Pearson Edexcel

Mark Scheme (Final)

Summer 2023

Pearson Edexcel International Advanced Subsidiary Level In Geography (WGE01)
Paper 01
Unit 1: Global Challenges

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2023
Question Paper Log Number: P72576A
Publications Code: WGE01_01_2306_MS

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Using the Mark Scheme

Examiners should look for qualities to reward rather than faults to penalise. This does NOT mean giving credit for incorrect or inadequate answers, but it does mean allowing candidates to be rewarded for answers showing correct application of principles and knowledge. Examiners should therefore read carefully and consider every response: even if it is not what is expected it may be worthy of credit.

The mark scheme gives examiners:
- an idea of the types of response expected
- how individual marks are to be awarded
- the total mark for each question
- examples of responses that should NOT receive credit.

/ means that the responses are alternatives and either answer should receive full credit.
( ) means that a phrase/word is not essential for the award of the mark, but helps the examiner to get the sense of the expected answer.

Phrases/words in **bold** indicate that the meaning of the phrase or the actual word is **essential** to the answer.
ecf/TE/cq (error carried forward) means that a wrong answer given in an earlier part of a question is used correctly in answer to a later part of the same question.

Candidates must make their meaning clear to the examiner to gain the mark. Make sure that the answer makes sense. Do not give credit for correct words/phrases which are put together in a meaningless manner. Answers must be in the correct context.

Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:
- write legibly, with accurate use of spelling, grammar and punctuation in order to make the meaning clear
- select and use a form and style of writing appropriate to purpose and to complex subject matter
- organise information clearly and coherently, using specialist vocabulary when appropriate.

Full marks will be awarded if the candidate has demonstrated the above abilities.
Questions where QWC is likely to be particularly important are indicated (QWC) in the mark scheme, but this does not preclude others.

Question Number	Answer Define the term ' hazard hotspot' (1.3.2.2)	Mark
1 a (i)	AO1 (1 mark) • An area that is vulnerable to two or more hazards • An area where multiple hazards take place	**(1)**

Question Number	Answer – Explain one reason why the Philippines is affected by tropical cyclones. (1.3.1.2)	Mark
1 a (ii)	A02 (2 marks) Award 1 mark for a reason for the Philippines being affect by tropical cyclones, with a further mark for an extension point. Maximum 2 marks. • The Philippines sits below the Tropic of Cancer (1) meaning it receives more solar radiation warning ocean temperatures above 27°c (1) • The Philippines sits on a storm track (1) meaning it is affected regularly by tropical cyclones (1) • Philippines sits in the Pacific Ocean (1) with temperatures above 27°c allowing for high levels of evaporation (1) • The Philippines' location has enough Coriolis force (1) to create rotating winds over the ocean's surface (1) • The Philippines faces the Western Pacific (1) with limited land mass to absorb the energy of storms before they make landfall (1) Accept other correct explanations. NB: Do not accept answers focussed on human vulnerability	**(2)**

Question Number	Answer – Suggest one reason why the Philippines experiences high economic losses from volcanic eruptions (1.3.2.2)	Mark
1 a (iii)	AO1 (2 mark) Award 1 mark for identifying a reason why Philippines has high economic losses and a further expansion mark up to a maximum of 2 marks. • The Philippines may lack resources to rebuild and respond leading to reliance on other countries (1) this may cause them to be in debt (1) • A volcanic event could lead to a reduction in tourists visiting (1) meaning the loss of income for associated businesses (1) • A high proportion of the Philippines population are employed in agriculture (1/3rd) (1) volcanic eruptions can reduce the economic output of this economic sector (1) • Volcanic eruptions can lead to the destruction of forests by lahars and lava flows (1) which can reduce the sales of timber/require the planting of new plantations (1)	**(2)**

	• Ash fall from the volcanic eruptions can damage crops, livestock and fisheries (1) reducing the amount of exports/increasing the need of imports (1) • In the wake of volcanic eruptions, the cost of rebuilding infrastructure and buildings is high (1) potentially resulting in disaster fatigue due to the multi-hazard nature of the Philippines (1) • The Philippines contains high amounts of global businesses in Manila (1) so volcanic eruptions could lead to a loss of economic growth in these sectors (1). Accept other correct explanations.	

Question Number	Answer Explain why earthquakes occur at convergent plate boundaries (1.3.1.1)	Mark
1 b	AO1 (4 marks) Award 1 mark for a basic explanation and a further mark for a development of the explanation. • When a continental plate meets an oceanic plate at a destructive plate boundary (1) the thinner and denser oceanic plate sinks beneath the continental plate (1). • As the plate subducts there is a high amount of friction causing the plates to lock (1). This friction is converted to kinetic energy when the plates slip, releasing a large amount of energy as an earthquake (1). • When a continental plate meets a continental plate at a collision plate boundary (1) one plate crumples upwards over the other instead of being subducted (1). The movement creates high amounts of friction causing the plates to lock (1). • Friction at a collision plate boundary is converted to kinetic energy when the plates slip, releasing a large amount of energy as an earthquake (1). Accept other correct explanations.	**(4)**

Question number	Answer Explain why regional droughts can have unusually large human and economic impact (1.3.2.3)	Mark
1 (c)	**AO1 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:	**(6)**

	• Regional droughts can result in reduced agricultural output, therefore reducing the capacity to export agricultural goods, reducing GDP. • Reduced water availability for households can reduce the health of individuals resulting in reduced labour efficiency, reducing economic output. • Reduced water availability could result in the migration of the economically active population to other areas, reducing the workforce of the area. • Secondary effects such as fire and desertification could result in the reduction in the amount of agriculturally productive areas, therefore reducing farming capacity in the region • Subsistence farmers in areas such as the Sahel may have to migrate to other areas putting increasing pressure on government provision of education and healthcare spending. • A decrease in water availability can lead to poor nutrition due to a lack of crops, resulting in declining health/increased loss of life. • Regional droughts could lead to increase conflicts over water usage and food resulting in potential loss of life. • Regional droughts that are long-term e.g. Australia, may require high cost adaptation such as changes to farming i.e. the provision of new water infrastructure. Accept other correct explanations.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Understanding addresses a narrow range of geographical ideas which lack detail. (AO1)
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas which are not fully detailed and/or developed. (AO1)
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas which are detailed and fully developed. (AO1)

Question Number	Answer What is the projected global surface temperature for the high growth emission projection by 2100? (1.3.5.2)	Mark
2 a (i)	AO2 (1 mark) B: 3.6 degrees	**(1)**

Question Number	Answer Describe the trends in global surface warming for the medium emission projection from 2000 to 2100 (1.3.5.2)	Mark
2 a (ii)	AO2 (2 marks) Award 1 mark for correct description of the trend and a further extension mark showing use of the resource • There is a consistent increase in global surface warming from 2000 to 2060 • Global surface warming is projected to increase from 0.2°c to 2.8°c/ increases 2.6°c overall • The rate of increase starts to flatten off/slow down from 2060 • There are few fluctuations after 2060	**(2)**

Question Number	Answer - Suggest **one** reason why there are different temperature projections for 2100 (1.3.5.2)	Mark
2 a (iii)	AO1 (2 marks) Award 1 mark for correct suggestion/reason for why there are differences in temperature projections and a further extension mark up to a total of 2 marks. • Uncertainty regarding the future level of greenhouse emissions (1) countries may decide to take action to reduce this (1) • The role of feedback mechanisms such as the release of carbon from peatlands/thawing permafrost (1) it is unclear what volume of carbon will be released (1) • The rate of population growth is uncertain (1) the rate of total fertility rate can compound over time resulting in declines in expected numbers (1) • The role of alternative energy sources (1) and whether these will replace fossil fuels completely (1) • The possible passing of tipping points (1) with forest dieback/alterations to the thermohaline circulation (1) • Uncertainty regarding future levels of affluence/global average income (1) as this will impact lifestyles and therefore potential carbon footprints. Accept other correct explanations.	**(2)**

Question Number	Answer Explain two ways that farming could adapt to the impacts of future global warming (1.3.6.2)	Mark
2 (b)	AO1 (4 marks) Award 1 mark for one way that a farmer could adapt and a further mark for linking it to the changing climate • Farming practices may shift to drought resistant crops (1) in order to cope with the drier conditions/variability in rainfall (1) • Farming may switch to fast growing crop varieties (1) taking advantage of the increased solar radiation allowing them to double harvests (1) • Farming may optimise their irrigation methods/use drip or sprinkler irrigation (1) reducing the loss of available water/water loss (1) • Farming practices may move to agroforestry (1) growing crops that naturally grow in forests such as mushrooms/acai (1) • Farming practices may rotate crops to match water availability (1) this would reduce potential yield losses (1) Mark as 2+2 Accept other correct explanations. NB: Do not give credit to answers that drift into how to manage the effects of global warning.	**(4)**

Question number	Answer Explain why sea-level rise caused by global warming is a major risk in some locations (1.3.5.3)	Mark
2 (c)	**AO1 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: • Some countries are low-lying e.g. Maldives/Vanuatu/Netherlands stands less than 1 metre above sea level and are therefore physically vulnerable to rising sea levels • Risk is increasing as increasing coastal populations are found in high risk locations e.g. Indonesia has the largest land at risk worldwide at 62%. • Some coastal cities such as Bangkok and New Orleans are sinking due to subsidence, resulting in greater areas being below sea level.	**(6)**

	• Higher sea levels can result in more dangerous hurricanes and typhoons affecting a wider variety of areas, contributing to more power storm surges affecting areas such as Florida. • Some countries such as Bangladesh will be unable to afford to defend themselves against the rise in sea leves. • Some locations are unable to adapt to the threat of sea level rise e.g. Marshall Islands where they will need help from other nations. • Mega deltas in Asia are significantly at risk from salinization and increased erosion. They are a major breadbasket farming location so could lead to global impacts on the food chain. • Increased sea level rise can lead to death of coral reefs, reducing the coastal defences. NB Top end responses are likely to cover both physical and human reasons Accept any other valid responses.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Understanding addresses a narrow range of geographical ideas which lack detail. (AO1)
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas which are not fully detailed and/or developed. (AO1)
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas which are detailed and fully developed. (AO1)

Question Number	Answer Describe the distribution of global submarine fibre optic cables (1.4.1.2)	Mark
3 (i)	AO1 (1 mark) / A02 (2 mark) Award 1 mark for each correct description of the pattern of global fibre optic distribution • Located along coastlines e.g. around the coastline of Africa • There are high concentrations of fibre optics across the main oceans e.g. Atlantic and Pacific • High concentrations can be found connecting Europe and North America/ Asia and North America • Some larger continents such as Africa and South America have fibre optics connecting their countries • Areas such as Greenland and Madagascar has limited connection via fibre optic cables	**(3)**

Question Number	Answer Suggest one way fibre optic cables have contributed to time-space compression (1.4.1.2) -	Mark
3 (ii)	AO1 (2 mark) Award 1 mark for a correct reason/way that fibre optics have contributed to time-space compression and a further extension mark up to a total of 2 marks. • Fibre optic cables allow instant messages to be sent (1) which makes distant places feel closer (1) • Fibre optic cables have increased the speed and volume of data transmission (1) allowing businesses to locate anyway as the cost for transmission is ((1) • Fibre optic cables are owned by TNCs such as google (1) allowing them to increase their global reach by allowing customers to access the internet simultaneously. (1) • Fibre optic cables have increased to frequency and reach of online banking (1) allowing developing countries to access banking networks improving their development (1) Accept other correct explanations.	**(2)**

Question Number	Answer Explain two problems caused by deindustrialisation for developed countries. (1.4.3.1)	Mark
3 b	AO1 (4 marks) Award 1 mark for a basic explanation and a further mark for a development of the explanation. • Unemployment increased as jobs had been moved to cheaper locations abroad (1) meaning people are forced to migrate in search of new jobs (1) • Economic restructuring meant that secondary industry was replaced by tertiary industries (1) This led to sectorial unemployment as people lacked the skills to gain new jobs (1) • Populations in urban areas declined e.g. Detroit fell from 1.5m to 0.7m (1) resulting in reduced funding for schools and other services due to a declining tax base (1) • Previous manufacturing sites became derelict (1) resulting in reduced environmental quality/high-costs to remediate the industrial land/less attractive for investment (1) Accept other correct explanations.	**(4)**

Question number	Answer Explain why global hubs benefit the most from globalisation (1.4.3.2)	Mark
3 (c)	**AO1 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: • Global hubs are a city with unusually high density of transport, business, political or cultural connections to the rest of the world e.g. Dubai/UAE, Singapore, London. • Headquarters of TNCs are often located in global hubs, so high-paid professional workers (lawyers, bankers) are attracted to these areas generating wealth.	**(6)**

	• Global hubs such as London have high density transport e.g. Heathrow is the 2nd largest airport for international passengers, allowing for increased cultural and business connections • New York also has cultural connections with over 800 languages being spoken in the city. • Singapore has benefitted as it was considered a safe and efficient entry point into the Asian market. This was increased with the launch of the ASEAN trading bloc facilitated through its strategic position at the confluence between the East and West. • Global hubs such as New York, London and Tokyo have strong economic connections by being international hubs for business and commence due to the Stock exchanges. This allows for flows to money globally, with New York controlling 40% of the world's finances. • Global hubs often have beneficial rules/tax laws that attract TNCs, creating a positive cycle of investment. • Some candidates may argue that it is not the case that global hubs benefit the most, this is appropriate. Accept other correct explanations.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Understanding addresses a narrow range of geographical ideas which lack detail. (AO1)
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas which are not fully detailed and/or developed. (AO1)
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas which are detailed and fully developed. (AO1)

Question Number	Answer Which continent has the highest percentage of working age population (1.4.4.2)	Mark
4 a (i)	AO2 (1 mark) C: Africa	**(1)**

Question Number	Answer Explain two challenges for countries that have an ageing population (1.4.4.2)	Mark
4 a (ii)	AO1 (4 mark) Award 1 mark for a basic explanation and a further mark for a development of the explanation. • Government would need to spend more money on healthcare services for the elderly (1) meaning funds from other services such as education may need to be reallocated (1) • Increased demand for social care provision/places in care homes (1) so additional funding is required by the government (1). • Income taxes may have to be increased to allow for greater government spending (1). This will have an implication on governance as may cause reduced popularity amongst voters / taxpayers. • With a greater proportion of elderly people there will a greater dependency on the working population (1). This will put greater pressure on the workforce to either pay increased taxes or will demand a greater need for outside workers (1) • Rising pensions payments as an increasing number of elderly draw pensions (1) which might be funded from current taxation rather than savings, so spending on other services suffers (1) Mark as 2+2 Accept other correct descriptions.	**(4)**

Question Number	Answer Explain the differences between the theories of Malthus and Boserup (1.4.3.3)	Mark
4 b	AO1 (4 marks) Award 1 mark for each basic comparison and a further mark for a development of the explanation. • A key difference is the theories were put forward at different historical time periods. Malthus's theory was established in 1798, whereas Boserup's theory was created in the 1960s. • Malthus argued that population increases faster than food supply (1) whereas Boserup argued that food supply would keep up with population demand (1)	**(4)**

	• Malthus suggested that if population remained unchecked it could lead to famine, war, disease in order to reduce the over-population (1) whereas Boserup argued that human innovation and technology advances would allow food production to keep up with population growth. (1) Accept other correct explanations.	

Question number	Answer Explain the demographic and economic causes of megacity growth (1.4.6.3)		Mark
4 (c)	**AO1 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: • A megacity is a city with a population over 10 million • Demographic causes are driven by natural increase in the population. This occurs when there is a high proportion of young adults aged 18-35. More children are therefore born as they are in their fertile window/life cycle. In addition there is a smaller proportion of older people meaning the death rate is lower. • Demographic causes can also be driven by improvements in healthcare/better access to food/improved sanitation, particularly in poorer nations resulting in a declining death rate. • Economic causes are driven by rural urban migration. The movement of people from rural areas into the city can be due to the hope of brighter prospects i.e. jobs/ agricultural change in rural areas as mechanisation has driven the population into urban areas. • Coastal megacities have grown as they have allowed increased global trade e.g. Shenzhen. This transformed from a small fishing village to a global port through it designation as a Special Economic Zone. • Some cities have grown into megacities through the extended demarcation of the city border resulting in an increased urban size. Accept any valid responses NB: Max 4 if only one cause is covered i.e. only demographic		**(6)**
Level	Mark	Descriptor	

	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Understanding addresses a narrow range of geographical ideas which lack detail. (AO1)
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Understanding addresses a range of geographical ideas which are not fully detailed and/or developed. (AO1)
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Understanding addresses a broad range of geographical ideas which are detailed and fully developed. (AO1)

Question number	Suggest reasons for the changes in atmospheric greenhouse gas concentrations shown 1.3.5.1ab)
5 (a)	**AO1 (5 marks)/AO2 (5 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1: • Carbon dioxide, methane and nitrous dioxide are greenhouse gases which are found naturally occurring in the atmosphere. • The concentrations of these emissions has increased rapidly over the last century, particularly over the last fifty years. • Atmospheric levels of carbon dioxide ($C0_2$) were fairly stable over the past 2000 years at 270 to 285 parts per million (ppm) until the 18th century. Global $C0_2$ levels have been increasingly rapidly breaking the 400ppm threshold (highest level in the last three million years). • Both the atmospheric levels of methane (CH_4) and nitrous oxide (N_2O) have significantly increased throughout the 20th century, particularly in the second half. AO2: • Carbon dioxide levels have risen mostly due to the large-scale burning of fossil fuels that began during the Industrial Revolution. Prior of this the concentration of C02 in the atmosphere stood around 280ppm in 1750. In more recent years emerging countries such as China and India have continued to use coal based energy in order to fuel their industrialisation. • Carbon dioxide levels have also increased with the increased volume of international travel for either recreation or the transportation of goods. This has been facilitated by improvements in aviation technology and the declining cost of air travel. • Deforestation accounts for around 20% of global C02 emissions. This is both from the removal of the carbon store as well as burning trees for fuel. Deforestation rates have increased in countries such as Brazil who are using their natural resources in order to improve their level of economic development. • Methane has increased due to increased demand for meat due to the spread of the western diet. Cattle, sheep and goats from CH4 as part of their normal digestive process.

	• Methane has also increased due to the shift away from 'dirty coal' to cleaner natural gas. Methane is emitted into the atmosphere during production, processing and distribution of natural gas, as well as released during permafrost melting. • The rise in nitrous oxide can be linked with the increased use of fertilisers with agriculture the leading source. This has been driven by large increases in global food production linked to the rising global population as well as changing diets.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge. (AO1) • Demonstrates isolated elements of geographical understanding, some of which may be inaccurate. (AO1) • Applies knowledge and understanding to geographical information / ideas, making limited logical connections / relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce an interpretation that is not relevant and / or supported by evidence. (AO2)
Level 2	**5-7**	• Demonstrates geographical knowledge, which is mostly relevant and may include some inaccuracies. (AO1) • Demonstrates geographical understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding to geographical information / ideas logically, making some relevant connections / relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 3	**8-10**	• Demonstrates accurate and relevant geographical knowledge throughout. (AO1) • Demonstrates accurate and relevant geographical understanding throughout. (AO1) • Applies knowledge and understanding to geographical information / ideas logically, making relevant connections / relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	To what extent can preparation and prediction reduce the impacts of natural disasters (1.3.1.3/1.3.3.3)
5 (b)	**AO1 (5 marks)/AO2 (15 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance (page 3) and the qualities outlined in the levels-based mark scheme below. Responses that demonstrate only AO1 without any AO2 should be awarded marks as follows: • Level 1 AO1 performance: 1 mark • Level 2 AO1 performance: 2 marks • Level 3 AO1 performance: 3 marks • Level 4 AO1 performance: 4 marks **Indicative content guidance** The indicative content below is not prescriptive, and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: **AO1** • A natural hazard is a perceived event that threatens both life and property. Whereas a disaster is the realisation of the hazard when damage to people/property has occurred. • These often result in disasters that cause some loss of life and/or damage to the built environment. • Monitoring and prediction of natural hazards involves the recording of physical changes such as earthquake tremors or tracking a tropical storm, to help forecast when and where a natural hazard may take place. • Prediction is an actionable identification of a time and place a hazard will occur, in a narrow temporal and spatial range; forecasting is a broader chance of a risk occurring in the future. • Preparation involves techniques for controlling, responding to or dealing with a natural hazard event. This can include structural activities to prepare for the imminent arrival of a hazard event e.g. putting up storm shutters. **AO2** Prediction effectiveness will depend upon the type of natural hazard: • Earthquakes cannot be predicted due to the fact that only a 5-60 second warning can be given when monitoring P waves. Therefore this is not enough time to evacuate residents, meaning that earthquakes often result in high numbers of deaths and injuries. • The mapping of older earthquakes can be used to make forecasts on future events however it is impossible to effectively predict earthquakes due to the lack

	of clear warning signs. Instead scientists will identify areas that they feel have the greatest risk. This information can be used to enforce planning laws for example. • Volcanoes can be monitored by seismometers as magma rising causes cracks and fissures in the ground resulting in small earthquakes. • The deformation of land can be monitored through laser ranging which can be used to see how the land bulges as the magma rises. • Tropical storms can be monitor via technology which tracks the development and track of these storms. This allows people to evacuate an area, however the erratic nature of these storms means that no more than 12-18 hours warning is given. Preparation can include strategies to protect the infrastructure or local population from natural hazards: • Engineering strategies such as cross bracing and base isolators will allow buildings to be more resilient and suffer less structural damage in the event of an earthquake event. • Education is the key way that the loss of life can be mimimised. Instructions are issued by authorities on how to prepare for events, children are educated at school through Earthquake Days. • There is a need for careful organisation and planning of emergency services. In many developed countries the co-ordination of this has been automated allowing computer programmes to identify which areas emergency services should be sent to first. Potential areas of assessment: • More developed countries will have a greater range of scientific methods such as thermal imaging allowing them to monitor natural hazards to a great extent. • Preparation for earthquakes tends to be more effective as volcanoes tend to be more isolated and there are limited strategies that can prevent lava flows for example. • The prediction of earthquakes is very difficult as some earthquakes occur of unknown fault lines, as well as the issue that reliability of predicting earthquakes hours before the event is questionable. • Monitoring and prediction of natural hazards can only work to some extent, as other factors such as risk and vulnerability of an area can be more significant.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–5**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1)

		• Applies knowledge and understanding of geographical ideas, making limited and rarely logical connections / relationships. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce an interpretation with limited coherence and support from evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**6–10**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information / ideas with limited but logical connections / relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**11-15**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1) • Applies knowledge and understanding of geographical information / ideas to find some logical and relevant connections / relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial but coherent interpretation that is supported by some evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2)
Level 4	**16-20**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information / ideas to find fully logical and relevant connections / relationships. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2)

Question number	Suggest possible reasons for the destinations of international migrants shown (1.4.5.1/1.4.5.3)
6 (a)	**AO1 (5 marks)/AO2 (5 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1 • International migrants relocate in search of economic and educational gains, a better life for their children and in some cases, political or religious freedom. • The decision to move is fuelled by freer trade and economic aspirations of a growing middle class. Once relocated, it is easier for migrants to stay in touch with family, visit, using more widely available technology and relatively cheap transportation. AO2 • Free-trade agreements between middle-income and high-income countries has facilitated migration, as the growing middle class has resulted in increasing marketable skills which are sought after in countries such as USA and Germany. • The USA is the leading destination for migrants due to a range of pull factors including high salaries, quality of life and opportunities. However, there are also high levels of unauthorised migrants who have crossed the border illegally or have overstayed their visa. • European countries such as Germany and France have seen increased numbers of refugees moving from countries such as Syria. • Oil producing nations such as Saudi Arabia and UAE have attracted Asian and other migrants on employment visas. In addition, salaries in Saudi Arabia are tax free allowing a standard of living, combined with a low cost of living. • Some countries such as Canada have actively sought to increase the numbers of migrants via Express Entry programmes that allows skilled migrants fast tracked permanent immigration status. • Russia historically has seen high numbers of migrants due to economic reasons and a higher standard of living than the countries of origin. There are an increase number of people of Russian origin from surrounding countries which used to part of the USSR. However, more recently there has been a decrease in immigration due to the ongoing conflict with Ukraine.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge. (AO1) • Demonstrates isolated elements of geographical understanding, some of which may be inaccurate. (AO1) • Applies knowledge and understanding to geographical information / ideas, making limited logical connections/relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce an interpretation that is not relevant and/or supported by evidence. (AO2)
Level 2	**5-7**	• Demonstrates geographical knowledge, which is mostly relevant and may include some inaccuracies. (AO1) • Demonstrates geographical understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding to geographical information / ideas logically, making some relevant connections / relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 3	**8-10**	• Demonstrates accurate and relevant geographical knowledge throughout. (AO1) • Demonstrates accurate and relevant geographical understanding throughout. (AO1) • Applies knowledge and understanding to geographical information / ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding to geographical information / ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	Assess the extent to which national governments are the most important players in promoting globalisation. (1.4.2.2/1.4.2.3/1.4.2.1)
6 (b)	**AO1 (5 marks)/AO2 (15 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance (page 3) and the qualities outlined in the levels-based mark scheme below. Responses that demonstrate only AO1 without any AO2 should be awarded marks as follows: • Level 1 AO1 performance: 1 mark • Level 2 AO1 performance: 2 marks • Level 3 AO1 performance: 3 marks • Level 4 AO1 performance: 4 marks **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: **AO1** • Globalisation is the process by which people, culture, finance, goods and information transfer between countries. • National governments are key players in promoting free trade blocs and through policies i.e. free market liberalisation, privatisation and encouraging business start-ups. **AO2** • Governments can agree to join Free Trade blocs resulting in increased globalisation as there can be increased movement of goods, capital and in some circumstances people. • Governments may designate Special Economic Zones with the aim to develop and diversify exports. These therefore attract foreign direct investment and deepen links between countries e.g. China's creation of Free Trade Zones (FTZ) have allowed foreign owned countries to develop business in China without a Chinese owned partner. • Governments will provide the framework for external investment through their decisions on company tax rates and minimum wages etc. This can promote or hinder foreign direct investment and therefore economic globalisation. • Governments can promote the policy of free-market liberalisation resulting in reduced government intervention by removing legal restrictions on foreign company ownership and removing capital controls, allowing inflows of FDI. The deregulation of the City of London in 1986 removed large amounts of 'red tape' and paved the way for London to become the world's leading global hub for financial services.

	• Governments can encourage business start-ups through grants and loans in areas that are seen as globally important growth areas e.g. ICT development, pharmaceuticals or renewable energy. • Governments are responsible for creating new infrastructure and other facilities to attract foreign direct investment. For example, ports, airports etc. This can increase connectivity to other countries, promoting tourism/sharing of cultures. • A government's attitudes to the internet can limit or promote globalisation within their country. For example, North Korea's one-party state limits the ability of its people to connect to the internet except for high ranking government officials. • A government's engagement with political organisations such as the G7/G20/UN can promote the spread of globalisation through trade agreements for example. **Assessment** Candidates may consider a range of other factors that have more significant in the growth of globalisation: • Transport systems have facilitated the ability for TNCs to outsource production to cheaper locations, resulting in increased global trade. In addition, it has allowed increased migration and therefore the spread of cultures. • Information and communication technologies such as mobile phones, the interent, social networks and fibre optics have facilitated increased global communication flows since the late 20th Century and have reduced communications costs. • Intergovernmental organisations (IGOs) such as the World Bank have helped developing countries to deepen their integration into regional and global economies through trade and the promotion of Free Trade.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–5**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Applies knowledge and understanding of geographical ideas, making limited and rarely logical connections / relationships. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce an interpretation with limited coherence and support from evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**6–10**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1)

		• Applies knowledge and understanding of geographical information / ideas with limited but logical connections/relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**11-15**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1) • Applies knowledge and understanding of geographical information / ideas to find some logical and relevant connections / relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial but coherent interpretation that is supported by some evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2)
Level 4	**16-20**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information / ideas to find fully logical and relevant connections / relationships. (AO2) • Applies knowledge and understanding of geographical information / ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) • Applies knowledge and understanding of geographical information / ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2)

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