OXFORD AQA
INTERNATIONAL QUALIFICATIONS

INTERNATIONAL AS

GEOGRAPHY

GG02

Paper 2 Human Geography 1

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: • investigate geographical questions and issues • interpret, analyse and evaluate data and evidence • construct arguments and draw conclusions.

The marking grids

Do not think of levels equalling 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**

Question	Part	Marking guidance	Total marks
01	**1**	**'It helps to develop methods for sustainable fishing.'** **Which of the following is this describing?** Key – C: The Marine Stewardship Council (MSC)	**1** **AO1=1**
01	**2**	**'A company from an economically developed country mines resources in a less economically developed country. The company does not pay the miners well. The developed country gets richer but the less developed country does not.'** **This describes an unequal flow in which of the following?** Key – C: Money	**1** **AO1=1**
01	**3**	**Which of the following is an example of global governance?** Key – C: The United Nations organises international climate agreements to limit global warming.	**1** **AO1=1**
01	**4**	**'It is between 200 metres and 1000 metres below the ocean surface, just beyond the reach of sunlight.'** **This defines which of the following ocean zones?** Key – D: Mesopelagic	**1** **AO1=1**
01	**5**	**Which of the following are both descriptions of the Atlantic Ocean?** Key – B: It is east of the Americas **and** spreads into both the northern and southern hemispheres.	**1** **AO1=1**

Question	Part	Marking guidance	Total marks
02		**Analyse the data shown in FIGURE 1 and FIGURE 2.**	**6** **AO3=6**

Level	Marks	Descriptor
2	**4–6**	**AO3** – 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**	**AO3** – 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 two different divergent bar graphs, one showing information on the global trade balance for wheat in 2017, the other showing this for 2022. Analysis could include key trends and data changes, such as high and low amounts and anomalies within each graph, as well as comparison between the graphs and data manipulation. There should be specific application of the data from the graph.

AO3

- Europe has the highest positive trade balance in both graphs, although this balance has increased by a third from 2017 to 2022.
- West Asia and North Africa has the highest negative trade balance in both graphs. This has nearly doubled between 2017 and 2022.
- In both graphs there are more regions with a higher negative net balance than positive net balance.
- All regions with a negative net balance in 2017 had increased this negative balance by 2022.
- All regions with a positive net balance in 2017 had increased this positive balance by 2022.
- More than half of the regions were exporting wheat in 2017 (6 out of the 10). By 2022 West Asia and North Africa were also exporting too.
- In 2017 Australia and New Zealand was the only region not importing any wheat. However, by 2022 all regions were.

Question	Part	Marking guidance	Total marks
03		**Examine how important flows of capital are for globalisation.** **AO1** – Knowledge and understanding of flows of capital as a dimension of globalisation. Knowledge and understanding of unequal flows of money within global systems. Knowledge and understanding of trading relationships and patterns between different economies. **AO2** – Application of knowledge and understanding to examine how important flows of capital are for globalisation.	**9** **AO1=4** **AO2=5**

Level	Marks	Descriptor
3	**7–9**	**AO1** – Demonstrates detailed knowledge and understanding of flows of capital as a dimension of globalisation. **AO2** – Applies knowledge and understanding to the novel situation, offering detailed examination, drawn appropriately from the context provided. Connections and relationships between different aspects of study are thorough and relevant.
2	**4–6**	**AO1** – Demonstrates clear knowledge and understanding of flows of capital as a dimension of globalisation. **AO2** – Applies knowledge and understanding to the novel situation, offering clear examination, drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident and relevant.
1	**1–3**	**AO1** – Demonstrates basic knowledge and understanding of flows of capital as a dimension of globalisation. **AO2** – Applies limited knowledge and understanding to the novel situation, offering some basic examination. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and of limited relevance.
0	**0**	No creditable content.

<u>Indicative Content</u>

This question requires specific focus on flows of capital as a dimension of globalisation which is within the globalisation section of the specification on Global Systems and Governance. Connections may be made to the unequal flows of money within global systems and trading relationships and patterns between different economies from the specification. The answer should consider the importance of flows of capital for globalisation and examine this clearly based on applied knowledge.

AO1

- Knowledge and understanding of flows of capital as a dimension of globalisation.
- Knowledge and understanding of unequal flows of money within global systems.
- Knowledge and understanding of trading relationships and patterns between different economies.

AO2

- Examination of the importance of flows of capital for globalisation, such as:
  - capital flows provide essential funding for infrastructure, businesses, and job creation, accelerating economic development and globalisation, for example this has been shown in China's rapid development due to investment from multinational corporations (MNCs).
  - international capital markets can offer vital financial support during crises, preventing economic collapse, for example the International Monetary Fund (IMF) provided loans to Greece which stopped the Eurozone crisis from escalating. They also support struggling economies in developing countries, often providing support on a pathway to development and globalisation for these countries
  - capital flow enables companies to invest in research, expand globally, and share technology, driving important global economic progress, for example Silicon Valley has provided capital funding for a number of internet based or electronic startup companies worldwide
  - capital mobility can also lead to economic bubbles and crashes when investors suddenly withdraw funds which have a major impact on the world due to interconnections, for example the 1997 Asian Financial Crisis was caused by sudden capital withdrawal and the 2008 credit crunch was caused by overlinked global credit flows
  - capital flows towards wealthier nations have been important in keeping some areas wealthy, such as Europe and North America, whilst other regions remain poor. This unequal flow of capital has led to a number of issues, but has been important in factors such as relocation of industry in the global shift, and transfer of labour costs, as well as the different secondary, tertiary and quaternary economy sectors worldwide which are an essential aspect of globalisation.

Question	Part	Marking guidance	Total marks
04		**'Transnational corporations (TNCs) only create positive impacts on countries in which they operate.'** **To what extent do you agree with this statement?** **Refer to ONE OR MORE TNC(s) that you have studied to help support your answer.** **AO1** – Knowledge and understanding of the nature and role of transnational corporations (TNCs), including detailed reference to a specified TNC and its impacts on those countries in which it operates. Knowledge and understanding of the geographical consequences of global systems. Knowledge and understanding of the globalisation critique. **AO2** – Application of knowledge and understanding to form an extent to which there is agreement with the statement or not on whether transnational corporations (TNCs) create only positive impacts on countries that they operate in.	**20** **AO1=10** **AO2=10**

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

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

Indicative Content

The question links different parts of the Global Systems and Governance part of the specification. The main focus is on the nature and role of transnational corporations (TNCs), including detailed reference to a specified TNC and its impacts on those countries in which it operates. The question requires candidates to form an extent to which they agree with the statement or not on whether transnational

corporations (TNCs) create only positive impacts on countries that they operate in. To do this they may use other sections of the specification to help, most likely the geographical consequences of global systems and the globalisation critique. Answers should consider a range of impacts linked to at least one TNC example studied and form an overall extent based on their discussion. The answer will be limited to a maximum of level 2 if there is effective discussion of impacts and extent, but there is no example use.

AO1

- Knowledge and understanding of the nature and role of transnational corporations (TNCs), including detailed reference to a specified TNC and its impacts on those countries in which it operates.
- Knowledge and understanding of the geographical consequences of global systems.
- Knowledge and understanding of the globalisation critique.
- Knowledge and understanding of other areas of the specification that can be linked to the question.

AO2

- Discussion of positive impacts created by TNCs in the countries that they operate in, such as:
  - Samsung, has invested significantly in Vietnam, establishing manufacturing plants for electronics. This has led to a substantial increase in employment opportunities for the local population. The company has not only created jobs but has also contributed to skill development through training programmes, empowering workers with valuable technical skills
  - Toyota has had a positive economic impact in the United States. As one of the largest foreign investors in the US automotive industry, Toyota has not only created jobs but has also invested in local infrastructure. For instance, the company has contributed to the development of efficient transportation networks, benefiting both employees and the surrounding communities
  - Siemens Gamesa, a multinational renewable energy company, has played a crucial role in Denmark's transition to sustainable energy. The company has invested in wind energy projects, providing clean and renewable power sources. This has positively impacted the environment by reducing dependence on fossil fuels, lowering carbon emissions, and contributing to Denmark's reputation as a leader in green energy
  - Unilever has implemented various community development programs in India. These initiatives focus on improving health, hygiene, and education in local communities. Unilever's efforts include building schools, providing healthcare facilities, and promoting sustainable agricultural practices. This not only enhances the wellbeing of the population but also fosters a positive relationship between the company and the communities in which it operates.
- Discussion of negative impacts created by TNCs in the countries that they operate in, such as:
  - Foxconn, a major supplier for technology companies like Apple, has faced criticism for poor working conditions in its Chinese factories. Reports of excessive overtime, low wages, and inadequate worker living conditions have raised concerns about labour exploitation. The social impact includes negative effects on the physical and mental wellbeing of workers, as well as strained relationships between the company and local communities
  - Amazon has faced criticism for its alleged tax avoidance practices. It's argued that by exploiting loopholes and using complex corporate structures, Amazon has minimised its tax contributions in various countries. This would have negative economic implications for host countries, as they would miss out on potential tax revenues that could be used for public services and infrastructure development
  - ExxonMobil has faced environmental controversies in Nigeria. The company has been accused of contributing to oil spills and environmental degradation in the Niger Delta. These incidents have detrimental effects on local ecosystems, including damage to water sources and disruption of agriculture, impacting the livelihoods of communities in the region

- McDonald’s has been criticised for promoting cultural homogenisation by imposing Western-style fast food on diverse cultures. This can lead to the erosion of local culinary traditions and negatively impact small, local businesses. Additionally, the spread of fast-food culture has been associated with health issues, contributing to the rise of diet-related diseases in some communities.

- An overall extent to which there is agreement with the statement or not should be made. Any extent is acceptable as long as it is based on the balance of points made within the preceding discussion.

Section B – Resource security **Total for this section: 40 marks**

Question	Part	Marking guidance	Total marks
05	**1**	**Which of the following are BOTH primary energy sources?** Key – B: Coal **and** wood	**1** **AO1=1**
05	**2**	**'An alternative water future linked to environmental change.'** **Which of the following is this describing?** Key – C: More desalination of sea water takes place as a warming climate reduces fresh water sources.	**1** **AO1=1**
05	**3**	**'Pipelines carry water from an area with lots of rainfall to an area with a high demand for water.'** **This is an example of which of the following?** Key – D: Water transfer	**1** **AO1=1**
05	**4**	**'Diverting some water from a river to generate renewable energy while maintaining the river ecosystem and environment.'** **This is an example of which of the following?** Key – D: Sustainable resource development	**1** **AO1=1**
05	**5**	**Which of the following defines the term 'energy mix'?** Key – B: The combination of different energy sources used to meet demands in a specific area.	**1** **AO1=1**

Question	Part	Marking guidance	Total marks
06		**Analyse the data shown in FIGURE 3 and FIGURE 4.**	**6** **AO3=6**

Level	Marks	Descriptor
2	**4–6**	**AO3** – 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**	**AO3** – 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 comparison line graphs showing natural gas production and consumption in selected countries between 1985 and 2023. Analysis could include identification and comparison of trends and anomalies, as well as key changes and ranges. There should be clear and specific application of the data from the graph.

AO3

- The USA had the biggest overall increase in natural gas production over the time period, more than doubling the TWh produced and finishing with over 10 000 TWh in 2023.
- 'Iran showed the biggest proportional increase in natural gas production over the time period, going from close to 0 TWh in 1985, to approximately 2200 TWh in 2023.
- Russia had the most fluctuation in natural gas production over the time period, with notable dips in 2009, 2020 and 2022 onwards, although it did increase production by nearly a third over the time.
- The UK was the only country to show a decrease in natural gas production over the time period.
- Similarly to with production, the USA has the biggest overall increase in natural gas consumption over the time period, just about doubling over the time period to finish with nearly 9000 TWh in 2023.
- Similarly to with production, Iran again has a large proportional increase in consumption, but in this instance China's is bigger, going from close to 0 TWh in 1985, to 4000 TWh in 2023.
- With production, Russia does not have as much fluctuation over time when compared to consumption, and remains fairly steady with a slight but less notable increase over time.
- Similarly to with production, the UK was the only country to show an extended decrease in natural gas consumption after the year 2000.

Question	Part	Marking guidance	Total marks
07		**Examine how aspects of the physical environment can affect the use of EITHER water OR energy.** **Use a CASE STUDY to support your answer.** **AO1** – Knowledge and understanding of a case study of a specified place to illustrate and analyse how aspects of its physical environment affects the way in which either water or energy is used. Knowledge and understanding of the relationship of water supply to key aspects of physical geography – climate geology and drainage. Knowledge and understanding of relationship of energy supply to key aspects of physical geography – climate geology and drainage. **AO2** – Application of knowledge and understanding to examine how aspects of the physical environment can affect the use of either water or energy.	**9** **AO1=4** **AO2=5**

Level	Marks	Descriptor
3	**7–9**	**AO1** – Demonstrates detailed knowledge and understanding of aspects of the physical environment that can affect the use of either water or energy. **AO2** – Applies knowledge and understanding to the novel situation, offering detailed examination, drawn appropriately from the context provided. Connections and relationships between different aspects of study are thorough and relevant.
2	**4–6**	**AO1** – Demonstrates clear knowledge and understanding of aspects of the physical environment that can affect the use of either water or energy. **AO2** – Applies knowledge and understanding to the novel situation, offering clear examination, drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with and relevant.
1	**1–3**	**AO1** – Demonstrates basic knowledge and understanding of aspects of the physical environment that can affect the use of either water or energy. **AO2** – Applies limited knowledge and understanding to the novel situation, offering some basic examination. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and of limited relevance.
0	**0**	No creditable content.

<u>Indicative Content</u>

This question requires specific focus on the case study of a specified place to illustrate and analyse how aspects of its physical environment affects the way in which either water or energy is used. Knowledge of this case study should be applied to examine the different impacts of this. Connections may be made to other parts of the specification if they are relevant, especially the relationships of water or energy supply to key aspects of physical geography, but a case study will need to be linked to this knowledge. There will be a maximum of level 2 if no case study is applied for the answer.

AO1

- Knowledge and understanding of a case study of a specified place to illustrate and analyse how aspects of its physical environment affect the way in which either water or energy is used.
- Knowledge and understanding of the relationship of water supply to key aspects of physical geography – climate geology and drainage.
- Knowledge and understanding of relationship of energy supply to key aspects of physical geography – climate geology and drainage.

AO2

- Examination of how aspects of the physical environment can affect the use of water in a case study, such as the following factors in the Nile Basin:
  - climate and aridity affect the Nile Basin within Egypt in particular. As it has a hot and dry climate with minimal rainfall the Nile River has become the primary source of water for drinking, agriculture, and industry in the country. The lack of rain increases dependence on the river for irrigation
  - the topography affects water usage along the Nile. As it flows through a narrow valley surrounded by deserts, it means that settlements and farming are concentrated along the riverbanks, shaping land use patterns and water distribution
  - water availability and seasonal change can be an issue along the Nile. It used to experience annual floods which naturally irrigated farmland, but also posed a flood risk. However, since the construction of the Aswan High Dam, the Nile's water flow is more regularly controlled, allowing for year-round farming. But, this impacts on sediment deposition, posing a further physical environment challenge
  - the geology of the landscape can impact on groundwater use and access to aquifers within the Nile Basin. In some areas, underground water sources (like the Nubian Sandstone Aquifer) provide additional water. However, the extraction can be costly and unsustainable, making the Nile the more practical water source for use.

- Examination of how aspects of the physical environment can affect the use of energy in a case study, such as the following factors linked to oil extraction in Saudi Arabia:
  - climate is a key factor in Saudi Arabia as it has a hot desert climate with very little rainfall, making water-intensive oil extraction processes more challenging. This leads to the use of seawater desalination to support operations, alongside the potential for development of solar energy as an effective alternative during sunlight hours
  - the topography affects oil exploration and drilling in Saudi Arabia as it has large sections of flat land, making it easier to build and use key drilling infrastructure when compared to mountainous regions. However, transporting oil across vast distances requires extensive pipeline infrastructure due to the large landscapes involved
  - resource availability is another key factor in Saudi Arabia as it sits on some of the world's largest and most easily accessible oil reserves, particularly in the Ghawar Field. This allows for cost-effective extraction and makes the country a leading global oil supplier
  - the geology of the area also affects oil use in Saudi Arabia. The region's sedimentary rock formations, especially limestone and sandstone, have excellent porosity and permeability, making it easier to extract oil for use compared to less porous rock formations in other parts of the world where this is more challenging.

Question	Part	Marking guidance	Total marks
08		**Evaluate the effectiveness of strategies to manage water supply and consumption.** **AO1** – Knowledge and understanding of strategies to manage water consumption, including reducing demand. Knowledge and understanding of components of water demand. Knowledge and understanding of global patterns of water availability and demand. **AO2** – Application of knowledge and understanding to evaluate the effectiveness of strategies to manage water consumption and reduce demand.	**20** **AO1=10** **AO2=10**

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

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

Indicative Content

The question focuses mainly on water security part of the Resource Security specification, with specific reference to strategies to manage water consumption, including reducing demand. Links may well be made to other parts of the water security section, especially components of water demand, as well as possible links to global patterns of water availability and demand within the natural resource issues part of the specification. An answer needs to focus on different strategies to manage water consumption and reduce demand which should be evaluated for their effectiveness. An effective answer will evaluate and compare strategies throughout, but there may also be a conclusion that summarises and provides overall evaluation too.

AO1

- Knowledge and understanding of strategies to manage water consumption, including reducing demand.

- Knowledge and understanding of components of water demand.
- Knowledge and understanding of global patterns of water availability and demand.

AO2

- Evaluation of the effectiveness of strategies to manage supply, such as:
  - recycling and reusing water, such as through wastewater treatment plants and greywater systems, allows water to be used multiple times without reducing overall demand. This approach is highly effective in maintaining supply for industrial, agricultural, and domestic use. However, implementation requires significant investment in infrastructure and public acceptance of treated wastewater for non-potable or even potable uses
  - upgrading ageing water infrastructure and implementing advanced leak detection systems can significantly reduce water loss without affecting consumption. This method is highly effective in preserving available water resources, especially in areas with old or inefficient distribution networks. However, the high costs and time required for maintenance and upgrades can pose challenges for widespread adoption. Upgrading aging water infrastructure and implementing advanced leak detection systems can significantly reduce water loss without affecting consumption. This method is highly effective in preserving available water resources, especially in areas with old or inefficient distribution networks. However, the high costs and time required for maintenance and upgrades can pose challenges for widespread adoption
  - desalination can provide a continuous supply of freshwater from seawater, ensuring that water availability is maintained without reducing consumption. It is particularly useful in arid regions with limited freshwater sources. However, desalination is energy-intensive, expensive, and has environmental concerns related to brine disposal, making it a less sustainable long-term solution unless powered by renewable energy
  - developing more effective reservoir management and increasing water storage capacity helps ensure a steady water supply even during dry periods. By capturing and storing excess water during wet seasons, this strategy can help maintain consumption levels without reducing demand. However, constructing new reservoirs can be costly, environmentally disruptive, and subject to climatic variations that affect water availability.
- Evaluation of the effectiveness of strategies to manage water consumption, such as:
  - water pricing and tariff systems are effective in encouraging conservation and reducing demand by making excessive water use more expensive. By implementing tiered pricing, where higher consumption leads to higher rates, individuals and businesses are encouraged to use water more efficiently. However, this approach can disproportionately affect low-income households, making access to water less affordable. Additionally, its effectiveness depends on proper regulation to prevent unfair pricing practices and ensure that revenue is reinvested into water infrastructure improvements
  - raising awareness through education campaigns can help form behaviour change that promotes responsible water use. These campaigns can include initiatives like encouraging shorter showers, turning off taps while brushing teeth, or promoting rainwater harvesting. While this strategy is cost-effective and can yield significant results over time, its impact is often inconsistent, as it relies on voluntary participation and public engagement. Success depends on effective messaging and outreach efforts tailored to different demographics
  - the adoption of water-efficient technology, such as low-flow toilets, smart irrigation systems, and leak detection sensors, helps reduce water wastage and therefore demand without requiring significant behaviour changes. This strategy is highly effective in the long term, as it leads to consistent water savings and lower utility bills. However, the high initial costs of purchasing and installing these technologies may deter some users, particularly in low-income communities. Encouraging government incentives or subsidies can improve accessibility and accelerate widespread adoption

- government-imposed regulations, such as watering bans, industrial water-use restrictions, and mandatory efficiency standards can lead to immediate reductions in water consumption. These measures are particularly useful in times of drought or crisis when urgent action is required. However, enforcement can be challenging, and excessive restrictions may lead to public resistance, especially if they are perceived as unfair or too strict. To maximize effectiveness, regulations should be combined with incentives and public education to encourage compliance and long-term sustainable water use.

- Evaluation of the effectiveness of strategies may be made throughout the answer, or an overall conclusion may compare strategies and evaluate them overall.

Assessment Objective grid

	AO1	AO2	AO3	Total
Section A				
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
Section 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