Pearson
Edexcel

Mark Scheme (Results)

January 2024

Pearson Edexcel International Advanced Subsidiary Level in Geography (WGE01)
Paper 01: 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

January 2024
Question Paper Log Number P75604A
Publications Code WGE01_01_2401_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.

Question Number	Answer – Identify the year with the largest number of geophysical disasters	Mark
1 a (i)	AO1 (1 mark) • D= 2019	**(1)**

Question Number	Answer – Describe the trend in hydrological disasters between 2010 and 2020 (1.3.3.1)	Mark
1 a (ii)	A02 (2 marks) Award 1 mark for correct description of the trend and a further extension mark showing use of the resource • Hydrological disasters show a fluctuating pattern (1) with high numbers of disasters in 2010, 2019, 2020 (1) • Hydrological disasters have increased in recent years/between 2012-2020 (1) from 137 in 2012 to 202 in 2020 (1) • Overall hydrological disasters have increased (1) from 188 in 2010 to 202 in 2020 (1) Accept other correct explanations.	**(2)**

Question Number	Answer – Suggest one reason why the number of meteorological disasters might be increasing (1.3.3.1)	Mark
1 a (iii)	AO1 (2 mark) Award 1 mark for identifying a reason why the number of meteorological disasters might be increasing and a further expansion mark up to a maximum of 2 marks. • Global temperatures are increasing due to climate change (1) meaning more of the world's oceans are above 27c or higher so more areas are affected by tropical storms (1) • Global temperatures are increasing due to climate change (1) meaning oceans will stay at 27c or higher for more of the year (1) • As the Earth warms there is more moisture in the air (1) which leads to more intense rainfall, especially during tropical storms (1) • As global populations increase more people are living in coastal areas (1) resulting in tropical storms becoming disasters (1) Accept other correct explanations.	**(2)**

Question Number	Answer - Explain two causes of landslides (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. • Areas which are tectonically active such as along conservative plate boundaries (1) because earthquake ground-shaking can trigger landslides (1) • Landslide risk is higher in locations with high relief/mountains (1) because steep slopes are more prone to landslides especially during rainfall (1) • Landslides can be triggered by weather events such as intense rainfall from heavy storms/El Nino (1) as a consequence of the saturation of bedding planes/joints • Coastal areas may be at high risk because of coastal erosion (1) undermining cliffs leading to landslides due to weathering and erosion (1) • Sedimentary geology can trigger landslides (1) areas underlined by clay/impermeable surfaces are prone to slip (1) • Deforestation of slopes (1) can cause landslides as the tree roots are no longer binding the soil together (1). Accept other correct explanations.	**(4)**

<table>
<tr><th>Question number</th><th colspan="2">Answer - Explain the global distribution of volcanic eruptions (1.3.2.1)</th><th>Mark</th></tr>
<tr><td>1 (c)</td><td colspan="2">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:
Accept other correct explanations.
• Volcanic eruptions occur along boundaries of tectonic plates, island chains or form long mountain ranges under the oceans.
• There is a cluster of active volcanic eruptions along the Pacific Ring of Fire (75% of the earth’s volcanoes. Here subduction zones result in the oceanic plate being subducted beneath the continental plate. Melting of the subducted rock turns it into magma.
• Volcanic eruptions also occur along convergent plate boundaries where the denser oceanic plate is subducted and melted. The melted rock, or magma, then ascends through the plate, reaching the plate’s surface as part of a volcano.
• Divergent plate boundaries allow magma to constantly rise from the mantle and build new plate material. For example, The Mid-Atlantic Ridge is a result of hot magma rising to the surface as the North American and Eurasian plate move away from each other resulting in submarine volcanoes.
• Some volcanic eruptions exist away from plate boundaries due to the presence of a hot-spot. Here extreme temperatures can melt the tectonic plate above and create magma that erupts onto the plate’s surface e.g. Yellowstone National Park super volcano</td><td>(6)</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td><td></td></tr>
<tr><td></td><td>0</td><td>No rewardable material.</td><td></td></tr>
</table>

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 - Define the term 'global warming' (1.3.5.2)	Mark
2 a (i)	AO1 (1 mark) • A gradual increase in the overall temperature of the earth's atmosphere (1) caused by increased levels of greenhouse gases/carbon dioxide or human activities such as factory emissions and deforestation (1)	**(2)**

Question Number	Answer - Suggest one reason why there are different global warming projections for 2100 (1.3.5.2)	Mark
2 a (ii)	AO2 (2 marks) / A01 (1 marks) Award 1 mark for correct reason why there are different global warming projections for 2100 and a further extension mark. • Uncertainty regarding the future level of greenhouse emissions (1) countries may decide to act to reduce this (1) by switching to renewable energies (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) and the impact this will have on temperature projections (1) • The rate of population growth is uncertain (1) as countries may choose to impose population restrictions/encourage population growth (1) which could cause emissions to increase/decrease (1) • The role of alternative energy sources (1) and whether these will replace fossil fuels completely (1) or if countries will adopt a hybrid model • The possible passing of tipping points (1) with forest dieback/alterations to the thermohaline circulation (1) and the impact this will have on temperature projections (1) Accept other correct explanations.	**(3)**

Question Number	Answer - Explain why global warming may provide economic opportunities in high-latitude locations such as the Arctic (1.3.6.3)	Mark
2 (b)	AO1 (4 marks) Award 1 mark for each way in which global warming might provide economic opportunities in the Arctic regions and a further extension mark. • Melting sea ice and thawing permafrost could allow access to fisheries, more farmable land and minerals (1). Therefore, TNCs are likely to invest into the area in order to gain access to the newly accessible supplies (1). • Melting sea ice will increase the navigability of the Arctic Ocean (1), creating new shipping routes which will reduce transport times (1) and be accessible for longer periods of time throughout the year (1). • Melting permafrost could lead to permanent extraction extractions at oil and gas fields (1), leading to the creation of jobs (1) and increased global economic activity (1). • Increased navigability could also lead to the growth of Arctic tourism (1), with Canada's Northwest Passage being frequented by cruise ships (1). Accept other correct explanations.	**(4)**

Question number	Answer - Explain how the Milankovitch cycles provide an explanation for long-term climate change (1.3.4.2)	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: • Milankovitch cycles are major changes which occur between 26,000 and 100,000 years dependent on the cycle. • The cycles affect the amount of sunlight and therefore energy that earth absorbs from the sun. They provide a framework for	**(6)**

	understanding long term climate change and are responsible for triggering the beginning and end of glaciation periods (Ice Ages). • Precession (Axial Rotation): As the Earth rotates, it wobbles slightly upon its axis and the cycle of precession occurs over a period of roughly 26,000 years. Axial precession makes seasonal contrasts more extreme in one hemisphere and less extreme in another. Currently the precession makes the Southern Hemisphere summers hotter and moderates Northern Hemisphere seasonal variations. • Eccentricity (orbital shape): Eccentricity, is the shape of the Earth's orbit around the Sun. Over time, the pull of gravity from Jupiter and Saturn causes the shape of the Earth' orbit to vary from being nearly circular to being mildly elliptical. This explains why our seasons are slightly different lengths i.e. summers being 4.5 days longer than winters in the Northern Hemisphere. When the Earth's orbit is at its most elliptic, about 23% more solar radiation reaches Earth each year than it does at its furthest point. • Axial tilt (Obliquity): The angle of the Earth's axis of rotation is tilted as it travels around the sun and explains why we have seasons. Over the last million years, it has varied between a tilt of 22.1° to 24.5° and back again. As obliquity decreases the seasons become milder, resulting in warmer winters, and cooler summers that gradually allow snow and ice at high latitudes to build up into large ice sheets. This then reflects more of the Sun's energy back into space, promoting even more cooling. 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 - What is the USA's trade balance with Canada? (1.4.1.3)**	**Mark**
3a (i)	AO2 (1 mark) • A = -21 billion	**(1)**

Question Number	**Answer - Describe the pattern of trade within the NAFTA trade bloc (1.4.2.2)**	**Mark**
3a (ii)	AO1 (1 mark) / A02 (2 marks) Award 1 mark for each correct description of the pattern of trade within the NAFTA trade bloc • The USA is the dominant trading partner for both Canada and Mexico (1) • USA and Canada have the highest volume of trade with $581 billion (1) • The USA has a negative trade balance with both Canada ($-21b) and Mexico ($-62b) (1) • Mexico has a positive trade balance with Canada ($19 b) and USA ($262b) (1) • Mexico exports more than it imports to both Canada and the USA (1) • Canada has an overall trade surplus (1) • Countries have higher trade volumes with those that they share a border with (1)	**(3)**

Question Number	Answer - Suggest one advantage of being part of a trade bloc, for countries such as Mexico. (1.4.2.2)	Mark
3a (iii)	AO1 (2 marks) Award 1 mark for a correct reason why governments choose to be part of a trade bloc and a further extension mark up to a total of 2 marks. • Trade blocks have tariff-free trade between members (1) reducing the cost of trade between them and leading to a higher volume of total trade (1) • Barrier free trade between countries encourages flows by TNCs (1) and may make FDI into other members easier (1). • Trade blocs may promote broader political stability / good relations between members (1) providing additional support during financial crisis/economic down-turn (1) • Countries specialise in goods being produced which have a comparative advantage (1) This means they can produce at the lowest cost and trade these products for other members' specialisms. (1) • Countries join trade blocs for protection (1) allowing them to established tariffs and quotas for goods outside of the bloc (1)} Accept other correct explanations.	**(2)**

Question Number	Answer - Explain one reason why governments set up Special Economic Zones (SEZs) (1.4.2.2)	Mark
3 b	AO1 (4 marks) Award 1 mark for a basic explanation and a further mark for a development of the explanation up to 2 marks. • Special Economic Zones (SEZs) are created to encourage rapid economic growth (1) by providing tax incentives (1) thereby attracting foreign direct investment (1) • SEZs can increase export levels of goods/trade (1) contributing to the rapid economic growth of the country (1) thereby allowing increased investments in levels of education/healthcare in the country (1) • SEZs are set up to encourage foreign direct investment (1) through which companies set up factories producing goods at lower costs (1) which can boost the economic growth of the country/provides employment to workers (1) Accept other correct explanations.	**(3)**

<table>
<tr><th>Question number</th><th colspan="2">Answer - Explain how the outsourcing of manufacturing has led to both global and local environmental impacts (1.4.3.3)</th><th>Mark</th></tr>
<tr><td>3 (c)</td><td colspan="2">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:

• Carbon emissions have increased due to emissions from factory production and long-distance transportation of goods. This has contributed to global warming, resulting in knock on consequences such as increased frequency of tropical storms, increasing flood and droughts.
• Increased manufacturing in these areas can result in increased water extraction resulting in reduction in water table levels and impacting the biodiversity of the areas.
• Construction of factories results in loss of productive land and reduced biodiversity levels
• Air pollution from the unregulated number of informal businesses set up in slum areas or in factories which do not comply with environmental regulations
• Water pollution has been a major issue in some developing nations which have experienced over abstraction and pollution of water sources as a result of TNCs such as Coca-Cola in India
Accept other correct explanations.</td><td>(6)</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td><td></td></tr>
<tr><td></td><td>0</td><td>No rewardable material.</td><td></td></tr>
<tr><td>Level 1</td><td>1-2</td><td>• 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)</td><td></td></tr>
<tr><td>Level 2</td><td>3-4</td><td>• 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)</td><td></td></tr>
<tr><td>Level 3</td><td>5-6</td><td>• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1)</td><td></td></tr>
</table>

		• Understanding addresses a broad range of geographical ideas which are detailed and fully developed. (AO1)

Question Number	Answer - Identify the population increase of Mumbai between 1950 and 2010 (1.4.4.2)	Mark
4 a (i)	AO2 (1 mark) C: 15.2 million	**(1)**

Question Number	Answer - Explain two social challenges for cities that are experiencing rapid urban growth, such as Mumbai (1.4.6.2)	Mark
4 a (ii)	AO1 (4 mark) Award 1 mark for a basic explanation and a further mark for a development of the explanation. • Over population has led to the development of squatter settlements (1) the high population can lead to the rapid spread of diseases (1). • Rising populations leads to greater demand for housing (1) which drives up house prices leaving people being unable to afford them (1). • Squatter settlements have grown rapidly resulting in a lack of access to freshwater (1) this means that water is rationed through standpipes which are turned on for two hours each day (1) • Rapid urbanisation has meant health and education services are strained (1) resulting in low life expectancy/low education levels (1) • Crime rates are high due to a lack of employment opportunities (1) resulting in nearly 1/3rd of the population being a victim of crime (1) • Air pollution is high due to inefficient cars/emissions from factories (1) so people suffer from respiratory diseases (1) Mark as 2+2 Accept other correct descriptions.	**(4)**

Question Number	Answer - Explain why rising populations may result in resource shortages of some resources (1.4.4.3)	Mark
4 b	AO1 (4 marks) Award 1 mark for each basic explanation and a further mark for a development of the explanation.	**(4)**

	• Areas of increased population rise without ability to develop food supply could see an increase in famine (1) for example Sub-Saharan African countries where GM technology is not prevalent (1) • Increasing population leads to an increasing need for water leading to an increasing stress on water (1) and potential conflicts over access to suitable water sources (1) • Food production needs to maintain pace with rising populations, influenced by rising demand for water (1). By 2050 there is expected to be at least an increase of 50% in food (1) • Education about less wastage or more sustainable approaches to food may also mean that the distribution of food is organised in a more effective manner (1) however this is more likely in higher income countries where population / actions can be managed (1) • Increased demand for industry/transport has led to a reliance on fossil fuels (1) these are finite resources which are non-renewable (1). • Malthusian theory suggests that population will outstrip resources (1) resulting in famine and war (1). • Boserupian theory suggests that knowledge and technology will find solutions to resource demand (1) therefore there may not be shortages of resources due to GM crops for example (1). Accept other correct explanations.	

Question number	Answer - Explain how population pyramids are used to analyse population structure and predict future numbers. (1.4.4.1)	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: • Population pyramids show the structure of a population by comparing relative numbers of people in different age groups. • A population pyramid tells us how many dependents there are. This information can be used to predict the likely economic stability of the population in the future i.e. high amounts of young dependents could led to high levels of economically active in the future.	**(6)**

	• If a population pyramid has both high fertility and high mortality rates this creates a sharp triangle shape. This means the population will not increase much in total number in the future. • If a population pyramid is wider in the middle, it shows there is a lower mortality rate with fertility rate remaining constant. This means the population will continue to growth highlighting the need for additional services for example. • If a population pyramid has a stationary profile with low mortality and low fertility rates it will have stable population that will not change significantly in the future. • Population pyramids can be studied to show historic and current population trends e.g. if there is a high female mortality in childbirth than the implications of this would be modelled out over time through the dent in the population pyramid profile. Accept any 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	Suggest reasons for the different levels of flood risk in the countries shown. (1.3.6.1/1.3.6.2)
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: • Flooding is considered one of the most common and damaging natural disasters worldwide. • The countries shown demonstrate that flood risk is highest in South East Asia and in particular in developing countries such as Bangladesh. • Flood risk can be caused by physical factors e.g. low relief, geology, monsoon rains or through human factors e.g. deforestation, climate change, urbanisation. AO2: • Bangladesh is the only country where over half of its population are at risk from flooding. This is due to 75% of the country sitting below 10m above sea level and 80% classified as a floodplain. This means it is at risk from inland flooding caused by snowmelt from the Himalayas, monsoon rainfall and the convergence of three rivers. It is also at risk from coastal flooding due to cyclones funneling in via the Bay of Bengal and increasing sea level rise due to climate change. • The Philippines is at risk from flooding due to the country being prone to cyclones with an average of 20 per year. In addition, the Philippines is also at risk from smaller-scale flooding related to sea-level rise. Flood risk is also increasing due to people increasingly living in unsafe places along the coastline and rivers due to population growth. • Countries such as Vietnam and Bangladesh have a high proportion of their population living along the coastline so risk is higher. • More developed countries such as Japan have looked to reduce their flood risk through implementing hard engineering strategies such as embankments. Japan's major risk is from inland flooding due to the use of embankments which once they overflow prevent the drainage of water from the urban areas. • Thailand's flood risk is a result of both physical and human factors. Rising sea levels combined with clay soil has meant that the Thai capita Bangkok is sinking. This has been increased due to rapid population and the weight of the infrastructure resulting in subsidence, thus increasing flood risk.

	• Australia has a lower percentage of population at risk from flooding due to its ability to protect its coastlines. However, it is at risk from natural climate processes i.e. La Nina which causes serious flooding across Australia every 3-7 years.	
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 do responses to natural disasters in multiple hazard zones reduce their economic and social impacts? (1.3.2.2/1.3.3.3)
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 disaster is defined by the UN as 'a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources'. • Multiple hazard zones are places where two or more natural hazards occur, and in some cases interact to produce complex disasters. Examples are California, Indonesia, Japan and the Philippines. • In these locations they are tectonically active so earthquakes are common, they are geologically young with unstable mountain zones prone to landslides, they are on major storm tracks either in mid-latitudes or on tropical cyclone tracks and the may suffer from global climate systems such as El Nino and La Nina. • 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. • 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** • A country's ability to reduce the impacts of a disaster could be explored through models such as the Hazard-risk equation, Park Model of human response to hazards, the Pressure and Release model (PAR).

	• Many countries that are hazard prone have priorities that come before risk management, such as poverty management and fighting HIV/AIDS. They may not be able to afford the technology to cope with multiple hazards. • California is classed as one of the world's wealthiest places with per capita incomes of $65,000. Therefore, only sophisticated management prevents California from becoming a disaster zone (in terms of mortality). Despite this management, the prediction of earthquake activity is not possible even with technology. • Only 13% of Californian residents have earthquakes insurance highlighting that despite the wealth in developed countries there is still wide variations in income distribution and therefore risk protection and reduction. • Earthquakes are the most hazardous event facing California with more than 70% of California's population live within 50km of a fault line. This means there is potential for high economic and social impacts although parts of the population are vulnerable - around 20% of the residents in Los Angeles live below the official poverty line. These people have the lowest capacity to cope when affected by a hazard. • The Philippines is one of the most disaster-prone countries in the world, with a range of hazards impacting the country between 1900 and 2012; 24 earthquakes, 25 volcanic eruptions, 1 tsunami, 267 typhoons, 33 floods, 2 landslides, 8 droughts and 1 wildfire. • The Philippian government has established a number of organisations to forecast, warn, risk assess and educate the population. These include; the National disaster co-ordinating council, land use planning, building regulations and a structural programme of defences. Potential areas of assessment: • There are issues of responding to new hazard events whilst still recovering from a previous hazard. • Multiple hazards leave a community in a near constant state of emergency, hindering development and reducing their capacity to respond to new hazard events.

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 reasons for the different trends in international migrant numbers. (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 • Migration is the movement of people from one place to another, to settle in a new location. • Migration can be voluntary or involuntary and can occur for a variety of different reasons, including economic, environmental and social issues. • International migrants relocate in search of economic and educational gains, a better life for their children and in some cases, political or religious freedom. • Europe and Asia are host to the most international migrants, comprising of 61% of the global international migrant stock. AO2 • Migrants to North America have increased at a steady pace from 45.4 million in 2000 to 58.7 million in 2020. • Asia has seen the most rapid growth from 2000 to 2020, at 74% (37 million). It overtook Europe for the first time in 2015 as receiving the most international migrants. • The rising demand for domestic and care work in Asia and beyond has led to more female migrants than male migrants from some countries. • Asia also experiences a lot of internal movements between countries within the region. • Europe experienced the second-largest growth during this period with an increase of 30 million international migrants (63.6 million in 2000 to 85.6 million in 2020 but remains the top destination. • Europe has remained a top destination for migrants due to social and political factors. Push factors such as persecution, war and conflict have led many to flee to European countries who have more liberal approaches to humanitarian migrants than others.

	• Economic pull factors such as higher waves, better employment opportunities, higher standards of living and educational opportunities have led to the migration of youthful populations to Europe. • Migrants to North America have increased at a steady pace from 45.4 million in 2000 to 58.7 million in 2020. • Migration to Asia has increased due to a range of a factors including: increased economic development in the region leading to an influx of migrants searching for work within the region, government migration policies that encourage the influx of low cost migrant labour e.g. Saudi Arabia.	
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 do Transnational Corporations (TNCs) contribute to increased global connections and flows? (1.4.2.1/1.4.3.3)
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** • Transnational Corporations (TNCs) are companies that operate in multiple countries, locating their headquarters, production and sales in different countries • They are important agents of globalisation creating longer and more frequent connections between countries • Globalisation is the process by which people, culture, finance, goods and information transfer between countries. • TNCs have contributed to the lengthening, deepening and faster speed of connections between people and places worldwide. • Global flows include movements of capital (money through stock exchanges) and commodities (raw materials and manufactured goods), information (through the internet and social media), tourists (through budget airlines) and migrants. **AO2** • TNCs connect countries through their spatial organisation and global supply chains. Their Headquarters (HQ) and Research and Design (R&D) functions are often in HDE countries where there are large supplies of highly educated and skilled workers, whilst manufacturing takes place is less developed countries where labour costs are low. • TNCs create global connections through foreign direct investment. TNCs create links with other countries by investing in them, which benefits the country by creating jobs and contributes to the economy. This can take the form of mergers and acquisitions.

	• TNCs can create global connections through integration by expanding their company by creating links between other countries. This can be via horizontal integration i.e. taking ownership of part of the supply chain e.g. buying a manufacturing plant, or through vertical integration i.e. taking ownership of another company that is in a similar industry. • TNCs have led to the lengthening of connections between people and places, with products being able to be sourced from further away than previously, due to the role of containerisation. • TNCs have led to the deepening of connections, with the connections between people and places being deepened through the role of media TNCs, as well as food TNCs such as McDonalds. • Electronic TNCs such as Apple and Samsung and travel TNCs such as Easyjet, have created faster connections, with people able to speak to each other in real time, using technologies such as Skype or travel quickly between countries using jet aircraft. • TNCs can forge connections between people in different countries by shaping common patterns of consumption e.g. Global entertainment brands like Disney or food retailers such as McDonalds. Assessment • Candidates may consider the extent to which TNCs have been the main driver, they may consider the role of other factors such as government policy and transport.

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