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Diploma Programme
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Markscheme

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Geography

Higher level and standard level

Paper 1

25 pages

Paper 1 markbands

These markbands are to be used for paper 1 at both standard level and higher level.

Marks	Level descriptor		
	AO1: Knowledge and understanding of specified content **AO2: Application and analysis of knowledge and understanding**	**AO3: Synthesis and evaluation**	**AO4: Selection, use and application of a variety of appropriate skills and techniques**
0	The work does not reach a standard described by the descriptors below.		
1–2	**The response is too brief, lists unconnected information, is not focused on the question and lacks structure.** • The response is very brief or descriptive, **listing** a series of unconnected comments or largely irrelevant information. The knowledge and understanding presented is very general with large gaps or errors in interpretation. Examples or case studies are not included or only **listed**. • There is no evidence of analysis. • Terminology is missing, not defined, irrelevant or used incorrectly.	• No evidence of evaluation or conclusion is expected at this level.	• Information presented is not grouped logically (in paragraphs or sections). • Maps, graphs or diagrams are not included, are irrelevant or difficult to decipher (only if appropriate to the question).
3–4	**The response is too general, lacks detail, is not focused on the question and is largely unstructured.** • The response is very general. The knowledge and understanding presented **outlines** examples, statistics, and facts that are both relevant and irrelevant. Links to the question are **listed**. • The argument or analysis presented is not relevant to the question. • Basic terminology is defined and used but with errors in understanding or used inconsistently.	• If appropriate to the question, the conclusion is irrelevant. • There is no evidence of critical evaluation of evidence (examples, statistics and case studies).	• Most of the information is not grouped logically (in paragraphs or sections). • Maps, graphs or diagrams included lack detail, are incorrectly or only partially interpreted without explicit connections to the question (only if appropriate to the question).
5–6	**The response partially addresses the question, but with a narrow argument, an unsubstantiated conclusion, and limited evaluation.** • The response **describes** relevant supporting evidence (information, examples, case studies et cetera), **outlining** appropriate link(s) to the question. • The argument or analysis partially addresses the question or elaborates one point repeatedly. • Relevant terminology is defined and used with only minor errors in understanding or is used inconsistently.	• If appropriate to the question, the conclusions are general, not aligned with the evidence presented and/or based on an incorrect interpretation of the evidence. • Other perspectives on evidence (examples, statistics and case studies) and/or strengths and weaknesses of evidence are **listed**.	• Logically related information is grouped together (in sections or paragraphs) but not consistently. • Maps, graphs or diagrams included do not follow conventions, and include relevant and irrelevant interpretations in the text (only if appropriate to the question).

<table>
<tr><td>7–8</td><td colspan="3">The response addresses the whole question, the analysis is evaluated and the conclusion is relevant but lacks balance.</td></tr>
<tr><td></td><td>• The response describes relevant supporting evidence correctly (information, examples and case studies) that covers all the main points of the question, describing appropriate links to the question.
• The argument or analysis is clear and relevant to the question but one-sided or unbalanced.
• Complex terminology is defined and used correctly but not consistently.</td><td>• If appropriate to the question, the conclusion is relevant to the question, aligned with the evidence but unbalanced.
• Other perspectives on evidence (examples, statistics and case studies) and/or strengths and weaknesses of evidence are described.</td><td>• Logically related information is grouped together (in sections) consistently.
• Maps, graphs or diagrams included contribute to/support the argument or analysis (only if appropriate to the question).</td></tr>
<tr><td>9–10</td><td colspan="3">The response is in-depth and question-specific (topic and command term); analysis and conclusion are justified through well-developed evaluation of evidence and perspectives.</td></tr>
<tr><td></td><td>• The response explains correct and relevant examples, statistics and details that are integrated in the response, explaining the appropriate link to the question.
• The argument or analysis is balanced, presenting evidence that is discussed, explaining complexity, exceptions and comparisons.
• Complex and relevant terminology is used correctly throughout the response.</td><td>• If appropriate to the question, the conclusion is relevant to the question, balanced and aligned with the evidence.
• Evaluation includes a systematic and detailed presentation of ideas, cause and effect relations, other perspectives; strengths and weaknesses of evidence are discussed; (if appropriate) includes justification of the argument and conclusion.</td><td>• Response is logically structured with discussion (and if appropriate to the question, a conclusion) focusing on the argument or points made, making it easy to follow.
• Maps, graphs or diagrams are annotated following conventions and their relevance is explained and support the argument or analysis (only if appropriate to the question).</td></tr>
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Option A — Freshwater

1. (a) (i) Estimate the percentage of rainfall shown as surface storage at the start of the rainfall event. **[1]**

Around 40 *(accept 39 to 41)*

(a) (ii) Estimate the number of hours during which overland flow is present in the drainage basin. **[1]**

10 (hours)15 (minutes) *(allow 10 to 10 hours 30 minutes)*
Accept answers in decimal points (10.0 – 10.5)

(b) Outline **one** reason why interception decreases over time during the rainfall event shown in the diagram. **[2]**

There is a limit to how much water can be stored on leaf surfaces / on vegetation **[1]**, and after a few hours of rainfall no more interception storage can occur **[1]**.

(c) Explain **three** possible ways in which urban development might change how rainwater moves through a drainage basin such as this. **[2+2+2]**

*Award **[1]** for each valid effect and **[1]** for further development of how this might change the movement/flow/storage of rainwater.*

For example: Urbanization would remove vegetation and thus interception storage **[1]**; as a result, more rain will flow through the drainage basin **[1]**.

Do not accept reference to dams and reservoirs.

Other possibilities include:

- May be more surface storage, as rainwater cannot drain away due to impermeable surfaces.
- Little infiltration of rainfall due to impervious concrete surfaces, increasing run-off
- Small soil storage, as little rainwater will filter downwards from the surface.
- Altered overland flow of rainfall due to drainage channels and gutters.

2. (a) Evaluate the strategies used to manage the growing pressures on **one named** major wetland. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on the varied pressures on one named wetland ecosystem, and the relative success of strategies.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- The importance of wetlands as major ecosystems; a critical part of the natural environment; *eg*. water stores, reducing the impact of floods, improving water quality, rich biodiversity.
- Increasing pressures on wetlands include: water abstraction, land drainage, chemical and physical pollution, eutrophication, growing populations, reclamation, dam construction, conversion for aquaculture
- Strategies for management of wetlands, including the roles of international (*eg*, Ramsar Convention), national and local stakeholders.
- The purpose of management from different perspectives – *eg*, biodiversity, water security, tourism.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the different perspectives and relative success of different management strategies, and the varying power of stakeholders. Wetlands continue to be of significant environmental, economic and social importance, and management may partly depend on the scale of the issues. Another approach might be to critically evaluate the strengths of management using a sustainability framework.

For 5–6 marks, expect some weakly evidenced outlining of some pressures on a wetland.

For 7–8 marks, expect a structured account that includes:

- either an evidenced explanation of the pressures and strategies for one named wetland
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect both of these traits.

2. (b) Examine the relative severity of the different effects of agriculture on freshwater quality. **[10]**

Marks should be allocated according to the markbands.

The response should focus on environmental consequences of agricultural intensification, such as pollution of water supplies, eutrophication and salinization, and the role of different stakeholders in their management.

Possible **applied themes** (AO2) **demonstrating knowledge and understanding** (AO1):

- Intensification of agriculture has significant impacts on both surface and groundwater quality, including direct run-off of chemical pesticides and nutrients, slurry from animals, and sediments from soil erosion. This has resulted in pollution of water supplies, affecting water security and biodiversity through eutrophication.
- Also important is increased irrigation and groundwater abstraction, resulting in salinization of soils, especially in semi-arid regions.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the relative importance of different impacts, or possible spatial interactions between them, and the possible conflicting views from different stakeholders.

For 5–6 marks, expect some weakly evidenced outlining of some environmental effects of agriculture on freshwater quality.

For 7–8 marks, expect a structured account, which includes:

- either an evidenced examination of the relative severity of different environmental consequences of agriculture on water quality
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect both of these traits.

Option B – Oceans and coastal margins

3. (a) (i) State the six-figure grid reference of the Dawlish Warren railway station. **[1]**

969787 *(allow 968 / 786 or 788) (accept 979 787 due to map error)*

(ii) Estimate the distance, in km, between X and Y on the map.

1.5 (allow 1.4 to 1.6)

(b) Outline **two physical** reasons why urban development has **not** occurred in area A. **[2+2]**

*In each case, award **[1]** for a valid physical reason and **[1]** for further development using applied knowledge of coastal margins.*

For example: This may be an area of sand / spit **[1]** as the sand is too unstable to support buildings / longshore drift processes make it too mobile **[1]**.

Other possible physical reasons include:
- Possible flood risk, as the land is very low-lying **[1]** and subject to storm surges / at risk of sea level changes **[1]**.
- recognition of Nature Reserve **[1]**; building not permitted as it would destroy the landscape/biodiversity in the area **[1]**.

(c) Explain **two** ways in which vegetation contributes to the development of sand dunes in coastal areas such as this. **[2+2]**

*In each case, award **[1]** for a valid way and **[1]** for further development.*

For example: Vegetation traps sand blown by the wind **[1]** because it reduces wind speed (and therefore the ability to transport sediment) **[1]**.

Other possible ways include:
- Vegetation decay and humus development **[1]**, which is a source of nutrients for further plant growth on sand dunes **[1]**.
- Root systems stabilize the dune system **[1]** and allow embryo dunes to develop into fore dunes **[1]**.
- Alteration of the environment by pioneer/early stage species **[1]**, allowing colonization by further species further fixing the dunes **[1]**.
- Vegetation protects sand dunes from rainfall during tropical storms **[1]** as vegetation intercepts rainfall protecting the dune from erosion **[1]**.

4. (a) Examine why the management of coral reefs and mangrove swamps can become a source of conflict. **[10]**

Marks should be allocated according to the markbands.

Coral and mangrove ecosystems are under increasing pressure, partly from the adverse effects of climate change but also from human activities. Different stakeholders may have conflicting perspectives regarding the use and value of coral reefs and mangroves. These demands must be carefully managed to ensure a sustainable future.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Conflicting pressures include tourism, fishing, transport, energy exploration and settlement.
- Environmental impacts include mangrove and reef destruction, pollution, damage to fragile ecosystems and loss of fisheries. Social and economic impacts include decline of tourism and the fishing industry, and pollution of coastal margins. Coastal margins may also become more vulnerable to erosion by wave action associated with tropical storms.
- Management strategies may be small scale, such as the establishment of protected marine areas, conservation areas, fisheries management, ecotourism, land use zoning, and research and education. They may also be large scale, involving international agreements.
- Tensions and conflicts may arise between different stakeholders, *eg* environmentalists, local people, fishermen, tourists and tour operators.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines a variety of conflicting pressures on coral reefs and mangroves by different stakeholders, in varying <u>places</u> and at different <u>scales</u>. These conflicts are likely to increase, resulting in irreversible damage to ecosystems, unless management strategies for a sustainable future can be formulated.

For 5–6 marks, expect some weakly evidenced outlining of management/conflicting pressures on mangrove and/or coral reefs.

For 7–8 marks, expect a structured account which includes:

- <u>either</u> evidenced explanation of conflicting pressures on both ecosystems (balance not required) and relevant management strategies
- <u>or</u> a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives regarding the success of management strategies.

A response that omits one of the two ecosystems may score up to 7 marks if the evaluation is done well.

For 9–10 marks, expect <u>both</u> of these traits.

4. (b) Evaluate the success of actions to reduce overfishing. **[10]**

Marks should be allocated according to the markbands.

Overfishing has resulted in a dramatic depletion of fish stocks, extinction of prized species, reduced catches, decline of fishing industry, and unemployment. Various policies have been put forward to reduce overfishing and introduce possible alternatives. These include management of fishing areas, establishment of conservation areas, the introduction of quotas, and fish farming (aquaculture).

Possible **applied themes** (AO2) **demonstrating knowledge and understanding** (AO1):

- Causes and consequences of overfishing.
- Conflicts over fishing rights and competing perspectives over ownership of a resource that forms part of the "global commons".
- Need for international agreements.
- Management of fishing areas, *eg* quotas, limits on fleet and net sizes, effective monitoring.
- Establishment of protected marine areas and conservation areas; research.
- Development of sustainable fish farming (aquaculture).
- Actions by individuals (*eg*, eating less fish / choosing eco-friendly options).

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the statement in a way that considers the varying perspectives on the costs/benefits and effectiveness of management strategies, and considers the different scales of dispute or conflict between different nations or places.

For 5–6 marks, expect some weakly evidenced outlining of two actions to reduce overfishing.

For 7–8 marks, expect a structured account that includes:

- either an evidenced examination of two or more actions to reduce overfishing
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives regarding the viability of suggested strategies for sustainable fishing.

For 9–10 marks, expect both of these traits.

Option C – Extreme environments

5. (a) Briefly describe **two** main features of the pattern of the gas and oil extraction sites shown on the map. **[1+1]**

*Award **[1]** for each valid feature.*

Possibilities include:
- Two major concentrations (in Russian Federation, and Canada and USA / Alaska).
- Often found close to coastline but also penetrating inland in Russia / Canada.
- Found inside and outside the Arctic Circle / north and south of the Arctic Circle
- Not found at/beside the North Pole.
- Few in the ocean(s) – Arctic and Atlantic but not Pacific.
- Major concentrations in northern North America, and northern Eurasia / Europe / Asia
- Country with the greatest number is the Russian Federation.

Do not credit just a list of countries.

(b) Outline **one physical** reason why permafrost causes challenges for the industries shown on the map. **[2]**

*Award **[1]** for a valid physical reason and **[1]** for further development or explanation using applied knowledge of extreme environments.*

Heat from the extraction process / building of settlements/infrastructure/pipelines can cause thawing of the permafrost **[1]**, which can lead to subsidence **[1]**.

Other possibilities include:
- Frozen ground **[1]** drilling can cause frictional heat which can melt the permafrost **[1]**. *(Do not accept it is too hard to drill through.)*
- Pipelines can fracture in extreme cold **[1]**, leading to the expense of heating the pipes / raising them above the permafrost layer **[1]**.
- Frost heave **[1]** means piles for pipelines are buried deep to avoid mass movement **[1]**.

(c) Explain **three** possible conflicts over the use of cold environments (such as the Arctic) for mineral extraction. **[2+2+2]**

These should relate directly to mineral extraction and not to global climate change causing melting of the ice.

*Award **[1]** for a conflict related to mineral extraction and **[1]** for further development or explanation using applied knowledge of extreme environments.*

For example: There may be loss of the unique ecosystems due to drilling and infrastructure construction **[1]**; tundra species are fragile/highly vulnerable to change **[1]**.

Other possibilities include:
- Loss of indigenous cultures due to increasingly lucrative jobs in the mining industries.
- Resource nationalism – conflicting claims between competing countries.

- Protected wildlife areas *versus* further oil drilling.
- Presence of a large number of military bases – future unrest in area – loss of sea passage for tankers.

6. (a) Examine the opportunities and challenges associated with tourism in hot, arid environments. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on hot, arid environments and the opportunities and challenges they pose for tourism. The opportunities and challenges are environmental, economic and social, and involve a variety of local and global stakeholders.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Opportunities for tourism include physical characteristics of the landscape and environment that give rise to a variety of different tourist activities and types of recreation.
- Other opportunities include economic gains (multiplier effects), employment and protection of fragile areas.
- Challenges include:
    - Environmental:
      - pressures on local resources, especially water resources and groundwater.
      -possible destruction of fragile habitats ; land degradation.
      -pollution and waste disposal.
    - Economic: land ownership and where the benefits go – local *versus* international stakeholders.
    - Social: conflicts between locals and tourists and management of sites of cultural and religious significance.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the variety of environmental, economic and social opportunities and challenges in different <u>places</u> and <u>scales</u>, and in varying different contexts. They may also examine the varying perspectives of different <u>stakeholders</u>.

For 5–6 marks, expect some weakly evidenced outlining of opportunities and/or challenges.

For 7–8 marks, expect a structured account that includes:

- <u>either</u> evidenced explanation of a variety of opportunities and challenges (do not expect balance)
- <u>or</u> a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect <u>both</u> of these traits.

A response that omits challenges or opportunities may score up to 7 marks if the evaluation is done well.

6. (b) Examine possible ways of managing the impacts of global climate change on local populations in hot, arid environments. **[10]**

Marks should be allocated according to the markbands.

There is much concern regarding the possible impacts of climate change on local inhabitants of extreme environments. While the nature and severity of climate change might be debated, it is acknowledged that local inhabitants will be especially vulnerable. There has been relatively little agreement regarding how these impacts might be managed.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Likely impacts of climate change in hot, arid areas, including increasing rainfall variability, soil erosion and desertification.
- Threats to water supply, including groundwater and irrigation.
- Potential loss of grazing land and decline of fuelwood resources.
- Threats to agriculture and effects on food systems; crop failures; increasing food shortages.
- Rural–urban migration by local populations.
- Possible management strategies might include:
    - Management of impacts will involve local, national and international stakeholders; possible national development plans.
    - Possible adaptations might include: sustainable irrigation, small-scale water management systems; soil conservation measures; desert "greening".
    - Agricultural research – drought-tolerant plants and animals.
    - Role of NGOs/international aid.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) in a way that examines the varied effects of climate change on local populations together with possible adaptation and management strategies. Another approach might be to compare <u>places</u> and examine the varying strategies for management at different <u>scales</u> or <u>economic</u> contexts (high income *versus* low income).

For 5–6 marks, expect some weakly evidenced outlining of the impacts of climate change on local peoples.

For 7–8 marks, expect a structured account that includes:

- <u>either</u> evidenced explanation of impacts of climate change on local people and a variety of possible management strategies
- <u>or</u> a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect <u>both</u> of these traits.

Option D – Geophysical hazards

7. (a) (i) Estimate the number of internally displaced persons (IDPs) moving to Artibonite. **[1]**

125 000 persons *(accept 100 000–150 000).*

(ii) Estimate the furthest distance, in km, from Port-au-Prince at which very strong earthquake intensity was experienced. **[1]**

80 *(allow 70–90).*

(b) Outline how the distance from the epicentre of an earthquake can determine the severity of **two** associated secondary hazards. **[2+2]**

*In each case, award **[1]** for recognizing a valid secondary hazard, and **[1]** for further development showing applied knowledge of geophysical hazards.*

For example: The further from the epicentre, the fewer landslides **[1]**. This is because shaking is less severe, which can cause instability of slopes **[1]**.

Do not double credit less severe / more severe shaking

Other possibilities include:
- tsunamis
- liquefaction
- fires
- collapse of infrastructure
- disease.

(c) Explain **two** reasons why internally displaced persons may have to wait a long time to return home after a major earthquake event such as this. **[2+2]**

*In each case, award **[1]** for a valid reason and **[1]** for further development showing applied knowledge of geophysical hazards.*

For example: Large scale of devastation **[1]** means an enormous cost/undertaking to reconstruct housing/infrastructure **[1]**.

Other possibilities include:
- aftershocks
- infrastructure destroyed
- weak government
- lack of funding
- pollution (atmospheric or terrestrial)
- lack of insurance
- wealth/poverty levels
- lack of resources/materials/workers/aid for reconstruction
- fear of returning.

8. (a) Examine pre-event management strategies designed to reduce human vulnerability to mass movement hazards. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on management strategies that might be implemented to reduce vulnerability prior to a mass movement hazard event. Vulnerability includes economic and social factors, such as damage to buildings and infrastructure, loss of life and injury, and decline of living standards. Mass movement hazards are often the product of other hazard events, such as tectonic activity and storms.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Understanding of physical and human causes of mass movement, *eg* tectonic activity, storms, deforestation, construction of infrastructure.
- Geophysical surveys, hazard prediction, records of type, frequency and location of past large-scale mass movement events.
- Hazard risk-mapping of hazard-prone areas; government planning and land-use zoning.
- Slope stabilization measures, including terracing, re-vegetation, slope drainage, gabions, *etc*.
- Need for decision making at various scales: local, national and international.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of the effectiveness and cost of management strategies in relation to different <u>places</u> and at varying spatial <u>scales</u>, and the different perspectives on how the risks should be managed.

For 5–6 marks, expect some weakly evidenced outlining of some pre-event management strategies.

For 7–8 marks, expect a structured account that includes:

- <u>either</u> evidenced explanation of a range of management strategies to reduce human vulnerability
- <u>or</u> a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect <u>both</u> of these traits.

8. (b) Examine the relative importance of economic and social factors in the vulnerability of local communities to geophysical hazards. **[10]**

Marks should be allocated according to the markbands.

The vulnerability of people to geophysical hazards is affected by a variety of economic and social factors, including variations in wealth and education, past experience, personal knowledge and the perception of hazard risk. These will vary between and within different communities.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Geophysical hazards represent a significant threat to many communities around the world; many large cities are located on plate margins, close to active volcanoes and earthquake zones.
- Vulnerability is a product of the likelihood/probability of a hazardous event occurring and the consequences in terms of injury, death and destruction.
- Economic factors affecting vulnerability include wealth and infrastructure and communications; planning.
- Social factors include perception of the risk, population characteristics, education and literacy levels.
- Perception of the hazard will affect management and levels of preparedness to reduce risk from future events.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the statement in a way that shows understanding of how economic and social factors affect vulnerability of people in different communities/countries.

Accept discussion beyond local scale to communities within countries.

For 5–6 marks, expect some weakly evidenced outlining of some social and economic factors that might affect vulnerability of communities.

For 7–8 marks, expect a structured account that includes:

- either evidenced explanation of how a variety of economic and social factors affect vulnerability in different communities
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect both of these traits.

Option E – Leisure, tourism and sport

9. (a) (i) Estimate the number of hours per day that people aged 65+ spend watching TV. **[1]**

About 4.5 *(allow 4.4 to 4.6)*. *Accept 4 hr 20 min to 4 hr 40 min*

(ii) Estimate the percentage of leisure time that 15–24-year-olds spend on non-screen activities. **[1]**

33.3% *(allow 33.0 to 34.0%)*.

(b) Outline **one** possible reason why people in this high-income country have a large amount of leisure time. **[2]**

*Award **[1]** for a valid reason and **[1]** for further development.*

For example: People in HICs are usually expected to work only 7–8 hours per day **[1]** because laws have been established regarding working conditions **[1]**.

Other possibilities include:
- Larger numbers of retired people
- High income means more people can work from home or part time.
- High unemployment rates.

(c) Explain **three** factors **not** shown in the graph that may affect the amount of leisure time for different groups of working people in a country like this. **[2+2+2]**

*Award **[1]** for identifying the factor and **[1]** for further development using applied knowledge of leisure, tourism and sport.*

Do not credit mirror responses, or anything to do with education or stages of life cycle.

Factors can be socio-economic (who the groups are), or geographic (where they live).

For example: Place of residence – living at the edge of an urban area **[1]** may leave people with less leisure time because of commuting **[1]**.

Other possibilities include:
- Affluence/income – people on a low rate of pay may need to work longer hours to meet living costs.
- Gender – some women may find there is a cultural expectation for them to care for children and/or the elderly in addition to working.
- Culture – some cultural ethnic groups may have differing attitudes towards leisure/work time balance.
- Health/mobility – some working people may have health issues that restrict leisure participation.

10. (a) Examine reasons why the growth of tourism hotspots can become unsustainable. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on the problems associated with the recent rapid growth of tourism in rural and urban hotspots.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Rapid growth of tourism has focused on rural and urban hotspots. Urban hotspots include cultural tourism, such as museums, art galleries and architecture; rural hotspots include areas of outstanding landscape value, national parks and wildlife parks.
- Considerable increase in tourist numbers, often for short periods of time, results in the environmental and perceptual carrying capacity being exceeded in both rural and urban areas.
- Problems include various types of stress: overcrowding and congestion, noise, loss of amenity, litter and pollution and environmental damage.
- These are unsustainable in the long-term, and there needs to be management strategies for a more sustainable future.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of reasons for the growth of tourist hotspots, and how this might have adverse consequences and become unsustainable. They may show understanding that perspectives of various stakeholders may differ on the costs and benefits of urban and rural tourism.

For 5–6 marks, expect some weakly evidenced outlining of problems associated with tourist growth in urban and/or rural areas.

For 7–8 marks, expect a structured account that includes:
- either evidenced examination of a range of issues/costs associated with the growth of tourism in rural and/or urban areas, and how growth might become unsustainable
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and /or perspectives.

For 9–10 marks, expect both of these traits.

10. (b) Examine ways in which international sporting events have become more inclusive over time. **[10]**

Marks should be allocated according to the markbands.

Political and cultural influences are of importance in the increasing participation in international sport by different individuals and societies. For example, there has been a significant increase in the inclusion of numbers of disabled athletes, from a variety of countries, participating in the Paralympics. The focus of the response should be on the various reasons for, and dimensions of, this inclusion. Another approach might be to look at how more countries have been included over time, and why.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- The growing importance of the Paralympic Games, and similar international sporting events; numbers of athletes, from an increasing number of countries.
- Cultural influences include: changing public attitudes towards disability and gender roles; recognition that participation in sport is a human right; acceptance of wider issues regarding equality – religious, gender, sexual orientation or race.
- Increasing media coverage, national and international.
- Political influences include the role of the IOC and IPC. Chosen cities should host both the Olympic and Paralympic Games Funding, training facilities and support given by national governments.
- At the national scale of inclusion, more countries are participating in events than in the past, linked with trends in development.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of the statement in a way that reaches evidenced judgment and shows understanding that perspectives of different stakeholders may differ on who is allowed to participate in sporting activities. Another approach might be to evaluate the spatial or temporal scale over which participation has changed and the differing perspectives of stakeholders.

For 5–6 marks, expect some weakly evidenced outlining of changing inclusion over time.

For 7–8 marks, expect a structured account that includes:

- either evidenced explanation of changing inclusion over time in international sport
- or a discursive conclusion (or ongoing evaluation) of the success of these influences grounded in geographical perspectives.

For 9–10 marks, expect both of these traits.

Option F — Food and health

11. (a) (i) Identify the percentage of people affected by diabetes in Europe in 2000. **[1]**

3–5 *(Only range from the key is correct.)*

(ii) State the region with the highest rate of increase in diabetes between 2000 and 2030. **[1]**

Middle East.

(b) Suggest **two** reasons, **other than** population growth, why the number of people suffering from diseases of affluence is projected to increase globally. **[2+2]**

*In each case, award **[1]** for a possible reason linked to affluence and **[1]** for further development showing applied geographical knowledge of food and health.*

For example: The spread of popularity of fast food outlets **[1]**, meaning more saturated fats are consumed, resulting in increased risk of heart disease **[1]**.

Other reasons include:
- More sedentary lifestyle / lack of exercise **[1]** leads to increased risk of heart disease **[1]**.
- Greater use of computers/laptops/smartphones.
- Longevity.
- Lifestyle choices.

(c) Explain **one global and one local** action that could be undertaken to manage a pandemic such as diabetes. **[2+2]**

*Award **[1]** for each of one global and one local action managing the pandemic and in each case a further **[1]** for further development/explanation showing applied geographical knowledge of food and health.*

For example (global): The 2009 influenza pandemic led to new vaccinations being created **[1]**, which were then distributed around the world by the WHO **[1]**.

For example (local): Campaigns / raising awareness **[1]** for example, introducing a sugar tax on soft drinks in order to reduce the incidence of diabetes **[1]**.

Other actions include:
- airport screening
- vaccinations and immunizations
- surveillance and monitoring by WHO
- organized plans by health boards
- risk management plans.

12. (a) Examine how different factors have contributed to famine in **one or more** countries or areas. **[10]**

Marks should be allocated according to the markbands.

A variety of environmental, economic, political and social factors are responsible for famine, and their importance will vary spatially and temporally.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Famines are particularly severe in low-income countries and poverty-stricken regions.
- The severity or onset of famine is affected by a variety of factors, including natural hazards like earthquakes or droughts, but also social, economic and political factors, such as warfare.
- Access to international aid may alleviate the severity or onset of famine. In the short term, the focus will be on food shortages, medical assistance, water supplies and shelter. In the long term, aid is often criticized for not focusing on long-term sustainability; it may fuel corruption, fall into the wrong hands, or weaken the economies of recipient countries, increasing reliance and undermining domestic agriculture.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the statement in a way that shows understanding of the various factors that have contributed to the severity of famine(s), and the role of international aid in alleviating the effects of famine.

For 5–6 marks, expect some weakly evidenced outlining of the role of some different factors in the severity or onset of famine.

For 7–8 marks, expect a structured account that includes:

- either evidenced explanation of the role of different factors affecting the severity or onset of famine.
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect both of these traits.

12. (b) Examine possible ways to improve food availability in different places. **[10]**

Marks should be allocated according to the markbands.

Modern techniques, such as GMOs, in vitro meat and vertical farming, have focused on the application of science to increasing agricultural productivity. Such ways are seen by some as a means of feeding a rapidly growing population within the background of environmental impacts of global warming.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- Bio-engineering is used to create a variety of genetically modified crops that have higher yields, a greater resistance to insects and diseases, and are less affected by the effects of climate change, such as soil infertility, drought and salinization.
- Other modern farming techniques include in vitro meat and vertical farming.
- Mainly focused on a few crops, such as soya beans, corn, rapeseed, cotton, and to a lesser extent on animals.
- There is considerable debate surrounding the wisdom of producing GM crops, involving a variety of stakeholders: farmers, consumers, environmentalists, bio-tech companies.
- Among issues of concern are food safety, environmental impacts, habitat diversity, ownership of seeds, land ownership, the role of agribusiness in food production, future sustainability.
- Issues regarding rich *versus* poor farmers and growing economic and social inequality.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the statement in a way that shows understanding of the issues surrounding new techniques and the often-competing views of various stakeholders. Perspectives may differ on whether new techniques/ways are viewed positively or negatively depending on the importance various stakeholders attach to issues such as food safety, biodiversity and increasing food production. Another approach might be to think critically about whether some ways are better suited to some places than others.

For 5–6 marks, expect some weakly evidenced ways of increasing food availability.

For 7–8 marks, expect a structured account that includes:

- either evidenced explanation of ways of increasing food availability in specific places
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect both of these traits.

Option G — Urban environments

13. (a) (i) Using map evidence, identify **one** factor that has limited the expansion of Lagos towards the west. **[1]**

River

(ii) Estimate how far (in km) Lagos has grown along the southern part of the lagoon between points X and Y from 1984 to 2013 **[1]**

25 (allow 23-27)

(b) Suggest **two** social reasons for the rapid growth of a megacity such as Lagos. **[2+2]**

*Award **[1]** for a valid social reason and **[1]** for further development.*
Do not credit economic reasons.

For example: A high rate of natural increase **[1]** as fertility rates are high in countries such as Nigeria **[1]**.

Other possible reasons include:
- Migration – as pull factors such as education, universities, hospitals (do not double credit two urban social pull factors).
- Push factors in rural areas, such as militia groups/civil war or land reforms. Must be distinctly different from the pull factor.

(c) Explain **two** reasons why the informal economic sector is important in a megacity such as Lagos. **[2+2]**

*In each case, award **[1]** for a reason, and **[1]** for relevant explanation.*

For example: The rapid growth of the mega-city/ the scale of the rural-urban migration into Lagos, means that many formal jobs are not available [1] therefore, people must rely on small-scale, labour-intensive activities to survive **[1]**.

Other possibilities include:
- Informal self-employment, *eg* new technology industries may offer greater opportunity than low-paid formal work.
- Important from a consumer point of view to have cheaper alternatives.

14. (a) Examine the varying impact of human activity on urban microclimates and air pollution. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on the modification of urban microclimates by human activity. This includes patterns and sources of air pollution, and the causes and effects of urban heat islands. Other aspects of urban microclimates that might be considered include wind strength and variability and precipitation types and amounts. Consideration might be given to management strategies to reduce adverse effects of air pollution.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- The various causes and patterns of air pollution within cities, including the role of transport and industry, and types of pollution varying with combustion of fossil fuels.
- The environmental impact and the social and economic costs of air pollution, including health issues and social stress.
- Causes of urban heat islands and the spatial and temporal variations in intensity.
- Atmospheric pollution, heat islands and the nature of built-up areas might also affect wind and precipitation in cities.
- Strategies to improve air quality are of increasing importance in many cities. These include use of alternative energy, such as electric vehicles, development of public transport and reducing traffic congestion.
- The relative success of strategies to improve air quality may vary with context: rapidly growing megacities in low-income countries, compared with cities in high-income countries.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of the statement in a way that shows understanding of the causes, spatial variation and impacts of human activity on urban microclimates. One approach might be to examine the challenges faced by governments and urban planners to improve air quality in different <u>places</u> and contexts. There may be an evaluation of the relative success of strategies in the context of ensuring a sustainable urban future. Another approach might be to consider the <u>perspectives</u> and <u>power</u> of different stakeholders.

For 5–6 marks, expect some weakly evidenced outlining of the impact of human activity on urban microclimates and/or air pollution.

For 7–8 marks, expect a structured account that includes:

- <u>either</u> evidenced examination of varying impacts of human activity on urban microclimates and air pollution (do not expect balance)
- <u>or</u> a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

For 9–10 marks, expect <u>both</u> of these traits.

14. (b) Examine the interrelationships between the growth of cities and their infrastructure development. **[10]**

Marks should be allocated according to the markbands.

The focus of the response should be on different types of urban infrastructure, including transport, waste disposal and provision of clean water and how the development of infrastructure has or has not kept pace with urban growth. Consideration may be given to the various challenges and opportunities faced by decision-makers and urban planners.

Possible **applied themes** (AO2) demonstrating **knowledge and understanding** (AO1):

- The development of adequate infrastructure is essential for the success of economic activity, living standards and quality of life of urban dwellers. Different types of urban infrastructure should be considered in the context of one or more cities.
- Rapid urban growth puts strain and pressures on infrastructure. The problems are acute in large cities, especially megacities in lower-income countries, which are facing a dramatic increase in population. This is reflected in poor transport systems, congestion and a lack of basic facilities in large areas of slums. In addition, higher-income countries suffer from aging infrastructure in need of repair and replacement, together with congested transport networks. Although population growth may be relatively small, the cost of renewal and repair of infrastructure is high.
- There are significant challenges to urban planners and different stakeholders. Solutions should be designed for the future sustainability of urban systems, possibly involving an integrated approach combining transport, energy, water and waste.

Good answers may be **well-structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of the statement in a way that shows understanding of the issues and interrelationships surrounding the development of infrastructure in relation to urban areas and communities. One approach might be to critically examine how possibilities for further urban growth rely on perpetual infrastructure development and improvement. Another approach might be to consider the power of different stakeholders, such as national and local governments, urban planners and local people.

For 5–6 marks, expect some weakly evidenced outlining of the relationship between urban growth and infrastructure development.

For 7–8 marks, expect a structured account that includes:

- either evidenced examination of issues / problems concerning the relationship between urban growth and infrastructure development in different geographical contexts
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and perspectives.

For 9–10 marks, expect both of these traits.