

**OXFORD**

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# INTERNATIONAL AS GEOGRAPHY GG02

Paper 2 Human Geography 1

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Mark scheme

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

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

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# International AS Geography mark scheme

## How to mark

### Aims

When you are marking your allocation of scripts your main aims should be to:

- recognise and identify the achievements of students
- place students in the appropriate mark band and in the appropriate part of that mark band (high, low, middle) for **each** Assessment Objective
- record your judgements with brief notes, annotations and comments that are relevant to the mark scheme and make it clear to other examiners how you have arrived at the numerical mark awarded for each Assessment Objective
- ensure comparability of assessment for all students, regardless of question or examiner.

### Approach

It is important to be **open-minded** and **positive** when marking scripts.

The specification recognises the variety of experiences and knowledge that students will have. It encourages them to study geography in a way that is relevant to them. The questions have been designed to give them opportunities to discuss what they have found out about geography. It is important to assess the quality of **what the student offers**.

Do not mark scripts based on the answer **you** would have written. The mark schemes have been composed to assess **quality of response** and not to identify expected items of knowledge.

### Assessment Objectives

This component requires students to:

AO1	Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.
AO2	Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.
AO3	Use a variety of relevant quantitative, qualitative and fieldwork skills to: <ul style="list-style-type: none"> <li>• investigate geographical questions and issues</li> <li>• interpret, analyse and evaluate data and evidence</li> <li>• construct arguments and draw conclusions.</li> </ul>

### The marking grids

Do not think of levels equaling grade boundaries.

Depending on the part of the examination, the levels will have different mark ranges assigned to them. This will reflect the different weighting of Assessment Objectives in particular tasks and across the examination as a whole.

## Using the grids

Having familiarised yourself with the descriptors and indicative content, read through the answer and annotate it (as instructed below) to identify the qualities that are being looked for and that it shows. You can now check the levels and award a mark.

### Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptors for that level. The descriptors for the level indicate the different qualities that might be seen in the student's answer for that level. If it meets all the descriptors for the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptors and the answer. With practice and familiarity you will find that for better answers you will be able to skip through the lower levels of the mark scheme quickly.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best-fit approach for defining the level and then use the variability of the response to help decide the mark within the level.

### Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark.

It is often best to start in the middle of the level's mark range and then check and adjust. If there is a lot of indicative content fully identifiable in the work you need to give the highest mark in the level. If only some is identifiable or it is only partially fulfilled, then give the lower mark.

The exemplar materials used during standardisation will also help. There will be an answer in the standardising materials that will correspond with each level of the mark scheme. This answer will have been awarded a mark by the lead examiner. You can compare the student's answer with the example to determine if it is of the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the lead examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

In addition to the levels descriptors, question specific indicative content is provided as a guide for examiners. This is not intended to be exhaustive and you must credit other valid points.

An answer that contains nothing of relevance to the question must be awarded no marks.

## Annotating scripts

You should write a summative comment at the end for each Assessment Objective and indicate the marks for each Assessment Objective being tested at the end of the answer in the margin in sequence. It is vital that the way you arrive at a mark should be recorded on the script. This will help you with making accurate judgements and it will help any subsequent markers to identify how you are thinking. Please do not write negative comments about students' work or their alleged aptitudes.

**Section A - Global Systems and Governance**

**Total for this section: 40 marks**

<b>Question</b>	<b>Part</b>	<b>Marking guidance</b>	<b>Total marks</b>
<b>01</b>	1	<p><b>Which of the following global flows is ‘the movement of money between countries for the purpose of investment, trade or business production’?</b></p> <p>Key - A</p>	<p><b>1</b></p> <p><b>AO1=1</b></p>
<b>01</b>	2	<p><b>Which of the following describes the location of an abyssal plain?</b></p> <p>Key - D</p>	<p><b>1</b></p> <p><b>AO1=1</b></p>
<b>01</b>	3	<p><b>Which of the following are all technological factors in globalisation?</b></p> <p>Key - D</p>	<p><b>1</b></p> <p><b>AO1=1</b></p>
<b>01</b>	4	<p><b>‘A specialised agency with responsibility for the safety and security of shipping.’</b></p> <p><b>This describes the role of:</b></p> <p>Key - B</p>	<p><b>1</b></p> <p><b>AO1=1</b></p>
<b>01</b>	5	<p><b>Which of the following are all key features of the epipelagic zone?</b></p> <p>Key - D</p>	<p><b>1</b></p> <p><b>AO1=1</b></p>

Question	Part	Marking guidance	Total marks
02		<p><b>Figure 1a</b> shows the top 10 export destinations from the USA in 2017.</p> <p><b>Figure 1b</b> shows the top 10 export destinations from India in 2017.</p> <p><b>Analyse the information shown in Figure 1a and Figure 1b.</b></p>	<p><b>6</b></p> <p><b>AO3=6</b></p>

Level	Marks	Descriptor
2	4 - 6	<b>AO3</b> - Clear selection and analysis of the evidence that has been provided which makes appropriate use of data to support. Clear connections between different aspects of the data.
1	1 - 3	<b>AO3</b> - Some basic selection and analysis of the evidence that has been provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.
0	0	No creditable content.

### Indicative Content

This question requires analysis of the top 10 exports from the USA and India in 2017. They should compare the two data tables and identify key differences and trends for higher marks. There should also be use of specific data manipulation to identify differences for maximum marks.

### **AO3**

- The USA exports much more than India, with the top seven export destinations all having a higher amount than India's highest of \$46 million.
- The USA's top export destination is more than six times bigger than India's, at \$282.2 million compared with \$46 million.
- There are four destination countries that appear in both lists (China, United Kingdom, Germany and Hong Kong). In all of these examples USA has a higher export amount and on average the USA exports more than six times as much to these locations.
- The top two countries that the USA trades with are on its border (Canada and Mexico). The two countries that India borders and appear in the list are China and Bangladesh, in 4<sup>th</sup> and 9<sup>th</sup> place respectively.
- Interestingly the USA is at the top of India's export list but India is not on the USA's top ten list.
- The USA exports more than six times as much in total trade to its top ten recipients compared with India, exporting \$999.4 million to India's \$152.1 million.
- Both do have a fairly global spread of trade, in at least three different continents each.
- Africa and Australasia are not represented on either map as main trade destinations.

Question	Part	Marking guidance	Total marks
03		<p><b>‘NGOs monitor threats to, and enhance protection of, the oceans in an effective way.’</b></p> <p><b>To what extent do you agree with this view?</b></p> <p><b>AO1</b> - Knowledge and understanding of the global commons, the rights of all to their benefits as well as their sustainable use and protection. Knowledge and understanding of the vulnerability of the global commons as well as their potential for exploitation. Knowledge and understanding of the role of NGOs in monitoring threats and enhancing protection of the oceans.</p> <p><b>AO2</b> - Application of knowledge and understanding to assess the potential uses of the global commons. Application of knowledge and understanding to assess the potential advantages, disadvantages and impacts of all people in all countries using the global commons. Application of knowledge and understanding to assess the environmental focus of NGOs in ocean protection. Application of knowledge and understanding in order to determine an overall extent.</p>	<p><b>9</b></p> <p><b>AO1=4</b> <b>AO2=5</b></p>

Level	Marks	Descriptor
3	7 - 9	<p><b>AO1</b> - Demonstrates detailed knowledge and understanding of the use and vulnerability of oceans as well as the role and effectiveness of NGOs in monitoring threats and enhancing the environmental protection of the oceans.</p> <p><b>AO2</b> - Applies knowledge and understanding to the novel situation, offering detailed analysis and evaluation, drawn appropriately from the context provided. Connections and relationships between different aspects of study are thorough and relevant.</p>
2	4 - 6	<p><b>AO1</b> - Demonstrates clear knowledge and understanding of the use and vulnerability of oceans as well as the role and effectiveness of NGOs in monitoring threats and enhancing the environmental protection of the oceans.</p> <p><b>AO2</b> - Applies knowledge and understanding to the novel situation, offering clear analysis and evaluation, drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with and relevant.</p>
1	1 - 3	<p><b>AO1</b> - Demonstrates basic knowledge and understanding of the use and vulnerability of oceans as well as the role and effectiveness of NGOs in monitoring threats and enhancing the environmental protection of the oceans.</p> <p><b>AO2</b> - Applies limited knowledge and understanding to the novel situation, offering some basic analysis and evaluation. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and of limited relevance.</p>
0	0	No creditable content.

### Indicative Content

This question requires links to be made between different parts of the specification content on Global Systems and Governance, specifically the concept of the oceans as a global common and the role of NGOs in monitoring threats and enhancing protection of the oceans. A range of uses of the oceans and examples of NGOs could be applied to help develop this answer. There should be clear reference to the extent to which there is agreement with the statement or not.

#### **AO1**

- Knowledge and understanding of the concept of the oceans as a global common.
- Knowledge and understanding of the importance and fragility of the oceans.
- Knowledge and understanding of the rights of all to the benefits of the oceans.
- Knowledge and understanding of the vulnerability of oceans to external pressures, especially environmental threats.
- Knowledge and understanding of the need to sustainably manage and protect the oceans.
- Knowledge and understanding of the role of NGOs in monitoring threats and enhancing protection of the oceans.
- Awareness of the potential contrasting aims and viewpoints of different NGOs.

#### **AO2**

- Analysis of the differing aims of differing NGOs involving the ocean, eg Greenpeace aim to stop overfishing and pollution whereas the WWF focuses more on sustainable fishery management and the IMO aims to enhance the safety of shipping.
- Assessment of the different uses of the ocean that could lead to environmental issues that could be restricted, eg fishing, tourism and resource extraction, all with varying environmental impacts and monitoring and regulation linked to different organisations.
- Assessment of the different uses of the ocean that could lead to non-environmental issues that could be restricted, eg shipping access, territorial claims and resource access.
- Assessment of different methods used by NGOs and their effectiveness, including threat monitoring and enhancing protection, eg Greenpeace has ships which it uses in the ocean and can be more pressurising and restrictive towards uses of the ocean. The WWF work with other organisations and governments and are more constructive in working in partnership with others. The IMO works through the UN and helps create laws and convention.
- A clear overall extent based on discussion and assessment of the statement and the issues that it suggests throughout.



Question	Part	Marking guidance	Total marks
04		<p><b>‘World trade creates unequal flows and inequalities.’</b></p> <p><b>Critically evaluate this statement with reference to at least one food commodity or one product of manufacturing that you have studied.</b></p> <p><b>AO1</b> - Knowledge and understanding of world trade in a food commodity or product of manufacturing. Knowledge and understanding of negative impacts, including unequal flows, inequalities, conflict, injustice and differential access to markets. Knowledge and understanding of globalisation critique.</p> <p><b>AO2</b> - Application of knowledge and understanding to critically evaluate impacts of world trade. Application of knowledge and understanding to draw conclusions on this issue.</p>	<p><b>20</b></p> <p><b>AO1=10</b> <b>AO2=10</b></p>

Level	Marks	Descriptor
4	16 - 20	<p><b>AO2</b> - Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout.</p> <p><b>AO2</b> - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout.</p> <p><b>AO1</b> - Full and accurate knowledge and understanding of key concepts and processes throughout.</p> <p><b>AO1</b> - Detailed awareness of scale and temporal change which is well integrated where appropriate.</p>
3	11 - 15	<p><b>AO2</b> - Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding.</p> <p><b>AO2</b> - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Generally clear and relevant knowledge and understanding of place(s) and environments.</p>

		<p><b>AO1</b> - Generally clear and accurate knowledge and understanding of key concepts and processes.</p> <p><b>AO1</b> - Generally clear awareness of scale and temporal change which is integrated where appropriate.</p>
<b>2</b>	<b>6 - 10</b>	<p><b>AO2</b> - Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Some partially relevant analysis and evaluation in the application of knowledge and understanding.</p> <p><b>AO2</b> - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Some relevant knowledge and understanding of place(s) and environments which is partially relevant.</p> <p><b>AO1</b> - Some knowledge and understanding of key concepts, processes and interactions and change.</p> <p><b>AO1</b> - Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies.</p>
<b>1</b>	<b>1 - 5</b>	<p><b>AO2</b> - Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence.</p> <p><b>AO2</b> - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Very limited relevant knowledge and understanding of place(s) and environments.</p> <p><b>AO1</b> - Isolated knowledge and understanding of key concepts and processes.</p> <p><b>AO1</b> - Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies.</p>
<b>0</b>	<b>0</b>	No creditable content.

### Indicative Content

The question links different parts of the Global Systems and Governance part of the specification, specifically the international trade, global systems and globalisation critique sections. The question requires an example of world trade in either a commodity or product of manufacturing with critical evaluation of its unequal flows and inequalities.

Coca-Cola and chocolate (for example) may be considered to be food commodities or products of manufacturing by candidates so can be credited as either.

#### **AO1**

- Knowledge and understanding of world trade in at least one food commodity or one product of manufacturing.
- Knowledge and understanding of unequal flows within global systems and how this can lead to inequality, conflict and injustice.
- Knowledge and understanding of differential access to markets and the associated socio-economic impacts of this.
- Knowledge and understanding of the positive impacts of global trade, including its role in stability, growth and development.
- Knowledge and understanding of the globalisation critique.

#### **AO2**

- Evaluation of the range of unequal flows and inequalities created through world trade in a food commodity, eg the banana trade has unequal import and export flows due to the temperature and land requirements for banana growth and the global demands for bananas as a food product. For example, most bananas per capita are grown in India but eaten in the USA. Banana growth creates environmental inequality as it is damaging to biodiversity due to pesticide use and the global shipping of bananas adds to carbon dioxide emissions. The banana industry uses more agrochemicals than any other industry apart from cotton. The banana industry can create financial and power inequalities as main companies create a 'race to the bottom' as they try to maximise profits by paying less for bananas which results in lower wages and further exploitation of workers and the environment in many developing countries.
- Evaluation of the range of unequal flows and inequalities created through world trade in a product of manufacturing, eg Coca-Cola trade brings unequal shares of money to the TNC headquarters which aims to maximise profits but limit payments for labour and water or other resource use. Coca-Cola production is also linked to pesticide use, over-use of water sources and exploitation of workers. This was highlighted by Coca-Cola's role in Mexico, linked to worker and water exploitation to minimise costs then taking advantage of political situations and advertising to help maximise sales and profits.
- Evaluation of the range of positive impacts created through world trade in a food commodity, eg the banana trade allows for better product choice and nutrition. It has linked to the development of fair trade initiatives, helped locations to develop and allowed farmers to move out of poverty. For instance, cooperatives in Columbia have benefitted from the Fairtrade initiative by increasing wages, improving employment standards and using profits to benefit the local community and environment. The Fairtrade standards and the Fairtrade premium links to community equality and improving quality of life.
- Evaluation of the range of positive impacts created through world trade in a product of manufacturing, eg Coca-Cola provides sales and options in most countries in the world. It invests in sustainable agricultural schemes and water sustainability projects. It also provides a range of employment opportunities including the empowerment of women in the 5by20 programme. Recently it has been a key sponsor and supporter of equal rights initiatives.
- Critical evaluation throughout of the unequal flows and impacts in order to draw conclusions.

**Section B - Resource Security****Total for this section: 40 marks**

<b>Question</b>	<b>Part</b>	<b>Marking guidance</b>	<b>Total marks</b>
<b>05</b>	1	<b>Water stress occurs when there is:</b>  Key - D	<b>1</b>  <b>AO1=1</b>
<b>05</b>	2	<b>Which of the following is designed to identify the environmental effects of a project before proceeding with the plan?</b>  Key - C	<b>1</b>  <b>AO1=1</b>
<b>05</b>	3	<b>Which of the following are all primary energy sources?</b>  Key - B	<b>1</b>  <b>AO1=1</b>
<b>05</b>	4	<b>What is 'virtual water trade'?</b>  Key - A	<b>1</b>  <b>AO1=1</b>
<b>05</b>	5	<b>Which of the following are all true for waste from nuclear power stations?</b>  Key - B	<b>1</b>  <b>AO1=1</b>

Question	Part	Marking guidance	Total marks
06		<p><b>Figure 2</b> shows major global gas flows in 2018.</p> <p><b>Analyse the global distribution of major global gas flows shown in Figure 2.</b></p>	<p><b>6</b></p> <p><b>AO3=6</b></p>

Level	Marks	Descriptor
2	4 - 6	<b>AO3</b> - Clear selection and analysis of the evidence that has been provided which makes appropriate use of data to support. Clear connections between different aspects of the data.
1	1 - 3	<b>AO3</b> - Some basic selection and analysis of the evidence that has been provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.
0	0	No creditable content.

Indicative Content

This question requires analysis of major global gas flows in 2018. They should identify key locations, their global distribution and apply data with possible manipulation for higher marks. There should also be use of specific data to identify key locations and flows for maximum marks.

**AO3**

- There are much more LNG networks globally when compared to pipeline gas. For example, there are only two pipeline gas flows within South America whereas there are double the amount of LNG flows going to and from the continent.
- Key global hubs for LNG sources include the US, S. & Cent. America and Africa which appear to supply multiple continents. The Middle East, Asia Pacific and CIS are key regional hubs, mainly supplying within their own region. There does appear to be a global spread with this.
- Pipeline gas has less of a global distribution with more of the routes being within continents rather than between them as in the case of LNG. There is also more of a concentration of key regions for pipeline gas, especially in CIS and the Middle East which have more than a third of the pipeline gas sources.
- Whilst there are less global networks of pipeline gas there are more source locations, 15 compared with 10 for LNG.
- Pipelines transport much more along each route. The largest pipeline route is 171.1 billion cubic metres, from CIS to Europe, more than three times the amount of the largest LNG transfer which is within Asia Pacific and from the Middle East, both with 49.9 billion cubic metres. There are three pipeline routes that transport more than this largest LNG route.
- Key flows are to areas without sources, especially Asia Pacific and Europe. Source areas are spread fairly globally and the networks do transfer gas globally. However, there seem to be limited transfers to Africa and S. & Cent. America.

Question	Part	Marking guidance	Total marks
07		<p><b>‘Energy security is the most important factor affecting national energy mix’.</b></p> <p><b>With reference to contrasting national settings, discuss the extent to which you agree with this statement.</b></p> <p><b>AO1</b> - Knowledge and understanding of energy security, including sources of energy and energy supply issues. Knowledge and understanding of energy mixes in contrasting national settings. Knowledge and understanding of energy supply issues. Knowledge and understanding of strategies to manage and increase energy consumption. Knowledge and understanding of sustainability issues associated with energy consumption.</p> <p><b>AO2</b> - Application of knowledge and understanding to discuss the role of energy access in affecting the national energy mix in national examples. Application of knowledge and understanding to discuss other factors that can affect the national energy mix. Application of knowledge and understanding to form an overall judgement on extent.</p>	<p><b>9</b></p> <p><b>AO1=4</b> <b>AO2=5</b></p>

Level	Marks	Descriptor
3	7 - 9	<p><b>AO1</b> - Demonstrates detailed knowledge and understanding of the energy mix in contrasting national examples and the role that energy security plays in this.</p> <p><b>AO2</b> - Applies knowledge and understanding to the novel situation, offering detailed analysis and evaluation, drawn appropriately from the context provided. Connections and relationships between different aspects of study are thorough and relevant.</p>
2	4 - 6	<p><b>AO1</b> - Demonstrates clear knowledge and understanding of the energy mix in contrasting national examples and the role that energy security plays in this.</p> <p><b>AO2</b> - Applies knowledge and understanding to the novel situation, offering clear analysis and evaluation, drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with and relevant.</p>
1	1 - 3	<p><b>AO1</b> - Demonstrates basic knowledge and understanding of the impacts of the energy mix in contrasting national examples and the role that energy security plays in this.</p> <p><b>AO2</b> - Applies limited knowledge and understanding to the novel situation, offering some basic analysis and evaluation. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and of limited relevance.</p>
0	0	No creditable content.

Indicative Content

This question requires application of knowledge based on the specification content on Resource Security, specifically the energy security section. Knowledge must be applied to discuss the role that energy access plays in affecting the national energy mix in two contrasting national examples. Discussion of other contributing factors, such as demand, geopolitical factors and sustainability issues should also take place.

**AO1**

- Knowledge and understanding of energy security issues.
- Knowledge and understanding of energy mixes in contrasting national settings.
- Knowledge and understanding of energy supply issues.
- Knowledge and understanding of strategies to manage and increase energy consumption. Knowledge and understanding of sustainability issues associated with energy consumption.
- Awareness of the range of interlinked factors that can affect the national energy mix.
- Awareness of the difference between countries in terms of development levels and population requirements that can also affect the national energy mix.

**AO2**

- Discussion of the role of energy security in affecting the national energy mix in national examples, eg China has a high population and manufacturing demand so requires reliable energy supplies to fuel industrial growth. Fossil fuels make up over 90% of the mix with almost 70% focusing on coal which is readily available in the country. In contrast the UK is more focused on having a range of sources for energy security mainly due to declining national reserves, but investment is growing in renewable energy due to the potential sources, although lack of ability to store this power still restricts it for security.
- Discussion of the role of energy availability and access in affecting the national energy mix in national examples, eg China has approximately 70% coal use in the energy mix due to having large coal reserves within the country. In contrast the UK has only 30% coal use due to lack of current coal mining and the need to access a range of resources, including gas (30%), nuclear (19%) and renewables (15%).
- Discussion of other factors that can affect the national energy mix, such as geopolitics and environmental concerns, eg China is still aiming to be self-reliant and a global power which needs a secure energy supply. They also want to develop as world leaders in renewable energy for both manufacturing and reduction of environmental impacts, so solar is a growing area. The UK is concerned about pipeline gas from Russia due to past issues in Eastern Europe, so is looking to alternatives such as Fracking. Renewable energy, especially wind power, also has the potential to be more reliable and helps to reduce emissions linked to environmental targets.
- An overall decision of extent based on the ongoing discussion and examples applied.

Question	Part	Marking guidance	Total marks
08		<p><b>‘Water consumption is easier to manage sustainably than energy consumption’.</b></p> <p><b>Critically evaluate the extent to which you agree with this statement.</b></p> <p><b>AO1</b> - Knowledge and understanding of strategies to manage water consumption, including reducing demand. Knowledge and understanding of sustainability issues associated with water management, including virtual water trade, conservation, recycling, ‘greywater’ and groundwater management. Knowledge and understanding of strategies to manage energy consumption, including reducing demand. Knowledge and understanding of sustainability issues associated with water management, including energy conservation. Knowledge and understanding of resource futures.</p> <p><b>AO2</b> - Application of knowledge and understanding to critically evaluate the sustainable management of water and energy consumptions. Application of knowledge and understanding to critically evaluate the extent to which water consumption is easier to sustainably manage than energy consumption. Application of knowledge and understanding to form an overall judgement on extent.</p>	<p><b>20</b></p> <p><b>AO1=10</b> <b>AO2=10</b></p>

Level	Marks	Descriptor
4	16 - 20	<p><b>AO2</b> - Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout.</p> <p><b>AO2</b> - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout.</p> <p><b>AO1</b> - Full and accurate knowledge and understanding of key concepts and processes throughout.</p> <p><b>AO1</b> - Detailed awareness of scale and temporal change which is well integrated where appropriate.</p>
3	11 - 15	<p><b>AO2</b> - Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding.</p>



		<p><b>AO2</b> - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Generally clear and relevant knowledge and understanding of place(s) and environments.</p> <p><b>AO1</b> - Generally clear and accurate knowledge and understanding of key concepts and processes.</p> <p><b>AO1</b> - Generally clear awareness of scale and temporal change which is integrated where appropriate.</p>
<b>2</b>	<b>6 - 10</b>	<p><b>AO2</b> - Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Some partially relevant analysis and evaluation in the application of knowledge and understanding.</p> <p><b>AO2</b> - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Some relevant knowledge and understanding of place(s) and environments which is partially relevant.</p> <p><b>AO1</b> - Some knowledge and understanding of key concepts, processes and interactions and change.</p> <p><b>AO1</b> - Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies.</p>
<b>1</b>	<b>1 - 5</b>	<p><b>AO2</b> - Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question.</p> <p><b>AO2</b> - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence.</p> <p><b>AO2</b> - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts.</p> <p><b>AO1</b> - Very limited relevant knowledge and understanding of place(s) and environments.</p> <p><b>AO1</b> - Isolated knowledge and understanding of key concepts and processes.</p> <p><b>AO1</b> - Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies.</p>
<b>0</b>	<b>0</b>	No creditable content.

### Indicative Content

The question links different parts of the Resource Security part of the specification, specifically within the water and energy security sections, with possible reference to resource futures and examples of sustainable water and energy consumption. The question requires critical evaluation of a range of methods used to manage water and energy consumption. A final conclusion should be drawn as to the extent to which there is an agreement with the statement or not.

The candidate can only reach the top of level 2 max. if only water or energy is considered.

### **AO1**

- Knowledge and understanding of strategies to manage water consumption, including reducing demand.
- Knowledge and understanding of sustainability issues associated with water management, including virtual water trade, conservation, recycling, 'greywater' and groundwater management.
- Knowledge and understanding of strategies to manage energy consumption, including reducing demand.
- Knowledge and understanding of sustainability issues associated with energy management, including energy conservation.
- Knowledge and understanding of resource futures.

### **AO2**

- Critical evaluation of current strategies to manage water consumption and whether they can be sustainable, eg energy and water efficient appliances can reduce consumption but are expensive and means the need to replace old systems and appliances. Water meters can be put in place to reduce use, but these require a good infrastructure to be in place already too.
- Critical evaluation of current sustainability issues associated with water management, eg virtual water trade allows us to understand the movement of water in commodities between regions, but it can be difficult to impose restrictions due to the potential to damage trade opportunities. Greywater recycling can be effective if easily collected, but this requires systems to be set up and there is a limitation in what greywater can be used for unless treated.
- Critical evaluation of possible water resource futures linked to consumption, eg there is scope to develop water re-use and recycling initiatives, but these need time and investment with associated education initiatives too. Future changing climate and population growth may also make demand and consumption even higher, so this may reduce the effectiveness of sustainable management.
- Critical evaluation of current strategies to manage energy consumption and whether they can be sustainable, eg governments are trying to reduce energy losses by managing electricity generation, through improved infrastructure and energy mixes such as focus on renewable use, but this requires investment and time to work. Ongoing use of fossil fuel supplies may also be very environmentally unsustainable. Taxation can work, such as the UK Climate Change Levy, but this is not always monitored and managed fairly, with richer companies happy to pay fines if needed.
- Critical evaluation of current sustainability issues associated with energy management, eg energy conservation in the home can help consumers to reduce consumption and save money, but often there is an upfront cost involved to retrofit buildings or update appliances. It also requires good infrastructure and education, so whilst smart meters may work in the UK they will not be effective in all countries.
- Critical evaluation of possible energy resource futures linked to consumption, eg wind and solar power are developing worldwide in countries such as India and the UK linked to population growth requiring energy, energy security and an aim to reduce emissions. However, this does not necessarily change

consumption and energy requirements. Even changing infrastructure such as switching to electric cars only changes to a more sustainable source rather than reducing consumption. This also requires investment and a more developed infrastructure which requires both time and money.

- Concluding comments as to the extent to which there is agreement with the statement or not.

**Assessment Objective grid**

	AO1	AO2	AO3	Total
<b>Section A</b>				
01.1	1			1
01.2	1			1
01.3	1			1
01.4	1			1
01.5	1			1
02			6	6
03	4	5		9
04	10	10		20
<b>Section B</b>				
05.1	1			1
05.2	1			1
05.3	1			1
05.4	1			1
05.5	1			1
06			6	6
07	4	5		9
08	10	10		20
Unit total	38	30	12	80