion. It therefore has strong AO2.

A little bit more place-based exemplification could have increased the mark further.

Level 4 = 13 marks

ResultsPlus
Examiner Tip

Question 3 always combines themes from Unit 1 and Unit 3. This means the questions may feel 'unexpected'. It's sensible to think and plan for a few minutes before beginning your answer.

Question 4 (a)

Question 4 (a): Energy Security

This question was, in many cases, not answered very successfully. There was a tendency to use phrases such as ‘because it costs less to produce’ in answer to the question 'suggest reasons for the differences in electricity prices'. Many answers just reworded the question rather than providing a convincing reason. Equally ‘because it’s a renewable energy resource’ was frequently given as a reason – but renewables are (sometimes) low cost for a reason not simply because they are renewable. The idea that wind and sun are ‘free’ (i.e. the input has no direct cost) was very rarely seen. Nuclear power was often explained in terms of high capital costs, maintenance and the cost of safety measures. Occasionally the idea that high demand for natural gas and / or tightening supply (Ukraine) was a reason for the high natural gas prices was seen. More often the rather circular argument that renewables were cheap because they were cheap to produce appeared.

4 (a) Using Figure 3, suggest reasons for the differences in electricity prices.

(5)

Nuclear power has the highest price at $99 MWh. This could be due to construction and maintenance costs being incredibly high as it requires lots of technology and skilled workers. Additionally, removing and sequestering nuclear waste is incredibly expensive as it has to be airtight and deep underground to ensure no contamination. Other sources like Solar are a lot cheaper though at $62 as there is no maintenance costs, only installation. Once installed, solar will already make money. Wind offshore is the cheapest price at only $49. This is because it's cheap to construct and doesn't need to be replaced as often as Solar. Additionally, it doesn't require advanced technology to run. Gas power stations also produce prices similar to Solar at $67 as gas is still widely available, largely traded, so in good supplies and easily transportable. There is only costs into maintaining the power station.

ResultsPlus
Examiner Comments

There are extended points at the start about the costs of nuclear power (construction, maintenance, technology, waste) plus explanations about solar / wind installation and replacement times. The cost of gas is explained based on its availability and low transport cost.

5 marks

ResultsPlus
Examiner Tip

These 5-mark questions are point marked: 1 mark for an explanation and 2 marks if the explanation is extended. So you should aim for 3 extended points linked to information on the Figure.

Question 4 (b)

Question 4 (b): Energy Security

This question produced a wide range of responses. The question wording is from 3.5.3 on page 43 of the Specification: ' *Radical approaches: Radical technologies, including carbon capture and storage and alternative energy sources (hydrogen fuel cells, EVs). Energy conservation and efficiency (in homes, industry and transport)'.* This makes it clear what the focus of an answer should be. Many answers did focus on these themes but a number did not. It was not uncommon for answers to start by focusing on renewable energy or even unconventional fossil fuels. Clearly, unconventional fossil fuels are 'fossil fuels'. Renewable energy is, of course, relevant to an answer if these are used as a counter-argument, i.e. radical approaches are not ready yet / are too expensive therefore the focus at the moment should be on wind, solar or HEP because these energy sources can also reduce the environmental concerns of using fossil fuels. In some cases the only focus was on renewable energy which does not fully answer the question set. Answers that went down the unconventional fossil fuels route were usually weak because of tortuous arguments about how these energy sources are 'good' for the environment compared to conventional fossil fuels. Understanding of CCS was generally good, although it seems to be perceived by some as being already in widespread use which is not the case. EVs and hydrogen fuel cells were widely understood and often evaluated successfully. Understanding of the environmental concerns alluded to in the question was also generally sound and explained clearly, often at the start of an answer. Overall, better understanding of the variety and nature of the energy sources covered by the Specification would have led to answers more focused on the question.

(b) Using named examples, assess how far radical approaches to energy use can reduce the environmental concerns caused by fossil fuels.

(15)

There are 2 main approaches towards energy use, that is burnt as usual, energy mix and radical energy approaches. Radical energy approach refers to the innovation of new and improved technologies that makes the usage of energy conservative and efficient, these technologies come in the form of Hydrogen fuel cells, electric cars, off shore wind turbines, and carbon capture and storage. these technologies sum

Carbon capture, refers to where carbon dioxide is pumped into the ground and stored for hundreds of years / as a result reduces environmental concerned as it reduces the emissions of CO_2 into the atmosphere in a very effecient way.

However, this method comes with is concerns where is accidental leakage, it could be fatal to the surrounds, further, this process needs high electricity usage to take place therefore would eventually increase environmental concerns.

Radical technologies such as the introduction of the electric car that requires not fossil fuel extraction, runs of a battery that does not pollute CFCs and does not add to the green house gas emmisions, thus making this an environmentally safe alternative.

However, electric cars are expensive and producing them needs lithium for battery which extraction takes a high toll on the environment and if the power used to charge the car comes from gas power or coal power stations then it may not necessarily reduce its impacts.

The use of offshore wind turbines would pose environmentally friendly as it is a renewable source of energy, reduces the need and use of fossil fuels and is inexaustable, produces to emmisions and is cheaper, therefore a greater use of offshore wind turbines would reduce the need and use of fossil fuels. This was seen in Sn banks, investing on wind turbine technology ensured efficient energy supply and reduced its heavy use dependence on coal in 2007, however, may bring negative externalities such as marine life destruction to setup the turbine, birds getting caught, and is heavily dependent on wind.

Further, Radical approaches to energy use can reduce the environmental concerns caused by fossil fuels as the world recommitmizes

and adopt these methods of energy use, countries like France and the UK and a majority of Europe is moving towards the use of radical technologies such as electric car usage and wind energy, to reduce their dependence of fossil fuels, thus as a result would reduce the demand for fossil fuels and thus reduce its overall impacts. However, most countries like China are heavily dependent on fossil fuels like coal & for power generation and most developing countries would not have the financial capabilities and resources to take on radical technologies as it may be too expensive thus going along with a business as usual approach where they continue to use non-renewable resources.

In conclusion, countries should consider an energy mix, where they use a combination of non-renewable, renewable and recyclable energy sources which more countries will be able to afford to do so, as it is more efficient, therefor an energy mix approach may better benefit to reduce environmental concerns and lead to a fossil fuel free future.

This answer refers to a range of radical approaches (CCS, hydrogen, electric cars) as well as wind and shows good understanding. It recognises both the benefits and limitations of these options (AO2) and the challenges of moving towards them. There is reference to Sri Lanka, China and the UK. The conclusion is sound, judging that an 'energy mix' might be a more realistic way forward. Wind is not 'radical' and the answer could have made this clearer.

Level 4 = 14 marks

15- and 20-mark questions are usually best answered referring to a range of factors, solutions and examples (as in the example shown here) rather than relying on 'one big case study'. That approach tends to be descriptive rather than comparative and evaluative.

Question 5 (a)

Question 5 (a): Water conflicts

This parallel question to Question 4 (a) was marginally better answered than its counterpart. There was generally good understanding that desalinisation is a costly industrial process involving large-scale infrastructure and high energy input, and that this would push up the price of water paid by consumers. This was also often understood for recycled grey water in terms of the costs of filtration and other processes necessary to make this water safe to use. Ground water costs (drilling, pumps, energy) was less often seen as an explanation although many argued that ground water and surface water didn't need (or didn't get) treatment before use so the cost was lower overall.

5 (a) Using Figure 4, suggest reasons for the differences in drinking water prices.

(5)

Desalination is the most expensive per cubic metre, since it is the most energy intensive process to produce drinking water on the table, therefore more money is put into the water, so it is sold at a higher price. Surface water is the cheapest since little has to be done for it to convert into drinking water meaning majority of its price comes from transporting the goods from the source. Groundwater (0.48) is more than double surface water (0.20) since deep wells and aquifers will be involved in the extraction of groundwater. Lastly recycled grey water (1.43) will be relatively expensive to convert to drinking water since the recycling process takes up some energy.

ResultsPlus
Examiner Comments

This concise answer refers to the high energy use involved in desalination as well as the limited processing and low transport costs of surface water. It also explains the 'deep wells' required to access groundwater. It has a range of explanations and extensions.

5 marks

ResultsPlus
Examiner Tip

Remember these short questions are usually linked to a Figure that contains a range of data (graph, table, map) and you need to explain, briefly, most of that data. But your explanations need to be concise.

Question 5 (b)

Question 5 (b): Water conflicts

This question sometimes suffered from unfamiliarity with the Specification in a similar way to Question 4 (b). Water conservation is covered on page 45: *Water conservation (national schemes, household level, smart irrigation and grey water recycling) may represent a more sustainable approach to managing finite supply.* Desalination and major engineering schemes are not the same as water conservation. Reservoirs store water, they do not conserve water. Conservation means using water as efficiently as possible and minimising waste, so that demand falls or remains stable and pressure on supply is reduced. Just as in 4 (b) a range of other ways to improve water security are relevant in an answer but water conservation must be covered to allow these other ways to 'come into play'. A number of answers discussed water transfers, dams and desalination in great detail but failed to mention water conservation. Knowledge and understanding of water conservation in Singapore is widespread and often detailed as in knowledge of irrigation systems that strive to reduce water use. Many answers referred to water pricing and ways of saving water in the home. However, a minority had a limited focus on water conservation and this restricted their score.

(b) Using named examples, assess how far water conservation can contribute to improved water security.

(15)

Water Conservation strategies are used to decrease the demand for water and increase supply. Grey water recycling, smart irrigation, household and national water Conservation schemes are some examples. The overall objective of these strategies are to decrease water insecurity which is when the supply demand for water exceeds demand supply.

Grey water recycling is one method of water Conservation which aims to purify waste water such as those left over from kitchens. This strategy can be carried

out in both developed as well as developing countries as it is not as costly process like desalination. this is a household level scheme. therefore it is a small scale project which might not be sufficient enough to increase water security in highly water insecure regions such as the sahel. Therefore major engineering hard schemes such as dams (eg:- 3 gorges dam project in china) can be constructed which can be more effective as it can be used to generate hydro electric power for a large number of people.

Singapore is a developed country which implemented a national scheme for water conservation by using pumpian tanks and rainwater harvesting to conserve water. Moreover they carried out awareness programmes among citizens on the importance of water conservation to increase water security. However by this there is a high chance that the price of water could rise to those who need it the most. Moreover only developed countries which have a high economic capacity can use these strategies at a national scale. highly water insecure regions such as the sahel region however can use intermediate technology to conserve water. eg:- use of drought resistant crops, drip irrigation etc.

Smart irrigation is another water conservation strategy that is used in the agricultural sector. in this technique plants are provided with the exact water less than the optimum so that they become resistant

to drought. This strategy can be used efficiently in highly water insecure regions that rely on farming for food. In addition to water conservation water transfers too can be used to transfer water from surplus to deficit areas. eg:- the snowy mountain scheme in Australia was used to generate HEP for a large number of people. In conclusion it can be said that water conservation strategies are successful mostly in developed countries as developing countries cannot afford technology such as recycling grey water and national scheme implementation. **(Total for Question 5 = 20 marks)**

ResultsPlus
Examiner Comments

This answer, usefully, begins with a definition of water conservation and this provides a focus. The answer is comparative (grey water, hard engineering, rainwater harvesting, smart irrigation) and recognises costs and benefits of different approaches. This answer has a conclusion but it is rather brief and lacking depth. Slightly more detail on conservation and a little more evaluation would have lifted the answer to Level 4.

Level 3 = 12 marks

ResultsPlus
Examiner Tip

Think about the range of examples you use. You need enough to generate a range of comparisons and contrasts, but not so many that the examples become thin and cursory. Try to balance range and detail.

Question 6

Question 6: Superpower Geographies

There is no doubt that these 20-mark questions are challenging and contain multiple concepts. Candidates are urged to pause, think and plan their answers for a few minutes. In the case of this question it was important to consider what 'conflict and other global crises' could refer to. There are many past and current conflicts that could be relevant as well as many global crises (climate change, Covid-19, the 2008 global financial crisis and others). Trying to cover a large range of these in roughly 30 minutes led to some answers that were rather 'scattergun' in their approach, i.e. answers leapt from one 'conflict' or 'crisis' in rather an unorganised way with a very limited thread connecting the answer together. Usually these answers struggled to come to a clear conclusion simply because so much had been covered. Some answers also spent a very long time (up to a page of writing) defining superpower, emerging power, soft power, hard power, power polarities and so on. This left little time to consider the focus of the question in detail. Introductions are, of course, very useful for defining one or two key terms and for providing a framework for the rest of the answer, or stating what the main argument will be, but they need to be around a paragraph long – not a page.

The strongest answers tended to focus on 3 or perhaps 4 main examples such as Covid-19 (not on the Specification, but perfectly acceptable), climate change, Russia-Ukraine and the South China Sea. This was more than sufficient to cover both superpowers (USA, EU) and emerging powers (China, Russia, India) and argue that sometimes their role is positive and provide the counter-argument that they can be negative or at best neutral, i.e. acting in self-interest, promoting their own sphere of influence. Good answers also recognised that countries often act together as part of supra-national or international organisations (UN, NATO, WHO) but that within these organisations there can be tensions – which in some cases seem intractable, e.g. the UNSC. There were some very good answers demonstrating a quality grasp of contemporary and historic geopolitics and showing an ability to be balanced and clear.

Going forward, please encourage candidates to plan these answers and to some degree reign in their ambitions and be selective: this is more likely to produce an answer that leads logically toward a conclusion which will help score the available AO2 marks.

6 To what extent do superpowers and emerging powers play a positive role in responding to conflict and other global crises.

(20)

Superpowers are countries with a huge economic, and political power along with a global influence when it comes to foreign policy. One way that Superpowers have helped evade conflict is through Europe and North America's NATO alliance in order to discourage any attacks from the Soviet Union, or now modern-day Russia. This was successful in the Cold War as little to no conflict comparable to the World Wars occured. However, this brought the rise of proxy wars in places like Vietnam. And today, Russia has an active invasion on Ukraine partly due to the latter's desire to join NATO. So despite NATO's intentions, conflict arose in other ways. Economically, I do not believe that superpowers like the USA do well in staving off global economic crises like in 2008 and they do little to properly respond to economic crises in other countries like Argentina and Pakistan through

Western ~~it~~ institutions like the IMF as their number one priority is receiving timely payments rather ~~that~~ than promoting long-term growth.

Militarily, I would argue that superpowers ~~like~~ respond very well to ~~of~~ foreign conflicts. ~~For~~ For example, the US and EU have provided many ~~tanks~~ tanks and fighter jets like the ~~F~~ F-16s in order for Ukraine to defend itself from Russian invasion. In addition, they are also providing lots of aid and shelter to the millions of Ukrainian refugees.

Emerging powers, on the other hand, do not really play any role in global crises. For example, India and China are ~~the~~ neutral when it comes to the Ukraine-Russia war and continue to trade with Russia. Consequently, these two powers are inadvertently supporting the continuation of this conflict, because they are more interested in their own local ~~growth~~ economic growth. Furthermore, I would argue that ~~a~~ emerging powers like ~~Chin~~ China ~~are~~ are actually playing a negative ~~role~~ role in reducing conflict. China asserts ~~control~~ ~~a~~ an illegitimate claim over all of the South China sea. They are building artificial islands equipped with military personell and often come to standoffs against ~~foreign~~ fishing boats in foreign waters. This ~~creates~~ has created regional ~~dis~~ tensions that may disrupt the flow of goods through ~~the~~ the shipping

routes. As a result, the USA, with its blue water navy regularly patrols the region to ensure the safe passage of goods. ~~Causing~~ Though this has a positive intention, it heightens the risk of conflict. China even has tensions which Taiwan which it claims for itself despite Taiwan being full sovereign. ~~Thus risk~~ Just like Ukraine and Russia, there is a risk of war. However, the US is an ally of Taiwan which reduces this risk, as it will have military backing and is home to high-tech industries like semiconductor ~~re~~ manufacturing ~~wh~~ which the world ~~relies heav~~ heavily relies ~~on~~ on.

To conclude, I believe that superpowers, ~~like~~ namely the US, have a positive role in preventing and responding to ~~conflict~~ global conflicts while emerging ones (China) are hungry for growth and power, which leads them to create and aggravate conflicts.

ResultsPlus
Examiner Comments

This is a strong answer to a high-demand question. The answer differentiates between superpowers and emerging powers, and refers to a range of crises and conflicts. Factually, the answer is broadly accurate and up to date and the examples used are all relevant. If there is a small weakness it is that the conclusion is a little thin and basic, however this is a minor issue and the answer deserves its high Level 4 mark as it is well exemplified and cogently written.

Level 4 = 19 marks

ResultsPlus
Examiner Tip

20-mark questions always benefit from planning. They are complex questions and have many different themes, concepts and examples that could be used. You need to carefully select the material you will use (and not use) before you start writing. This would help avoid your answer becoming lost and confused

Question 7

Question 7: Bridging the Development Gap

There is no doubt that these 20-mark questions are challenging and contain multiple concepts. Candidates are urged to pause, think and plan their answers for a few minutes.

This option is less popular than Superpower Geographies. It produces a similar number of Level 3 and Level 4 responses although it tends to have fewer Level 1 responses. There is no difference in question demand between the 2 options. As with Question 6, this series' question was a high-demand 20-mark essay.

The question of what a 'government policy' might be did vex some candidates. Although clearly related, 'governance' and 'government policy' are not the same. Governance, the act of governing, often links closely to concepts such as corruption, the quality of decision-making and accountability whereas policies are more about decisions and implementation. Answers that proceeded down the 'quality of governance route' (Haiti, USA, Myanmar, UK) were often used as contrasting examples) were not wrong but neither were they quite answering the question asked. Many answers did focus more on government policy. These often started with China's Open Door Policy from 1978 and used this to argue that economic growth had been unleashed leading to development progress – a laudable and understandable place to start. This was often contrasted with a more 'closed' developing or emerging country that had 'failed' to open up and grasp the opportunities of globalisation. Some countered that the Open Door Policy had led to development progress but also inequality. Other policies considered related to taxation, gender equality and the MDGs / SDGs either to show that policies had contributed to progress or had hindered it. Many answers considered some other factors such as natural resources, the burden of debt or neo-colonialism as having contributed to lack of development progress i.e. despite government policies that had worked to promote it. Dependency theory themes and core-periphery themes are common arguments that in many cases worked well.

However, in a similar way to Question 6, some answers gave so many examples, factors and models that a conclusion was rather hard to come to. Time spent planning, selecting (and rejecting) content to be included would – in some cases – have made the candidate's task more straightforward.

7 To what extent do government policies explain why some countries have made more development progress than others?

(20)

Government policies are laws ~~that~~ that ~~can alter the~~ predecide the functions of a country which influences development of a country as some policies prove useful to development or negative by limiting development. Some countries can be seen to have policies that have led to explosive development ~~with~~ such as South Korea and China while others have heavily impeded development such as Haiti and ~~Venezuela~~ ~~Venezuela~~ Venezuela.

Firstly, government policies can explain development of a country due to the fact that government policies can lead to breakthroughs or the growth of industries whether primary, secondary or tertiary which leads to a period of growth that leads to an age of maturity ~~the~~ which contributes to development progress. South Korea for example is a country that brought rapid development to its country labelling it as a Newly Industrialised Country (NIC) in the last few decades as the government heavily invested in the secondary and tertiary industries they were able to acquire. ~~Both Vehicle industries such as Hyundai were~~ More so, the primary industry of pig iron was exported to countries like Japan and USA in the 1970-1980's which furthered Korean exports and increased investments, which the South Korean government used in education, and the automobile and mobile industry. Through this management of primary, secondary and

tertiary industry, South Korea developed rapidly and became a connected nation. In the late 1900's its GDP was 37billion, by 2005 it had increased to 197billion dollars as a result of government policy aimed at industrialisation and exportation. More so, the government investment in education allowed skills to be brought both from students in the USA resulting in a very limited Brain drain.

On the other hand it can be seen that government policies may also have a negative effect on development progress. ~~as it may lead to sub-standard subdivision of labour~~ Haiti for example are experiencing the long term effect of the Rice Dumping in the 1980's. Haiti had self-sufficient rice farming that provided food for its population and money for farmers. However, American intervention and trade liberalisation the government accepting to reduce import tarrifs from 38% to 3% lead to the crashing of the rice balance that was previously there. Cheap rice in both meant that farmers couldn't sell their higher priced rice or buy because they had no money created a domino effect that led to the collapse of the Haitian economy. This ~~sig~~led to increasing debt and ~~they needed~~ inflation as they needed to save the economy and provide for the people. More so, the political structure of Haiti is corrupt which may suggest that policies that may be passed are not for the benefit of the people but for those in power. ~~Debt to France~~

Alternatively it could be suggested that government policies aren't the reason why development occurs or does not occur. Other factors

such as war or environment play a factor in the progress of a country. It could be suggested that the debt Haiti owes France is a major reason why development is being impeded, Haiti owes nearly 4.4 billion in debt. The event of natural disasters also suggest that development ~~occurs~~ does not occur.

In conclusion, government policies are key to development as they play an important role in the ways progression occurs in a country evidenced by South Korea and Haiti

ResultsPlus
Examiner Comments

This is a good answer to another high-demand question. It is strongly focused on exemplification and uses the examples of South Korea, Haiti and the USA quite well and is generally accurate. There are some factual details and there is a focus on government policy (industrialisation, education, trade policy). The advantages and disadvantages of policies and decisions are considered. A range of other factors are mentioned although in less detail, and there is a conclusion although not a detailed one. There is enough to reach Level 4, however.

Level 4 = 16 marks

ResultsPlus
Examiner Tip

Make sure your conclusion refers back to your whole answer. Although the conclusion shown here refers back to Haiti and South Korea it does not evaluate the other factors mentioned (conflict, debt, disasters) so it's partial.

Paper Summary

Summary and examination format reminder

Performance in this series was good. Going forward please note the following points when preparing candidates for exams:

- Wording in exam questions closely follows the wording in the Specification such that phrases like 'water conservation' and 'radical approaches' point to particular key ideas and bullet points and therefore specific content.
- Questions that use a Figure require the figure to be used in detail as a basis for identifying reasons and explanations: all or most of the Figure should be referred to in answers. There are no marks for straight description of the 'say what you see' type.
- Evidence (data, facts, dates, named examples, named locations, concepts) are important but these need to be factually accurate.
- 15 and 20-mark answers must focus on the content indicated in the question for at least a significant part of the answer: after that other factors / explanations / views can be introduced and assessed or evaluated.
- 20-mark questions represent a large percentage of the exam paper total marks, and these should be planned to create a logical structure before candidates begin writing.

Examination format reminder:

It is important to understand that the examination question types and mark tariffs for WGE03 ***do not*** vary from one examination series to the next.

However, within Sections A, B and C the questions ***will vary*** from one series to another. This variation is random and does not conform to a pattern.

Some important points to note are:

- In Section A, Question 3 is a synoptic question and it will always be a 15-mark essay question.
- In Section A, there will always be a 10-mark data stimulus question on both A1 Atmosphere and A2 Biodiversity. The 15-mark essay question could be on either A1 or A2.
- In any exam series, Section B will either consist of a 5-mark stimulus question plus a 15-mark essay question, or a 20-mark essay question.
- Section C will be the opposite structure to Section B in any given examination series.

Please see the WGE03 Contested Planet Assessment Guide for further details:

https://qualifications.pearson.com/content/dam/pdf/International%20Advanced%20Level/Geography/2016/Teaching%20and%20learning%20materials/Contested-Planet-Unit-3-WGE03-Assessment-Guide.pdf

Grade boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

https://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London WC2R 0RL.