GCE A LEVEL MARKING SCHEME

SUMMER 2023

**A LEVEL
GEOGRAPHY - UNIT 3
1110U30-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2023 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCE A LEVEL GEOGRAPHY

UNIT 3 – GLOBAL SYSTEMS AND GLOBAL GOVERNANCE

SUMMER 2023 MARK SCHEME

Guidance for Examiners

Positive marking

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, as opposed to adopting an approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.

The mark scheme for this unit includes both point-based mark schemes and banded mark schemes.

Point-based mark schemes

For questions that are objective or points-based the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision should be made. Each creditworthy response should be ticked in red ink. Do not use crosses to indicate answers that are incorrect. The targeted assessment objective (AO) is also indicated.

Banded mark schemes

For questions with mark bands the mark scheme is in two parts.

The first part is advice on the indicative content that suggests the range of concepts, processes, scales and environments that may be included in the learner's answers. These can be used to assess the quality of the learner's response.

The second part is an assessment grid advising on bands and the associated marks that should be given in responses that demonstrate the qualities needed in the three AOs, AO1, AO2 and AO3, relevant to this unit. The targeted AO(s) are also indicated, for example AO2.1c.

Assessment Objective	Strands	Elements
AO1 Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.	N/A	This AO is a single element.
AO2 Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.	N/A	1a - Apply knowledge and understanding in different contexts to analyse geographical information and issues.
		1b - Apply knowledge and understanding in different contexts to interpret geographical information and issues.
		1c - Apply knowledge and understanding in different contexts to 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.	1 - investigate geographical questions and issues	N/A
	2 - interpret, analyse and evaluate data and evidence	
	3 - construct arguments and draw conclusions	

Banded mark schemes are divided so that each band has a relevant descriptor. The descriptor for the band provides a description of the performance level for that band. Each band contains marks. Examiners should first read and annotate a learner's answer to pick out the evidence that is being assessed in that question. Once the annotation is complete, the mark scheme can be applied. This is done as a two-stage process.

Banded mark schemes Stage 1 – Deciding on the band

When deciding on a band, the answer should be viewed holistically. Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptor for that band. Examiners should look at the descriptor for that band and see if it matches the qualities shown in the learner's answer. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance, if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content.

Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Banded mark schemes Stage 2 – Deciding on the mark

Once the band has been decided, examiners can then assign a mark. During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is also provided for banded mark schemes. Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

The specialised concepts from the specification that apply in the indicative content are underlined.

The mark scheme reflects the layout of the examination paper. Mark questions 1 and 2 and either 3 or 4 in Section A plus questions 5 and 6 and either 7 or 8 in Section B. In Section C, mark either question 9 or 10. If the candidate has responded to all questions in either Section A, B or B, mark all these responses. Award higher marks attained; further possible rubric infringements will be discussed at the marking conference.

Be prepared to reward answers that give **valid and creditworthy** responses, especially if these do not fully reflect the 'indicative content' of the mark scheme.

Section A: Global Systems - Water and Carbon Cycles

1. (a) (i) Use **Figure 1** to calculate the range of the discharge data shown. Skills: 2.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
					1		**1**

Indicative content

highest (July 2007) 1.52 – lowest (July 1975) 0.08 = 1.44 m^3/s (1)

1. (a) (ii) Suggest **one** advantage of using the interquartile range rather than the range to analyse these data. Skills: 2.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
Award 1 mark for each valid point to a maximum of 2 marks					2		**2**

Indicative content

The interquartile range shows the middle 50% of the data (1) which therefore does not include any extremes of data distorting this value (1), unlike the range which includes all data (1)

Marking guidance

Credit other valid points not contained in the indicative content.

1. (b) Describe **one** theory of the formation of precipitation. Content: 3.1.4	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	4						**4**

Indicative content

The two theories of precipitation named in the specification are the collision process and the Bergeron-Findeisen process – candidates may select and describe either process

Bergeron-Findeisen process – ice crystal growth:
- Clouds at high altitude – whose temperature is just below 0°C – contain a mixture of water droplets and ice crystals
- The ice crystals fracture as they are jostled by fast high-altitude air currents. Hexagonal ice shapes develop (with an even larger surface area); more vapour can condense around these larger snowflake shapes, accelerating their rate of growth even further.
- Eventually, the hexagonal snowflakes become too large and dense to be held aloft; in falling to the ground, they pass through warmer air and melt to produce rain.

Collision process – helps to explain rainfall formation in the warm tropics
- 'super-sized' condensation nuclei, such as large sea-salt particles, provide 'seeds' around which water droplets form. These are far heavier and larger than normal-sized droplets
- The larger 'super' droplets fall and collide with smaller droplets by sweeping them into their wake and absorbing them
- The higher terminal velocity of large droplets allows them to overtake and absorb many smaller droplets, thereby causing rapid fusion and raindrop growth to occur.

Marking guidance

Credit other valid points not contained in the indicative content.

Award the marks as follows:

Band	Marks	AO1
3	4	Demonstrates detailed and accurate knowledge and understanding of processes of precipitation formation. Well annotated sketches / diagrams / maps may also be used and should be credited.
2	2-3	Demonstrates mostly accurate knowledge and understanding of processes precipitation formation. Generalised sketches / diagrams / maps may also be used and should be credited.
1	1	Demonstrates limited knowledge and understanding of processes of precipitation formation. Basic sketches / diagrams / maps may also be used and should be credited.
	0	Response not creditworthy or not attempted.

2. (a) Suggest how climate change can impact feedback loops between the water and carbon cycles in areas such as those shown in Figure 2. Content: 3.1.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
				5			5

Indicative content

Candidates are required to study the impact of both positive and negative feedback within and between the water and carbon cycles for life on Earth, including Arctic permafrost thawing, thus recognising how important negative feedback is for balance to be restored and alternatively how positive feedback may accelerate the rate of change beyond a 'tipping point' or threshold of no return.

The question expects an **outline of the impact**, so it is anticipated that candidates will show appreciation of how a positive feedback loop could/would accelerate shrinkage of Arctic permafrost (Figure 2), e.g.:

Warmer air results in melting of sea ice which means less light is reflected (lower albedo) thus resulting in warmer water which is darker in colour and so less reflective than the ice, consequently, absorbing more heat and warming up, which in turn warms the atmosphere through air masses coming into contact with warm water; proximity to the Arctic Ocean results in Arctic permafrost shrinking through thawing.

Marking guidance

The indicative content is not prescriptive and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

Award the marks as follows:		
Band	**Marks**	**AO2.1c**
3	4-5	Suggestions show confident understanding of the impacts on Arctic permafrost of the positive and / or negative feedback loop.
2	2-3	Suggestions show some understanding of the impacts on Arctic permafrost of the positive and / or negative feedback loop. Answer may show some uncertainty at the bottom end.
1	1	Suggestions show partial understanding of the impacts on Arctic permafrost of the (positive and / or negative) feedback loop.
	0	Response not creditworthy or not attempted.

2. (b) Describe the relationship between recent increases in the atmospheric carbon store and the energy budget. Content: 3.1.9	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	5						5

Indicative content

Candidates are expected to demonstrate an understanding of the concept of energy budget, i.e. the net flow of energy into and out of the Earth system and thus to recognise that increasing atmospheric carbon emissions (carbon dioxide and methane) mean that more heat is being radiated back towards the ground surface. The energy budget is therefore changing; more heat is being retained (greenhouse effect), resulting in a warmer, more energetic climate system. Increasing temperature also raises water vapour levels, which further increases temperature. However, there is great uncertainty over the extent and timing of future climate forecasts.

Marking guidance

The indicative content is not prescriptive and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

Award the marks as follows:		
Band	**Marks**	**AO1**
3	4-5	Demonstrates detailed and accurate knowledge and understanding of the relationship between recent increases in the atmospheric carbon store and the energy budget.
2	2-3	Demonstrates mostly accurate knowledge and understanding of the relationship between recent increases in the atmospheric carbon store and the energy budget. Answer may show some uncertainty at the bottom end.
1	1	Demonstrates limited knowledge and understanding of processes of the relationship between recent increases in the atmospheric carbon store and the energy budget.
	0	Response not creditworthy or not attempted.

3. Assess the effectiveness of recharging aquifers to address the deficit within the water cycle. Content: 3.1.5	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			8			**18**

Indicative content

This question requires candidates to demonstrate their ability to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured. The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO1
AO1 content encompasses knowledge and understanding of the complexity of recharging aquifers to address the problem of deficit within the water cycle. Development of this may include:

- Understanding of the causes of depletion of aquifers by extraction as a result of e.g. population growth, agricultural demands, industry
- Understanding that some damage to aquifers may be permanent (e.g. prevention of the London Underground from flooding has resulted in preventing the aquifer from recharging naturally)
- Understanding of a range of methods of artificial recharge of aquifers including: infiltration basins and canals, water traps, cutwaters, surface runoff drainage wells, septic-tank-effluent disposal wells, and diversion of excess flows from irrigation canals into sinkholes
- Appreciation of projects such as Orange County Water District's stabilisation of supplies or China's Grand Canal; similar project in Turkey.

AO2
Candidates demonstrate application of knowledge and understanding through an assessment of the effectiveness methods of recharging aquifers to address the deficit within the water cycle. Responses may include:

- Discussion of changing effectiveness of natural recharge over time – seasonal variations or longer-term climate change (causality, feedback and systems) as compared with artificial recharge which can occur irrespective of season
- Discussion of the limits/opportunities presented by seasonal variation or longer-term climate change (e.g. UK drought of 1975/6; monsoon climates across tropical latitudes) to recharge aquifers (thresholds)
- Discussion relating to the success or failure of the projects used to demonstrate aquifer recharge e.g. Orange County Water District (OCWD) in California which has helped the basin to weather multi-year droughts by stabilising local supplies and has a smaller energy footprint than alternative sources of water (sustainability)
- Discussion that artificial recharge will likely become more important over time as climate change results in increasing water insecurity in arid regions
- Discussion of the necessary dynamic nature of any large-scale initiatives in response to climate change.

Marking guidance

Near the upper end, answers that score highly will show application of knowledge and understanding by **evaluating** complex, interlinked factors, synthesising information, and may come to rational conclusions (dependent on the suggestions that are cited).

Responses in the middle range will show some application of knowledge and understanding to provide some evaluation and synthesis, and may draw partially supported conclusions.

Near the lower end, responses provide very limited application of knowledge and understanding of management of deficit within the water cycle to provide limited evaluation.

Credit other valid approaches.

Award the marks as follows:		
Band	**AO1 (10 marks)**	**AO2.1c (8 marks)**
	Demonstrates knowledge and understanding of the effectiveness of recharging aquifers to address the deficit within the water cycle	*Applies knowledge and understanding to assess the effectiveness of recharging aquifers to address the deficit within the water cycle.*
3	**7-10 marks** Mostly accurate knowledge and understanding of how aquifers may be recharged to address the deficit within the water cycle Developed exemplification Well annotated sketches / diagrams may be used Spelling, punctuation and grammar used with a high degree of accuracy	**6-8 marks** Well-developed and structured assessment of how aquifers may be recharged to address the deficit within the water cycle Well-developed and structured evaluation of the relative importance of natural and artificial recharge of aquifers Well-developed and structured of changing importance over time – seasonal variations or longer-term climate change.
2	**4-6 marks** Partial knowledge and understanding of how aquifers may be recharged to address the deficit within the water cycle Generalised exemplification Simple sketches / diagrams may be used Spelling, punctuation and grammar used with a reasonable degree of accuracy	**4-5 marks** Partial or unbalanced evaluation of how aquifers may be recharged to address the deficit within the water cycle Partial or unbalanced evaluation of the relative importance of natural and artificial recharge of aquifers Partial or unbalanced evaluation of changing importance over time – seasonal variations or longer-term climate change
1	**1-3 marks** Limited knowledge and understanding of the how aquifers may be recharged to address the deficit within the water cycle Limited exemplification. Basic sketches / diagrams may be used. Spelling, punctuation and grammar used with limited degree of accuracy.	**1-3 marks** Limited evaluation of how aquifers may be recharged to address the deficit within the water cycle Limited evaluation of the relative importance of natural and artificial recharge of aquifers Limited evaluation of changing importance over time – seasonal variations or longer-term climate change
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

4. Examine reasons for variations in size of carbon stores in **either** the tropical rainforest **or** temperate grassland biome. Content: 3.1.7	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			8			**18**

Indicative content

This question requires candidates to demonstrate their ability to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured. The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO1
AO1 content encompasses knowledge and understanding of the human and physical factors affecting the size of the carbon store in either the tropical rainforest biome or the temperate grassland biome. Development of this may include:

- Physical factors affecting the plant, animal, litter and soil stores within each biome
- Factors influencing the size of these stores: temperature, precipitation and light (with reference to either the tropical rainforest or temperate grassland biome)
- Changes in the size of carbon stores due to human activity including land use change, in particular as a result of deforestation, afforestation, fire and agricultural activity (with reference to either the tropical rainforest or temperate grassland biome)

AO2
Candidates demonstrate application of knowledge and understanding through an examination of the reasons for the different sizes of carbon store in either the tropical rainforest or temperate grassland biome. Responses may include:

- Discussion of the **relative importance** of physical factors affecting plant, animal, litter and soil stores (adaptation, equilibrium, feedback and resilience)
- Discussion of changing importance over time – seasonal variations or longer-term changes (causality and sustainability)
- Discussion of the **relative importance** of human pressures on biomes (both arguably in NICs and LICs) where pressure from growing populations and growing economies is likely to result in deforestation and agricultural activity increasing rather than afforestation (resilience, thresholds and sustainability)
- Discussion relating to exemplification by projects contradicting this general consensus e.g. Africa's Great Green Wall

Marking guidance

Near the upper end, answers that score highly will show application of knowledge and understanding by **evaluating** complex, interlinked factors, synthesising information, and may come to rational conclusions (dependent on the different causes of recent decreases in the carbon stores of each biome).

Responses in the middle range will show some application of knowledge and understanding to provide some evaluation and synthesis and may draw partially supported conclusions.

Near the lower end, responses provide very limited application of knowledge and understanding of factors affecting sizes of carbon stores to provide limited evaluation.

Credit other valid approaches.

Award the marks as follows:		
Band	**AO1 (10 marks)**	**AO2.1c (8 marks)**
	Demonstrates knowledge and understanding of the factors affecting the different sizes of carbon stores within the tropical rainforest biome or the temperate grassland biome	*Applies knowledge and understanding to appraise through an examination of the physical and human factors affecting the different sizes of carbon stores*
3	**7-10 marks** Mostly accurate knowledge and understanding of the factors affecting the different sizes of carbon stores. Developed exemplification. Well annotated sketches / diagrams may be used. Spelling, punctuation and grammar used with a high degree of accuracy.	**6-8 marks** Well-developed and structured examination of how a range of human and physical factors can affect the carbon store.
2	**4-6 marks** Partial knowledge and understanding of the impact of the factors affecting the different sizes of carbon stores. Generalised exemplification. Simple sketches / diagrams may be used. Spelling, punctuation and grammar used with a reasonable degree of accuracy.	**4-5 marks** Partial or unbalanced examination of how a range of human and physical factors can affect the carbon store.
1	**1-3 marks** Limited knowledge and understanding of the factors affecting different sizes of carbon stores. Limited exemplification. Basic sketches / diagrams may be used. Spelling, punctuation and grammar used with limited degree of accuracy.	**1-3 marks** Limited examination of how a range of human and physical factors can affect the carbon store.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

Section B: Global Governance: Change and Challenges

5. (a) Use **Figure 3** to compare the countries of birth of foreign-born inhabitants in Wales and Scotland. Skills: 2.5	AO1	AO2.1a	AO2.1b	AO2.1c	AO3.1		Total
Allow 1 mark for any of the following points to a maximum of 3 marks. 1 mark may be awarded for accurate data manipulation from the resource.					3		3

Indicative content

Candidates are expected to be able to interpret data displayed in digital images.
- In both Wales and Scotland, the Polish-born communities are the largest foreign-born group (1) however in Scotland there are more than three times as many Polish-born compared to in Wales (1).
- Scotland has a significant Pakistani-born population whereas in Wales there is a significant Philippine-born population (1).

Marking guidance

No credit for direct lift of data
No credit for 'and' used instead of comparison phrase (e.g 'whereas')

5. (b) Describe the causes of **one** international refugee movement. Content: 3.2.4	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	5						5

Indicative content

Candidates are expected to know and understand that the causes of international refugee movements result from geopolitical events driven by powerful states and economic injustice.

Marking guidance

Candidates may describe any recognisable international refugee movement; these are likely to include:
- cause(s) of the conflict in Ukraine
- cause(s) of the Syrian conflict
- cause(s) of the conflict in Afghanistan
- cause(s) of the Rohingya refugee movement
- cause(s) of the refugee movement from the Horn of Africa.
- cause(s) of climate refugees e.g. Tuvalu

Causes are likely to include, amongst other factors: religion, politics, access to resources, culture, ideology and identity as well as climate-related causes.
The indicative content is not prescriptive and candidates are not expected to cover all points for full marks.
Credit other valid points not contained in the indicative content.

Award the marks as follows:		
Band	**Marks**	**AO1**
3	4-5	Demonstrates detailed and accurate knowledge of the complexity of causes of the selected international refugee movement
2	2-3	Demonstrates some knowledge of cause(s) of selected international refugee movement.
1	1	Demonstrates limited knowledge of cause(s) of selected international refugee movement.
	0	Response not creditworthy or not attempted.

6. (a) Explain why the concept of the Global Commons is applicable to the management of the Earth's oceans. Content: 3.2.9	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
				5			5

Indicative content

Candidates are expected to appreciate that large parts of the earth's oceans are a shared space used by all states, that is known as the Global Commons.

Suggestions to answer the question may be constructed around the fact that more than 60 per cent of the oceans are designated as the 'high seas', as such they are beyond national jurisdiction. Thus, in order to manage these areas, a 'supranational' body / organisation is required; UNCLOS performs this role with a dual approach of conservation management and preservation management.

Candidates may present examples identifying where UNCLOS is either successful (applicable) and / or unsuccessful (inapplicable) in its aim to carry out management of the high seas e.g. ocean fisheries, resource exploitation, pollution

Marking guidance

Credit other valid approaches.

	Award the marks as follows:	
Band	**Marks**	**AO2.1c**
3	4-5	Well-developed and structured explanation of why the concept of the Global Commons is applicable to ocean management
2	2-3	Partial or unbalanced explanation of why the concept of the Global Commons is applicable to ocean management
1	1	Limited explanation of why the concept of the Global Commons is applicable to ocean management
	0	Response not creditworthy or not attempted.

6. (b) Outline **one** consequence for poor landlocked countries of unequal access to ocean resources. Content: 3.2.8	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	4						4

Indicative content

Answers are likely to refer to lack of access to the coast for fishing or for trade. Where candidates refer to trade as their chosen consequence, they may highlight that delays at border crossings add to shipment time and that bottlenecks in neighbouring countries' ports, not road quality, are the main reason for trade problems. Poor landlocked countries pay more and wait longer for imported oil, food, and other goods, thus hindering opportunities for economic development.

Candidates may suggest that inequality is a consequence; this opens up opportunities to discuss both fishing and trade within the answer.

Marking guidance

Credit other valid approaches.

Award the marks as follows:		
Band	**Marks**	**AO1**
3	3-4	Demonstrates detailed and accurate knowledge of one consequence for poor landlocked countries of unequal access to ocean resources
2	2	Demonstrates some knowledge of one consequence for poor landlocked countries of unequal access to ocean resources
1	1	Demonstrates limited knowledge of one consequence for poor landlocked countries of unequal access to ocean resources
	0	Response not creditworthy or not attempted.

7. Examine the relative importance of different causes of rural-urban migration in developing countries. Content: 3.2.5	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			8			**18**

Indicative content

This question requires candidates to demonstrate their ability to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.
The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO1
AO1 content encompasses knowledge and understanding of the causes of rural-urban migration in developing countries. Development of this may include:

Push factors in rural areas, including:
- mechanised agriculture resulting in the need for fewer agricultural labourers as a result of land reforms and population growth
- subsistence farmers and indigenous herders who are unable to prove that they own their land are forced to relocate as a result of land grabs by MNCs and cash cropping agribusiness
- the displacement of indigenous peoples by global systems: rural dwellers are increasingly connected by inexpensive mobile devices resulting shared knowledge and perceived opportunities
- transport improvements such as the Trans-Amazonian highway have reduced 'intervening obstacles' to migration

Employment pull factors resulting in millions of people moving from rural to urban areas, particularly in Asia, South America and increasingly in Africa, including:
- the 'global shift' has resulted in global supply chain growth in EPZs and has created many new work opportunities in cities
- MNCs based in developed countries and emerging economies move their factories and back-office functions to lower-wage locations
- MNCs also outsource work to foreign companies where wages are very low

AO2
Candidates demonstrate application of knowledge and understanding through an assessment of the most/least significant cause. Responses may include:

- Examination of the relative importance of a range of push factors as drivers of rural-urban migration
- Examination of the relative importance of a range of pull factors as drivers of rural-urban migration
- Examination of the relative importance of pull factors vis à vis pull factors as drivers of rural-urban migration

Marking guidance

Near the upper end, answers that score highly at will show application of knowledge and understanding by **evaluating** complex, inter-related push and pull factors

Responses in the middle range will show some application of knowledge and understanding to provide some evaluating and synthesis and may draw partially supported conclusions.

Near the lower end, responses provide very limited application of knowledge and understanding of the causes of rural-urban migration.

Credit other valid approaches.

Award the marks as follows:		
Band	**AO1 (10 marks)** *Demonstrates knowledge and understanding of the causes of rural-urban migration in developing countries*	**AO2.1c (8 marks)** *Applies knowledge and understanding to examine the causes of rural-urban migration in developing countries.*
3	**7-10 marks** Mostly accurate knowledge and understanding of the causes of rural-urban migration in developing countries. Developed exemplification. Spelling, punctuation and grammar used with a high degree of accuracy.	**6-8 marks** Well-developed and structured examination of the causes of rural-urban migration in developing countries.
2	**4-6 marks** Partial knowledge and understanding of the impact of the importance of the causes of rural-urban migration in developing countries. Generalised exemplification. Spelling, punctuation and grammar used with a reasonable degree of accuracy.	**4-5 marks** Partial or unbalanced examination of the causes of rural-urban migration in developing countries.
1	**1-3 marks** Limited knowledge and understanding of the importance of the causes of rural-urban migration in developing countries. Limited exemplification. Spelling, punctuation and grammar used with limited degree of accuracy.	**1-3 marks** Limited examination of the causes of rural-urban migration in developing countries.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

8. Examine the success of strategies to achieve effective governance of the Earth's oceans. Content: 3.2.6, 3.2.9 and 3.2.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			8			**18**

Indicative content

This question requires candidates to demonstrate their ability to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.
The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO1
AO1 content encompasses knowledge and understanding of the ways in which global governance of the Earth's oceans is managed. Development of this may include:

• Reference to the post-1945 supranational institutions for global governance including UN and UNESCO, EU, G7/G8, G20, G77 and NATO
• Awareness of laws and agreements regulating the use of the Earth's oceans in ways that promote sustainable economic growth and geopolitical stability
• Reference to the strategic value of the oceans for global superpowers and security issues affecting maritime trade, including the governance of oil transit chokepoints, the Suez and Panama canals and piracy hotspots
• Awareness of connections between places and the lives of people across the globe created by the UK's past role as a maritime power, including the Commonwealth

AO2
Candidates demonstrate application of knowledge and understanding through an assessment of the success of these efforts. Responses may include:

• Examining the relative success of post-1945 supranational institutions in governing the oceans and the changing perspectives on managing the oceans as a global commons (mitigation)
• Examining the changing attitudes towards the oceans and their governance (sustainability)
• Examining the changing awareness of the need for effective governance of oceans considering the strategic value of oceans (mitigation and risk)
• Examining the relative responsibility places on UK (and others) in its past role as a maritime power (mitigation, risk and sustainability).

Marking guidance

Near the upper end, answers that score highly will show application of knowledge and understanding by **evaluating** detailed and possibly interlinked actions, synthesising information, and may come to rational conclusions (dependent on the measures that are discussed).

Responses in the middle range will show some application of knowledge and understanding to provide some discussion and synthesis, and may draw partially supported conclusions.

Near the lower end, responses provide very limited application of knowledge and understanding of measures to achieve effective governance of the Earth's oceans to provide limited evaluation.

Credit other valid approaches.

Award the marks as follows:		
	AO1 (10 marks)	**AO2.1c (8 marks)**
Band	*Demonstrates knowledge and understanding of measures to achieve effective governance of the Earth's oceans*	*Applies knowledge and understanding to appraise through assessing the successes (or failures) of measures to achieve effective governance of the Earth's oceans*
3	**7-10 marks** Mostly accurate knowledge and understanding of measures to achieve effective governance of the Earth's oceans. Developed exemplification. Spelling, punctuation and grammar used with a high degree of accuracy.	**6-8 marks** Well-developed and structured evaluation of the successes of measures to achieve effective governance of the Earth's oceans.
2	**4-6 marks** Partial knowledge and understanding of measures to achieve effective governance of the Earth's oceans. Generalised exemplification. Spelling, punctuation and grammar used with a reasonable degree of accuracy.	**4-5 marks** Partial or unbalanced evaluation of the successes of measures to achieve effective governance of the Earth's oceans.
1	**1-3 marks** Limited knowledge and understanding of measures to achieve effective governance of the Earth's oceans. Limited exemplification. Spelling, punctuation and grammar used with limited degree of accuracy.	**1-3 marks** Limited evaluation of the successes of measures to achieve effective governance of the Earth's oceans.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

Section C: 21ˢᵗ Century Challenges

9. Discuss the view that the causes of changes to the Earth's natural systems are mainly physical. Content focus: 3.1.10, 3.1.4, 3.1.7, 3.2.9, 1.1.9/1.2.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			10	6		**26**

Indicative content

Within the answer to question 9, candidates should use the resources in Figures 4, 5, and 6 and apply their knowledge and understanding from across the whole specification in order to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.
The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO3
Candidate should analyse the resources to analyse changes in the Earth's natural systems and their causes. This may include:
- Analysis of the tipping elements in Earth's natural systems and the varying nature of those changes (Figure 4)
- Analysis of the probable causes of flooding in Pakistan (Figure 5)
- Analysis of the probable causes of overexploitation of corals on the Earth's natural systems (Figure 6)
- Synthesis of the Figures e.g. recognising that changes to the Earth's natural systems are varied and that their causes may be both physical and human (Figures 4, 5 and 6).

AO1
Candidates should demonstrate knowledge and understanding of the causes of changes to Earth's natural systems identified in Figures 4-6 and other issues studied as part of the course. This may link to:
- Water cycle: system and mass balance; change in size of stores over time & both physical and human processes which control stores and transfers within the system (risk, sustainability and thresholds)
- Carbon cycle: system and mass balance; changes in the size of the carbon store as a result of human activity (risk, sustainability, systems and thresholds)
- Links between the water and carbon cycle: causes and impacts of recent increases in the atmospheric carbon store at a range of scales (risk, systems, sustainability and thresholds)
- Governance of oceans: managing marine environments, pollution and overexploitation of earth's natural systems by humans, strategies to manage ocean pollution at a range of scales leading to positive changes (flows, sustainability thresholds, interdependence and systems)
- Changing places: place meanings; the impacts of industrial activity on Earth's natural systems (risk, systems, sustainability and thresholds)
- Tectonics: environmental impacts of volcanic eruptions at a range global scale (interdependence, risk and sustainability).

AO2
Candidates should demonstrate application of knowledge and understanding through discussion of the relative importance of both physical and human causes of changes to the Earth's natural systems. This may include:
- Discussion of the degree to which the causes of identified changes are mainly physical/human
- Discussion of whether climate change is an entirely physical or human cause of change
- Discussion of whether the natural processes embedded within the water and carbon cycles have the ability to mitigate against human activity resulting in global warming
- Discussion of whether human initiatives and management strategies can address some of these changes leading to positive changes (mitigation).

The question requires progress beyond explaining changes and causes. At the upper end, answers that score highly will show application of knowledge and understanding by evaluating the relative causes of changes in Earth's natural systems, synthesising information, and coming to **rational conclusions** which draw across the Specification.

Responses in the middle range will show some application of knowledge and understanding to provide some evaluation and synthesis from across the Specification, prior to drawing **partially supported conclusions**.

Lower end responses will provide very limited application of knowledge and understanding of the causes of changes to Earth's natural systems to provide little evaluation.

Credit any other valid approaches.

Award the marks as follows:			
Band	**AO1 (10 marks)** *Knowledge and understanding of the causes of changes to Earth's natural systems.*	**AO2.1c (10 marks)** *Apply AO2.1c to evaluate the relative importance of both physical and human causes of changes to the Earth's natural systems.*	**AO3 (6 marks)** *Apply AO3 to analyse changes in the Earth's natural systems and their causes*
3	**8-10 marks** Mostly accurate knowledge and understanding of the causes of changes to Earth's natural systems. Developed exemplification.	**8-10 marks** Well-developed and structured evaluation of the relative importance of both physical and human causes of changes to the Earth's natural systems.	**5-6 marks** Well-developed analysis of changes in the Earth's natural systems and their causes in Figures 4-6. Detailed use of data. Spelling, punctuation and grammar used with a high degree of accuracy.
2	**4-7 marks** Partial knowledge and understanding of the causes of changes to Earth's natural systems. Generalised knowledge of examples.	**4-7 marks** Partial or unbalanced evaluation of the relative importance of both physical and human causes of changes to the Earth's natural systems.	**3-4 marks** Partial or unbalanced analysis of changes in the Earth's natural systems and their causes in Figures 4-6. Generalised use of data. Spelling, punctuation and grammar used with a reasonable degree of accuracy.
1	**1-3 marks** Limited knowledge and understanding of the causes of changes to Earth's natural systems. Limited exemplification.	**1-3 marks** Limited evaluation of the relative importance of both physical and human causes of changes to the Earth's natural systems.	**1-2 marks** Limited analysis of changes in the Earth's natural systems and their causes in Figures 4-6. Limited or no use of data. Spelling, punctuation and grammar used with limited accuracy.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

10. Discuss the view that resilience to changes in the Earth's natural systems varies from place to place. Content focus: 3.1.10, 3.1.4, 3.1.7, 3.2.9, 1.1.9/1.2.10	AO1	AO2.1a	AO2.1b	AO2.1c	AO3		Total
	10			10	6		26

Indicative content

Within the answer to question 10, candidates should use the resources in Figures 4, 5, and 6 and apply their knowledge and understanding from across the whole specification in order to develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.
The indicative content is not prescriptive, and candidates are not expected to cover all points for full marks. Credit other valid points not contained in the indicative content.

AO3
Candidate should analyse the resources to analyse changes in the Earth's natural systems and degrees of resilience to those changes. This may include:
- Analysis of the tipping elements in Earth's natural systems and the varying nature of those changes (Figure 4)
- Analysis of the extent of Pakistan's resilience to flooding (Figure 5)
- Analysis of the extent of the Port Elizabeth Corals' resilience to overfishing and pressure of ecotourism (Figure 6)
- Synthesis of the Figures e.g. recognising varying global resilience (Figures 4, 5 and 6).

AO1
Candidates should demonstrate knowledge and understanding of changes and resilience to changes in Earth's natural systems identified in Figures 4-6 and other issues studied as part of the course. This could link to:
- Water and carbon cycle: the uneven impacts of recent increases in the atmospheric carbon store on the water cycle and oceans: amount, type and patterns of precipitation, extreme weather, river discharge, sea level rise, acidification of the oceans (<u>risk</u>, <u>sustainability</u> and <u>thresholds</u>) and how communities can be resilient to these changes
- Governance of oceans: the uneven impacts of climate change on indigenous people in coastal areas (<u>sustainability</u> and <u>interdependence</u>) and how communities can be resilient to these changes
- Changing places: place meanings; the uneven impacts of climate change on the characteristics of place (<u>sustainability</u> and <u>risk</u>) and how communities can be resilient to these changes
- Coasts / glaciation: the impact of human activity on coastal / glacial landscapes (<u>sustainability</u> and <u>risk</u>) and how communities can be resilient to these changes

AO2
Candidates should demonstrate application of knowledge and understanding through evaluation of the extent to which resilience to changes to Earth's natural systems varies from place to place. Responses may include:
- Evaluation of whether resilience to changes in Earth's natural systems varies spatially and at different scales e.g. ability to deal with the impacts of climate change in HICs / NICs / LICs or at a more local scale
- Evaluation of whether resilience to changes in Earth's natural systems varies in accordance with the nature or extent of the change
- Evaluation of the role of institutions of global governance on the unequal distribution of the impacts of climate change and resilience to these changes
- Evaluation of whether the impacts of changes in Earth's natural systems may present opportunities for the physical environment to e.g. more profitable and abundant food supply in addition to the challenges.

Marking guidance

The question requires candidates to progress beyond explaining changes and possible measures to improve resilience. At the upper end, answers that score highly will show application of knowledge and understanding by evaluating the extent to which resilience varies from place to place, synthesising information and coming to **rational conclusions** which draw across the Specification.

Responses in the middle range will show some application of knowledge and understanding to provide some evaluation and synthesis from across the Specification, prior to drawing **partially supported conclusions**.

Lower end responses provide very limited application of knowledge and understanding of the extent to which resilience varies from place to place to provide limited evaluation.

Credit any other valid approaches.

	AO1 (10 marks)	**AO2.1c (10 marks)**	**AO3 (6 marks)**
Band	*Knowledge and understanding of changes and resilience to changes in the Earth's natural systems.*	*Apply AO2.1c to assess whether resilience varies from place to place*	*Apply AO3 to analyse changes in the Earth's natural systems and degrees of resilience to those changes. presented in Figures 4-6*
3	**8-10 marks** Mostly accurate knowledge and understanding of changes and resilience to changes in the Earth's natural systems. Developed exemplification.	**8-10 marks** Well-developed and structured assessment of whether resilience varies from place to place	**5-6 marks** Well-developed analysis of changes in the Earth's natural systems and degrees of resilience to those changes. presented in Figures 4-6 Detailed use of data. Spelling, punctuation and grammar used with a high degree of accuracy.
2	**4-7 marks** Partial knowledge and understanding of changes and resilience to changes in the Earth's natural systems. Generalised knowledge of examples.	**4-7 marks** Partial or unbalanced assessment of the nature of whether resilience varies from place to place	**3-4 marks** Partial or unbalanced analysis of changes in the Earth's natural systems and degrees of resilience to those changes. presented in Figures 4-6 Generalised use of data. Spelling, punctuation and grammar used with a reasonable degree of accuracy.
1	**1-3 marks** Limited knowledge and understanding of changes and resilience to changes in the Earth's natural systems. Limited exemplification.	**1-3 marks** Limited assessment of the nature of whether resilience varies from place to place	**1-2 marks** Limited analysis of changes in the Earth's natural systems and degrees of resilience to those changes. presented in Figures 4-6 Limited or no use of data. Spelling, punctuation and grammar used with limited accuracy.
	0 marks Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.	**0 marks** Response not creditworthy or not attempted.

Award the marks as follows:

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