GCSE MARKING SCHEME

SUMMER 2022

GCSE
GEOGRAPHY SPECIFICATION A
COMPONENT 1
C111U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2022 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.

GCSE GEOGRAPHY SPEC A – COMPONENT 1

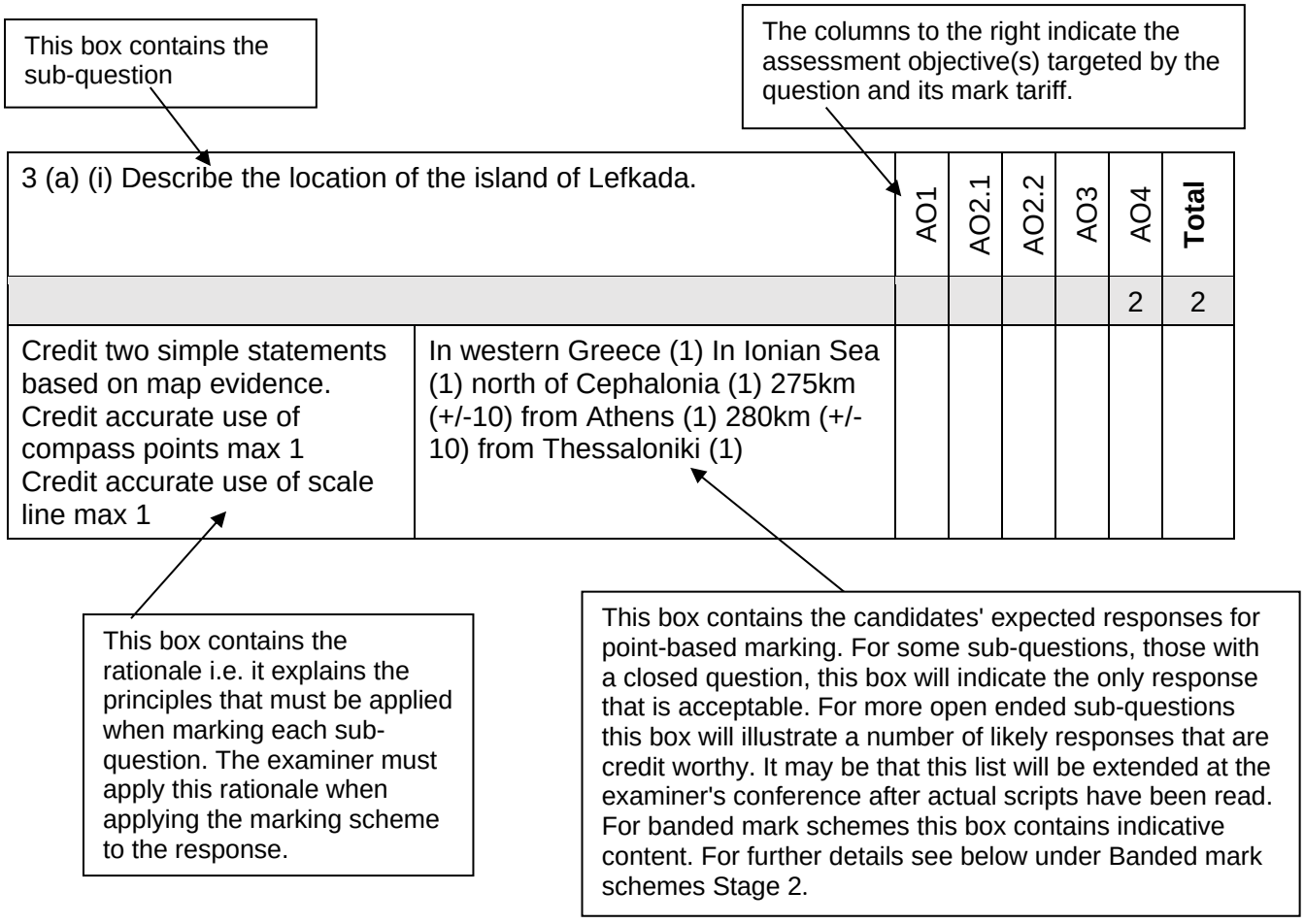
SUMMER 2022 MARK SCHEME

Instructions for examiners of GCSE Geography when applying the marking scheme

1. Positive marking

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, rather than adopting the 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.

GCSE Geography marking schemes are presented in a common format as shown below:



3 (a) (i) Describe the location of the island of Lefkada.		AO1	AO2.1	AO2.2	AO3	AO4	**Total**
						2	2
Credit two simple statements based on map evidence. Credit accurate use of compass points max 1 Credit accurate use of scale line max 1	In western Greece (1) In Ionian Sea (1) north of Cephalonia (1) 275km (+/-10) from Athens (1) 280km (+/-10) from Thessaloniki (1)						

2. Tick marking

Low tariff questions should be marked using a points-based system. Each credit worthy response should be ticked in red pen. The number of ticks must equal the mark awarded for the sub-question. The mark scheme should be applied precisely using the expected outcomes box as a guide to the responses that are acceptable. Do **not** use crosses to indicate answers that are incorrect. If the candidate has not attempted the question, then the examiner should enter a dash (-) or use the not attempted icon on E-marker.

3. Banded mark schemes

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. **Do not use ticks** on the candidate's response. Once the annotation is complete, the mark scheme can be applied. This is done as a two-stage process.

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.

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.

Core Theme 1 – Question 1

(a) (i) Name one National Park in the south-west of England.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					1		**1**

Credit **one** valid response.	Exmoor (1) Dartmoor (1)

(a) (ii) Circle the correct answer in the statement below.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					1		**1**

Credit this response only.	20% (1)

(a) (iii) Describe the location of the Yorkshire Dales National Park within England.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					3		**3**

Credit **three** valid responses for one mark each.	Northern/NW England (1) close to the Lake District NP/close to 2 or 3 other NPs/between Lake District and North Yorkshire Moors (1) direction from specified location (1) distance from specified city e.g Leeds is between 25km and 50km away (1)

(a) (iv) Explain why too many visitors at honeypot sites is an important issue.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
		4					**4**

This question assesses AO2.1, geographical concepts (in this case the concept of honeypot sites).
Use the descriptors below, working upwards from the lowest band.

Band	Mark	Descriptor
2	3-4	Understanding demonstrated through elaborated understanding.
1	1-2	Simple valid statements demonstrate basic understanding.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

As honeypot sites attract large numbers of visitors many issues arise. These include litter, congestion, lack of parking and footpath erosion. These issues become more acute when the number of visitors exceeds the carrying capacity and activities begin to damage the landscape.

Honeypot sites need careful management but the cost of footpath restoration, for example, can be very expensive.

(b) (i) Give the lag time for river B.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					1		**1**

Credit this response only.	13 hours (1)

(b) (ii) State two differences, other than lag time, between the discharge for river A and river B.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					2		**2**

Credit **two** valid statements for one mark each. Accept converse but do not double credit.	The rising limb is steeper for river A/discharge increases quicker (1) The peak discharge is higher for river A (1) The falling limb is steeper for river A/discharge decreases quicker (1)

(b) (iii) Give two other factors that can affect the lag time	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	2						**2**

Credit **two** valid statements for one mark each. Do not credit impermeable surfaces (it needs to be named)	Examples may include reference to: soil type (1) specific type of weather/climate (1) vegetation (1) urbanisation/tarmac/concrete (1) farmland use (1) size of drainage basin (1) relief of the land (1) There may be a number of factors within these that could be credited – as long as they are different. Eg heavy rainfall (1) persistent rainfall (1)

(b) (iv) Explain why impermeable surfaces can increase the risk of river flooding.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
			6				**6**

This question assesses AO2.2, inter-relationships (in this case between physical and/or human factors and river flooding).
Use the descriptors below, working upwards from the lowest band.

Band	Marks	Descriptor
3	5-6	Thorough and elaborated understanding of the links between physical and/or human factors and river flooding. Depth of understanding is demonstrated through chains of reasoning.
2	3-4	Elaborated understanding of some of the links between the factors and river flooding.
1	1-2	Simple, valid statements demonstrate basic understanding.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

Impermeable surfaces result in rapid runoff into rivers thus increasing the risk of flooding.

Impermeable rocks have few pore spaces or joints so there is less infiltration and groundwater storage and more overland flow.
If the ground is hard and baked dry, intense rainfall cannot soak into the ground quickly enough so runs overland instead.
If the ground is frozen when snow melts water cannot infiltrate the soil and when the ground is saturated after a long period of rain it cannot absorb any more water.

In urban areas paving over the soil creates an impermeable surface and reduces infiltration. Large areas are also covered with tarmac and buildings.

Arable fields, comparatively bare during the winter months, reduces interception and increases surface runoff.

(c) (i) Identify the landform in the photograph.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	1						**1**

Credit this response only.	V-shaped valley (1)

(c) (ii) Complete the following paragraph by selecting the correct term from the box below.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	3						**3**

Credit these responses only.	vertically (1) angular (1) attrition (1)

(c) (iii) Describe how large rocks/boulders can be transported downstream by a process of fluvial (river) transportation.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	2						**2**

Credit **one** response and its development for a further mark.	The bed load rolls along in contact with the river bed (1) in high energy river channels (1) by traction (1)

(d) Analyse the different factors that may be responsible for the rate of landform change along this coastline. Use evidence from the resource box to support your answer.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
				8			**8**

Use the descriptors below, working upwards from the lowest band.

Band	Marks	Descriptor
4	7-8	Exceptional application of knowledge and understanding. Comprehensive chains of reasoning provide sophisticated analysis.
3	5-6	Thorough application of knowledge and understanding. Chains of reasoning provide elaborated analysis.
2	3-4	Sound application of knowledge and understanding. Some connections provide valid but limited analysis.
1	1-2	Some basic application of knowledge and understanding. Basic analysis
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

This question requires candidates to apply their prior knowledge and understanding to interpret and analyse information about a novel locality. Elements (a) and (b) of AO3 are targeted. **No evaluation nor judgement** is required.

Responses should use evidence from the resources (map and photographs) to focus on a range of factors which are responsible for the rate of landform change.

This coastline is made up of a series of headlands and bays created by differential erosion. The headlands are formed of resistant (harder) rock, while the bays are often composed of unconsolidated sands. The rate of erosion of these headlands depends on rock structure. Lines of weakness can be eroded more rapidly by processes such as hydraulic action to eventually form caves, arches and stacks.
Human intervention such as building groynes can have unintended consequences. They trap sediment and beaches along the coast may be starved of new sand and natural protection is lost. Cliffs formed of weak rocks are prone to slumps and slides.

Other possible lines of argument may be credited.

Core Theme 2 – Question 2

(a) (i) Calculate the range in this dataset.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	Total
					2		**2**

Credit working for **one** mark. Credit this response only for **one** mark.	19,400 – 14,900 (1) 4,500 (1)

(a) (ii) State one way in which the interquartile range may be a more appropriate measure of dispersion.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	Total
					1		**1**

Credit **one** valid response. Answer must relate to dispersion not measures of central tendency	It is not sensitive to outliers (1) It only shows the range in the central 50% (1)

(a) (iii) Calculate the percentage of people who commuted out of the county in 2019.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	Total
					2		**2**

Credit working for **one** mark. Credit this response only for **one** mark.	16,800 ÷ 66,400 x 100 (1) = 25.3% (1) accept 25%

(a) (iv) Describe two ways in which counter-urbanisation has affected patterns of commuting in the UK.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	Total
	4						**4**

Credit **two** valid statements for one mark each and up to two developments for further marks. (1 + 1) (1 + 1) (1 + 1 + 1) +1	• In some areas the number of people commuting has increased (1) as more people move out of some cities (1) • Average commuting distances has increased (1) as examples of extreme commuters are more common (1) • Commuting times have also increased (1) • Other people only commute occasionally (1) preferring to work from home from their rural homes (1)

(b) (i) Grid square 4912 is the town centre of Shrewsbury. Give one piece of evidence which shows this.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					1		**1**

Credit **one** valid response.	railway station (1) bus station (1) churches (1) information centre (1) museum (1) main roads converge (1)

(b) (ii) Give one reason why this location was chosen for Park and Ride. Use map evidence.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					2		**2**

Credit **one** response and its development for a further mark. Development could also be further map evidence e.g. distance	close/alongside main road (1) A458 (1) *so accessible to the town centre (1)* *to reduce congestion in centre* (1) on the outskirts (1) 4/5km from centre (1) plenty of space (1) flat land (1) *contours far apart* (1)

(b) (iii) Some retailers choose out of town sites for their stores. Explain why.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
		4					**4**

Credit four valid reason(s) for one mark each or reason(s) with up to three developments for further marks.	plenty of room (1) for customer parking/free parking (1) plenty of room for floor space/expansion (1) close to good road links/ring roads (1) access to more customers (1) access for deliveries (1) consumers can visit several stores (1) more profit (1) land may have been cheaper to buy/lower rates (1)

(b) (iv) Explain why brownfield sites are often preferred as locations for new retail developments.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
		6					**6**

This question assesses AO2.1, geographical concepts (in this case the concept of developing brownfield sites).

Use the descriptors below, working upwards from the lowest band.

Band	Marks	Descriptor
3	5-6	Thorough and elaborated understanding of the reasons. Depth of understanding is demonstrated through chains of reasoning.
2	3-4	Elaborated understanding of some of the reasons.
1	1-2	Simple, valid statements demonstrate basic understanding of the reasons.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

Brownfield sites are often derelict and are an eyesore. Development of these sites improves the environment and leads to the regeneration of run-down areas of towns and cities.
Furthermore, it is potentially easier to acquire planning permission and/or receive grants from local councils or central government.
Developments are less likely to meet with opposition (NIMBYism) as greenbelt sites are more likely to be protected.
There is often infrastructure such as roads and services (electricity, sewage and water) in place which makes it cheaper to develop.
If new homes are also built as part of a wider development, it is possible to create sustainable communities on brownfield sites. Consumer demand from town centre/inner city residents

(c) (i)What are global cities?	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					1		**1**

Credit this response only	Cities which are well connected with the rest of the world (1)

(c) (ii) Give three ways in which a global city you have studied is connected to its wider city-region.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	3						**3**

Credit up to **three** valid statements for one mark each. Do not credit international connections Max 2 marks if no specific knowledge and/or global city named.	e.g. Cardiff used regularly for work, shopping and entertainment (1) home to the Welsh Government (1) which is responsible for education, health and the economy for the whole of Wales (1) well connected by road and rail (1)

(c) (iii) Providing housing is a current urban challenge in many LICs and NICs. Slum clearance is the best solution to this challenge. How far do you agree?	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
				8		4	**12**

Use the descriptors below, working upwards from the lowest band.

Band	Marks	Descriptor
4	7-8	Exceptional application of knowledge and understanding. • Comprehensive chains of reasoning provide sophisticated analysis. • Balanced and coherent appraisal draws together wider geographical understanding to justify decision.
3	5-6	Thorough application of knowledge and understanding. • Chains of reasoning provide elaborated analysis. • Balanced appraisal draws together wider geographical understanding to support decision.
2	3-4	Sound application of knowledge and understanding. • Some connections provide valid but limited analysis. • Limited appraisal uses wider geographical understanding to support decision.
1	1-2	Some basic application of knowledge and understanding. • Basic level of meaning ascribed to the information/issue. • Limited and weak appraisal uses some wider geographical understanding to support decision.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

This question requires candidates to synthesise links between different areas of knowledge and understanding to analyse and evaluate the need for new housing in LICs and NICs.
All elements of AO3 are targeted.

Responses will also ascribe specific meaning to interpret and analyse the resources (novel information) before evaluating the evidence and making a judgement.

Candidates should develop lines of argument about one solution to the urban challenge of providing housing in LICs/NICs.

They may agree with slum clearance because:
slums are not fit for purpose as they are overcrowded, lack electricity, sewage disposal and clean water which results in diseases such as cholera, typhoid and dysentery;
redevelopment projects create jobs on construction sites and provide low-cost homes;
NICs have the means to promote urban renewal.

They may disagree because:
push factors continue to push large numbers of people away from rural areas;
the informal sector is thriving in the slums contributing money to the economy and provide a recycling service;
self-help schemes encourage improvement projects which are supported by NGOs;
key decisions are usually made by local politicians only
More housing for emerging middle class/professionals needed

Once a mark (out of 8) has been awarded for the geographical content, apply the performance descriptors for spelling, punctuation and the accurate use of grammar and specialist terms that follow.

Band	Mark	Performance descriptions
High	4	• Learners spell and punctuate with consistent accuracy • Learners use rules of grammar with effective control of meaning overall • Learners use a wide range of specialist terms as appropriate
Intermediate	2–3	• Learners spell and punctuate with considerable accuracy • Learners use rules of grammar with general control of meaning overall • Learners use a good range of specialist terms as appropriate
Threshold	1	• Learners spell and punctuate with reasonable accuracy • Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall • Learners use a limited range of specialist terms as appropriate
	0	• The learner writes nothing • The learner's response does not relate to the question • The learner's achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning

Option Theme 3 - Question 3

(a) (i) Why was a histogram selected to present this data.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					2		**2**

Credit **two** valid statements **or** one which is developed.	continuous data (1) grouped data/ ranges (1) equal intervals (1) shows frequency (1)

(a) (ii) Stratovolcanoes usually have a VEI of 3 and above. Give two reasons why stratovolcanoes are dangerous.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
			4				**4**

Credit **two** valid reasons for one mark each and up to two developments for further marks. (1+1) (1+1) (1+1+1) + 1 Impacts (such as deaths/injuries/property damage) can be credited as a development only.	They are powerful (1) formed where the magma contains a lot of gas (1) *this gives the lava high viscosity allowing gas pressure to build up / explosive lava* (1) They are associated with a number of volcanic hazards including ash clouds (1) *ash particles are sharp and abrasive and if sucked into the engine of a passenger jet it can cause its engines to fail* (1) They are associated with a number of volcanic hazards including lahars (1) *lahars are fast moving clouds of super-heated gas, ash and rock* (1) Accept references to pyroclastic flows / tephra / volcanic bombs.

(b) Give two ways in which hazard mapping can reduce the risks associated with volcanic eruptions.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	2						**2**

Credit **two** valid statements for one mark each.	Warning of extreme events given (1) People know which areas can be affected (1) Emergency services have a plan of action (1) Can be used to plan evacuation routes (1) Limits access (1) Helps controls developments (1) Used on land and sea (1)

(c) 'Social and economic factors are more significant than physical factors in making the Philippines more vulnerable to the impacts of volcanic eruptions.' How far do you agree with this statement?	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
				8			**8**

Use the descriptors below to work upwards from the lowest band.

Band	Marks	Descriptor
4	7-8	Exceptional application of knowledge and understanding. • Comprehensive chains of reasoning provide sophisticated analysis. • Balanced and coherent appraisal draws together wider geographical understanding to justify decision.
3	5-6	Thorough application of knowledge and understanding. • Chains of reasoning provide elaborated analysis. • Balanced appraisal draws together wider geographical understanding to support decision.
2	3-4	Sound application of knowledge and understanding. • Some connections provide valid but limited analysis. • Limited appraisal uses wider geographical understanding to support decision.
1	1-2	Some basic application of knowledge and understanding. • Basic level of meaning ascribed to the information/issue. • Limited and weak appraisal uses some wider geographical understanding to support decision.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

This question requires candidates to synthesise links between different areas of knowledge and understanding to analyse and evaluate vulnerability.
All elements of AO3 are targeted.

Responses will ascribe specific meaning to interpret and analyse the resources (novel information) before evaluating the evidence and making a judgement.

Candidates should develop lines of argument about the significance of social and economic factors as opposed to physical factors.

They may agree because:
the country, although a NIC, has only a middle income status, which means that monitoring, hazard mapping and emergency planning may be weak;
the population density is high, especially in urban areas with people living in informal housing;
poverty and inequality still exists;
educating people about what to do during an eruption is a challenge;
many people live in dangerous locations.

They may disagree because the risk to people depends on a number of physical factors including:
the proximity to plate boundaries;
type of plate boundary;
magnitude of the event;
the characteristics of the eruption.

They may come to the conclusion that physical and human factors are equally important and interrelated.

Option Theme 4 - Question 4

(a) (i) Why was a histogram selected to present this data.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
					2		**2**

Credit **two** valid statements **or** one which is developed.	continuous data (1) grouped data (1) equal intervals (1) shows frequency (1)

(a) (ii) Give two reasons why powerful storms increase vulnerability to coastal erosion.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
			4				**4**

Credit **two** valid reasons for one mark each and up to two developments for further marks. (1+1) (1+1) (1+1+1) + 1	Increase wave energy/size (1) hasten the processes of hydraulic action and abrasion (1) *which can modify landforms* (1) hasten erosion at the foot of a cliff (1) *which can lead to sudden rock falls or landslides* (1)

(b) Give two ways in which hazard mapping can reduce the risks associated with coastal flooding.	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
	2						**2**

Credit **two** valid statements for one mark each.	warning of extreme weather events is given (1) people know which areas can be affected (1) emergency services have a plan of action (1) can be used to plan evacuation routes (1) helps control developments (1)

(c) 'Social and economic factors are more significant than physical factors in making the Philippines more vulnerable to the impacts of coastal flooding.' How far do you agree with this statement?	AO1	AO2.1	AO2.2	AO3	AO4	SPaG	**Total**
				8			**8**

Use the descriptors below to work upwards from the lowest band.

Band	Marks	Descriptor
4	7-8	Exceptional application of knowledge and understanding. • Comprehensive chains of reasoning provide sophisticated analysis. • Balanced and coherent appraisal draws together wider geographical understanding to justify decision.
3	5-6	Thorough application of knowledge and understanding. • Chains of reasoning provide elaborated analysis. • Balanced appraisal draws together wider geographical understanding to support decision.
2	3-4	Sound application of knowledge and understanding. • Some connections provide valid but limited analysis. • Limited appraisal uses wider geographical understanding to support decision.
1	1-2	Some basic application of knowledge and understanding. • Basic level of meaning ascribed to the information/issue. • Limited and weak appraisal uses some wider geographical understanding to support decision.
	0	Award 0 marks if the answer is incorrect or wholly irrelevant.

This question requires candidates to synthesise links between different areas of knowledge and understanding to analyse and evaluate vulnerability.
All elements of AO3 are targeted.

Responses will ascribe specific meaning to interpret and analyse the resources (novel information) before evaluating the evidence and making a judgement.

Candidates should develop lines of argument about the significance of social and economic factors as opposed to physical factors.

They may agree because:
the country, although a NIC, has only a middle income status, which means that monitoring, hazard mapping and emergency planning may be weak;
building flood walls and other coastal defences is expensive;
the population density is high, especially in urban areas with people living in informal housing;
many large cities have low elevation coastal locations;
poverty and inequality still exists;
educating people about what to do during a flood is a challenge.

They may disagree because the risk to people depends on a number of physical factors including:
the magnitude of storm events;
climate change resulting in warmer seas which means more storms and rising sea levels.

They may come to the conclusion that physical and human factors are equally important and interrelated.