

# MARK SCHEME

Pearson Edexcel International Advanced Subsidiary

Geography | Unit 1: Global Challenges | WGE01/01

January 2026 · Total: 90 marks

■ Question ■ Answer ■ Marking guidance

## SECTION A — Questions 1–4 (60 marks)

**Q1(a)(i) Describe the pattern of flood risk in Bangladesh**

**2 marks**

■ **High-risk areas are concentrated in central Bangladesh, extending north–south along the Ganges and Brahmaputra river corridors towards the Bay of Bengal.**

1 mark: identifies the central/floodplain high-risk zone. 2nd mark: adds spatial detail — risk decreases towards the north-west highlands and south-east hilly margins (shown as low risk); high-risk zone traces the major river delta towards the coast.

**Q1(a)(ii) Suggest ONE reason why some areas of Bangladesh have a high risk of flooding**

**3 marks**

■ **The convergence of the Ganges, Brahmaputra, and Meghna rivers over a vast, low-lying delta creates extremely high flood risk.**

1 mark for a valid reason stated. Up to 2 further development marks — flat delta land (mostly <10 m above sea level) allows water to spread widely; heavy monsoon rainfall combined with Himalayan snowmelt rapidly raises river levels; the funnel shape of the Bay of Bengal amplifies storm surges that push seawater inland.

**Q1(b) Explain how monitoring and prediction can reduce the impact of volcanic eruptions**

**4 marks**

■ **Seismometers detect increased earthquake activity from magma movement; tiltmeters measure ground deformation; SO<sub>2</sub> gas sensors indicate rising magma — all enabling early warnings and evacuations before eruption.**

Award 1 mark per developed point (max 4): (1) Seismic monitoring detects magma movement → authorities issue warnings, reducing casualties. (2) GPS/tiltmeters detect ground swelling → days or weeks available to evacuate. (3) Rising SO<sub>2</sub> levels → exclusion zones enforced before eruption. (4) Historical eruption data and computer modelling predict lava/pyroclastic flow paths → vulnerable settlements relocated in advance.

**Q1(c) Explain why ONE named location is a multiple hazard zone**

**6 marks**

■ **Example: Philippines — exposed to typhoons, earthquakes, volcanic eruptions (e.g. Mount Pinatubo 1991), and tsunamis, all driven by distinct but related physical processes.**

Up to 2 marks: names location + identifies ≥2 distinct hazard types. Up to 4 further marks: explains WHY multiple hazards converge — Philippines: on the Ring of Fire (convergent plates → earthquakes and volcanoes); western Pacific typhoon belt (warm sea temperatures + Coriolis effect → cyclones); island geography → tsunamis from offshore earthquakes. Accept Japan, Indonesia, California, Caribbean, Bangladesh with sufficient place-specific detail.

■ *Answers must explain the underlying physical geography producing each hazard — not just list them.*

**Q2(a)(i) How does the Thames frost fair painting provide evidence of past climate change?**

**2 marks**

■ **The painting shows the River Thames frozen solid enough to hold a market fair, indicating temperatures were significantly colder during the Little Ice Age than they are today.**

1 mark: recognises that the historical/artistic record documents environmental conditions (frozen river). 2nd mark: links to climate change — the Thames has not frozen since 1814, so the comparison implies measurable warming since the Little Ice Age period.

**Q2(a)(ii) Explain ONE source that could provide evidence for long-term climate change**

**3 marks**

■ **Ice cores (e.g. from Antarctica or Greenland) trap ancient air bubbles, allowing scientists to measure past atmospheric CO<sub>2</sub> concentrations and reconstruct temperatures up to 800,000 years ago.**

1 mark: names a valid proxy source (ice cores, pollen records/palynology, tree rings/dendrochronology, coral records, deep-sea sediment cores, cave stalagmites/speleothems). Up to 2 further marks for mechanism — e.g. ice cores: oxygen isotope ( $\delta^{18}O$ ) ratios in ice layers indicate past temperatures; trapped air bubbles preserve historic greenhouse gas levels; annual ice layers can be counted like tree rings to establish chronology.

**Q2(b) Explain TWO reasons why there is uncertainty over future global warming trends**

**4 marks**

■ **(1) Future human greenhouse gas emissions are unknown — dependent on policy choices, speed of energy transitions, and economic development pathways. (2) Complex climate system feedbacks (e.g. permafrost methane release, changes in cloud formation) are not fully understood or modelled.**

Up to 2 marks per reason. Reason 1: different emissions scenarios (SSPs/RCPs) produce very different temperature projections; speed of renewable energy transition uncertain; developing nations' future energy paths unclear. Reason 2: positive feedbacks (melting Arctic sea ice → lower albedo → more warming) vs negative feedbacks (more evaporation → more cloud cover → cooling) — net effect remains scientifically uncertain.

■ *Both reasons must be clearly distinct from each other.*

**Q2(c) Explain why it is difficult for farmers to adapt to changing precipitation patterns**

**6 marks**

■ **Farmers face financial constraints, high uncertainty about new precipitation patterns, limited access to technology and information, and long lead times required for changes to crops or irrigation infrastructure.**

Award marks for developed, causally linked points (max 6): (1) Cost barrier — new irrigation, drainage, or drought-resistant seeds require capital that subsistence farmers lack. (2) Uncertainty — spatially and seasonally variable rainfall makes crop planning extremely difficult. (3) Knowledge gaps — limited access to agro-meteorological forecasts or agricultural extension services. (4) Time lags — switching crop varieties or installing infrastructure takes years, creating food insecurity in the transition period. (5) Land tenure — tenant farmers will not invest in land they do not own. (6) Market access — new crops may have no established local market. Award 5–6 marks for multi-factor answers with clear causal chains.

**Q3(a)(i) Identify the correct statement about business start-ups (Figure 3)**

**1 mark**

■ **C — USA had more start-ups than the other 4 countries combined.**

USA = 3,525,000. Sum of others: China 652,000 + UK 385,000 + India 339,000 + Germany 199,000 = 1,575,000. USA (3,525,000) > 1,575,000 ✓. A: wrong — Germany had fewest, not India. B: wrong — UK/Germany ≈ 1.9x, not 5x. D: wrong — USA/China ≈ 5.4x, not 10x.

**Q3(a)(ii) Suggest ONE reason why the USA had the largest number of business start-ups**

**2 marks**

■ **The USA has a highly developed venture capital ecosystem combined with a strong cultural attitude towards entrepreneurship and acceptance of business risk.**

1 mark for a valid reason. 2nd mark for development/explanation. Alternatives: largest domestic consumer market (330 million); English-language global advantage; world-leading research universities producing graduates with commercial skills; Silicon Valley agglomeration effect; flexible labour markets; relatively low regulatory burden for new businesses.

**Q3(a)(iii) Explain ONE way national governments can encourage business start-ups**

**2 marks**

■ **Governments can offer tax incentives such as reduced corporation tax rates or R&D; tax credits, which lower costs and improve early-stage profitability for new businesses.**

1 mark for identifying a valid method (tax relief, grants/loans, enterprise zones, deregulation, digital infrastructure investment, skills training programmes). 2nd mark for explaining HOW it encourages start-ups — e.g. tax relief reduces financial risk, making entrepreneurs more willing to invest personal savings; government-backed loans provide seed capital where private investors are reluctant due to perceived risk.

**Q3(b) Explain how Information and Commodities global flows have deepened connections between countries**

**4 marks**

■ **Information flows: the internet enables real-time financial transactions, global media, and coordinated TNC operations, creating deep interdependence. Commodity flows: global supply chains mean countries specialise in production, creating mutual economic dependency.**

Up to 2 marks per flow type. Information: social media/financial data enable 24-hour international trading; TNCs coordinate global operations in real time from anywhere; digital cultural flows spread ideas and values globally. Commodities: oil, copper, and food grains traded globally mean countries rely on each other for essentials; commodity price shocks in one country ripple globally; WTO trade agreements formalise and deepen these dependencies.

**Q3(c) Explain the physical and political reasons why some locations are weakly connected to the global economy**

**6 marks**

■ **Physical: landlocked countries with mountainous or desert terrain face prohibitive transport costs that deter trade and investment. Political: conflict, corruption, trade sanctions, or deliberate isolationist policies prevent foreign investment and international trade.**

Award up to 3 marks for physical AND up to 3 marks for political reasons (both categories must be addressed). Physical: landlocked location remote from ports; mountainous/desert/rainforest environments create barriers; extreme climates limit agriculture and infrastructure; no navigable rivers. Political: civil war (DRC, Yemen) deters TNCs from investing; poor governance and corruption increase business risk; trade embargoes and sanctions cut off countries (North Korea); absence of trade agreements; state monopolies blocking foreign competition. Award higher marks for specific country examples and developed causal chains.

**Q4(a)(i) Which population–resources theory does Figure 4 represent?**

**1 mark**

■ **D — Malthus**

The cartoon directly illustrates the Malthusian argument: growing population will eventually outstrip food supply, leading to resource shortages. Malthus argued population grows geometrically while food production grows only arithmetically.

**Q4(a)(ii) Explain how rising affluence could lead to shortages of Food and Energy****4 marks**

■ **Food: rising incomes shift diets toward meat and dairy, which require far more land, water, and grain per calorie than plant-based foods. Energy: wealthier populations own more vehicles, appliances, and air conditioning, dramatically increasing per capita energy demand.**

Up to 2 marks per resource. Food: growing middle class in China/India increasing meat demand — up to 8 kg of grain required per 1 kg of beef produced; more food wasted in affluent societies; biofuel production competes with food crops for agricultural land. Energy: increased car ownership; air conditioning in warmer climates; global tourism growth; demand for electronics and data centres; fossil fuel consumption rising as more countries industrialise.

**Q4(b) Explain the negative impacts of urbanisation on the rural areas surrounding cities****4 marks**

■ **Rural areas lose working-age population through rural–urban migration, agricultural land to urban sprawl, and experience declining local services and weakened rural economies.**

1 mark per developed point (max 4): (1) Rural–urban migration leaves an ageing rural population, reducing the agricultural labour force and productivity. (2) Urban expansion at the urban fringe converts productive farmland to housing and roads. (3) Counterurbanisation inflates rural house prices, pricing out local lower-income residents. (4) Schools, hospitals, and public transport services decline as rural population falls below viable thresholds. (5) Environmental impacts — habitat loss, light and noise pollution, and increased traffic spreading outward from the urban fringe.

**Q4(c) Explain why some people have positive attitudes towards immigration whereas others are negative****6 marks**

■ **Positive attitudes: employers value migrants filling labour shortages; governments appreciate fiscal contributions; cosmopolitan communities value cultural diversity. Negative attitudes: concerns over job competition, pressure on public services, housing costs, and cultural or social change.**

Award marks for balanced treatment of BOTH perspectives with explanation. Positive: businesses need both skilled and unskilled workers; ageing host populations require young workers to sustain pension systems; migrants bring entrepreneurial activity and cultural diversity; remittances benefit origin countries. Negative: perception (often exaggerated) that migrants compete for jobs; perceived pressure on schools, healthcare, and housing in receiving areas; cultural and language differences can create social tensions; immigration is often politically exploited. Award 5–6 marks for answers that explain the underlying reasons for different viewpoints rather than simply listing them.

**SECTION B — Questions 5 & 6 (30 marks each — answer ONE)****Q5(a) Suggest both physical and human causes for the distribution of natural disaster risk (Figure 5)****10 marks**

■ **Physical causes: location on tectonic plate boundaries (earthquakes/volcanoes); tropical latitudes exposed to cyclones; low-lying coastal deltas prone to flooding and tsunamis. Human causes: poverty reducing disaster preparedness; high population density; inadequate early-warning infrastructure.**

Award using Levels 1–4. L4 (8–10): clear and accurate Figure 5 references with spatial detail; both physical AND human causes explained and exemplified; logical, developed structure. L3 (5–7): both cause types covered with development; may lack specific Figure 5 reference. L2 (3–4): limited range; mainly one cause category. L1 (1–2): basic, unexplained statements. Physical: Ring of Fire (Japan, Philippines, Indonesia = high risk); cyclone belt 5–20° north and south of equator (Central America, SE Asia); low-lying deltas prone to flooding. Human: sub-Saharan Africa shows high risk largely due to low preparedness relative to hazard exposure; dense informal urban settlements in hazard zones; lack of early warning systems; deforestation amplifying flood risk.

■ *Figure 5 shows very high risk in central Africa and SE Asia — reflecting BOTH physical hazard exposure AND low adaptive capacity. Full marks require both dimensions.*

**Q5(b) "Sea-level rise is the most significant threat resulting from global warming."  
To what extent do you agree?**

**20 marks**

■ **Partially agree — sea-level rise is a serious and well-documented threat (potentially displacing over 1 billion people in low-lying coastal areas) but other threats such as extreme weather events, food and water insecurity, biodiversity loss, and human health impacts are equally or more significant for different regions and populations.**

Award using Levels 1–4 (AO1 knowledge + AO2 application/analysis). L4 (16–20): balanced, well-evidenced argument; clear reasoned judgement on the extent of agreement; compares multiple threats for different places and populations; coherent conclusion. L3 (11–15): range of points supporting and challenging the statement; some evaluative language; examples used. L2 (6–10): some relevant content but unbalanced or mainly descriptive. L1 (1–5): basic. FOR sea-level rise: Pacific island states (Tuvalu, Maldives) face existential threat; Bangladesh delta at severe risk; intensified storm surges; saltwater intrusion ruins farmland. AGAINST: drought and changing rainfall patterns → food insecurity affecting billions; extreme heat events → deaths and reduced crop yields globally; ocean acidification → collapse of fisheries; vector-borne diseases (malaria, dengue) spreading to new regions. Conclusion should justify a clear, reasoned position.

**Q6(a) Suggest reasons for the projected changes to Madagascar's population structure and size 2020–2050 (Figure 6)**

**10 marks**

■ **Total population grows significantly. Birth rate remains high but shows signs of beginning to decline (base narrows slightly by 2050). Survival into older age cohorts improves, indicating rising life expectancy — the pyramid becomes less sharply triangular.**

Award using Levels 1–4. L4 (8–10): detailed and accurate Figure 6 references (specific age cohorts discussed); explains both population size increase AND structural changes; links to the demographic transition model; Madagascar-specific contextual knowledge. Key points — growth: high fertility persists due to limited contraception access, cultural preference for large families, high rural population dependent on child labour, demographic momentum from existing large young cohort. Structural change: slight narrowing of 0–4 bar by 2050 suggests early fertility decline linked to improving female education and empowerment; widening of middle-age cohorts indicates improving adult survival (better healthcare and nutrition); growing elderly cohort reflects rising life expectancy. Context: Madagascar is among the world's poorest countries; limited state healthcare but NGO and international aid improvements are gradually raising survival rates.

**Q6(b) "The benefits to Asian countries of the shift in the global economic centre of gravity far outweigh the costs." To what extent do you agree?**

**20 marks**

■ **Largely agree for rapidly industrialising nations (China, South Korea, Singapore, Taiwan) where GDP growth and poverty reduction have been transformative. However, significant costs — environmental degradation, widening inequality, and labour exploitation — mean the balance is less clear for less industrialised Asian nations.**

Award using Levels 1–4. L4 (16–20): evaluative and balanced throughout; uses specific country examples; importantly distinguishes between different Asian countries rather than treating 'Asia' as homogeneous; clear, justified conclusion. Benefits: China lifted approximately 800 million people out of poverty since 1980s; South Korea transformed from LIC to HIC in under 40 years; FDI inflows creating millions of manufacturing jobs (Bangladesh garment industry); growing urban middle class; emerging technology innovation hubs (South Korea, Taiwan, Shenzhen). Costs: severe air and water pollution (China's 'cancer villages', annual smog crises); widening urban–rural inequality within countries; labour exploitation in export processing zones; cultural homogenisation; vulnerability of export-led growth models to global recessions; benefits are very unevenly distributed — Myanmar, Cambodia, and Laos remain among the world's poorest. Conclusion: at macro level, benefits likely outweigh costs for the most industrialised Asian economies, but distribution of gains is deeply unequal both across and within countries.