

Markscheme

November 2020

Geography

Higher level and standard level

Paper 1

No part of this product may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without written permission from the IB.

Additionally, the license tied with this product prohibits commercial use of any selected files or extracts from this product. Use by third parties, including but not limited to publishers, private teachers, tutoring or study services, preparatory schools, vendors operating curriculum mapping services or teacher resource digital platforms and app developers, is not permitted and is subject to the IB's prior written consent via a license. More information on how to request a license can be obtained from <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

Aucune partie de ce produit ne peut être reproduite sous quelque forme ni par quelque moyen que ce soit, électronique ou mécanique, y compris des systèmes de stockage et de récupération d'informations, sans l'autorisation écrite de l'IB.

De plus, la licence associée à ce produit interdit toute utilisation commerciale de tout fichier ou extrait sélectionné dans ce produit. L'utilisation par des tiers, y compris, sans toutefois s'y limiter, des éditeurs, des professeurs particuliers, des services de tutorat ou d'aide aux études, des établissements de préparation à l'enseignement supérieur, des fournisseurs de services de planification des programmes d'études, des gestionnaires de plateformes pédagogiques en ligne, et des développeurs d'applications, n'est pas autorisée et est soumise au consentement écrit préalable de l'IB par l'intermédiaire d'une licence. Pour plus d'informations sur la procédure à suivre pour demander une licence, rendez-vous à l'adresse suivante : <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

No se podrá reproducir ninguna parte de este producto de ninguna forma ni por ningún medio electrónico o mecánico, incluidos los sistemas de almacenamiento y recuperación de información, sin que medie la autorización escrita del IB.

Además, la licencia vinculada a este producto prohíbe el uso con fines comerciales de todo archivo o fragmento seleccionado de este producto. El uso por parte de terceros —lo que incluye, a título enunciativo, editoriales, profesores particulares, servicios de apoyo académico o ayuda para el estudio, colegios preparatorios, desarrolladores de aplicaciones y entidades que presten servicios de planificación curricular u ofrezcan recursos para docentes mediante plataformas digitales— no está permitido y estará sujeto al otorgamiento previo de una licencia escrita por parte del IB. En este enlace encontrará más información sobre cómo solicitar una licencia: <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

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	<p>The response is too brief, lists unconnected information, is not focused on the question and lacks structure.</p> <ul style="list-style-type: none"> • 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. 		
3–4	<p>The response is too general, lacks detail, is not focused on the question and is largely unstructured.</p> <ul style="list-style-type: none"> • 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. 		
5–6	<p>The response partially addresses the question, but with a narrow argument, an unsubstantiated conclusion, and limited evaluation.</p> <ul style="list-style-type: none"> • 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. 		

<p>7–8</p>	<p>The response addresses the whole question, the analysis is evaluated and the conclusion is relevant but lacks balance.</p> <ul style="list-style-type: none"> • 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.
<p>9–10</p>	<p>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.</p> <ul style="list-style-type: none"> • 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.

Option A — Freshwater

1. (a) Identify **two** changes between 2003 and 2011 along the southern shore of the lake between Sandusky and Cleveland. **[1+1]**

- Increased severity **[1]**.
- Greater area of water affected **[1]**.
- Increased distance from shore affected **[1]** / 100-150 km distance **[1]**

- (b) Outline **one** environmental problem caused by eutrophication. [2]

*Award **[1]** for the problem and **[1]** for development.*

For example: Fish die **[1]** due to oxygen depletion **[1]**,

Possible problems include:

- declining biodiversity
- creation of dead zones
- excessive vegetation on surface.

- (c) Explain **one** human reason **and one** physical reason why some areas of a freshwater lake such as this experience high levels of eutrophication. **[3+3]**

*In each case, award **[1]** for the reason and up to **[2]** for development / explanation.*

Possible human reasons include:

- agricultural
- industrial
- settlement.

For example: Runoff from farming into particular parts of the lake **[1]** carries high amounts of nitrates **[1]** that were used as fertilizer **[1]**.

Possible physical reasons include:

- drainage patterns
- wind / storms / currents
- hydrological flows
- relief
- depth/temperature of water.

For example: An area of water with many rivers draining into it **[1]** will receive more inputs of dissolved nutrients in solution **[1]**, leading to excessive algae growth in that part of the lake **[1]**.

2. (a) Examine the role of local communities in the management of water resources. [10]

Marks should be allocated according to the markbands.

Freshwater is an essential resource that has come under increasing pressure due to growth in demand, especially from increased population and urbanization, industry and intensive agriculture. Water quality is also under threat from physical and chemical pollution and salinization. Scarce and poor water quality can seriously affect the health of local communities.

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

- Local management strategies aimed at providing fresh, sustainable water quality; access to clean and affordable water.
- Local communities play an important role in the improvement of health and well-being, and adequate supplies for agriculture and irrigation.
- Local efforts or strategies to reduce pollution from urban areas and agricultural run-off.
- Construction of wells, boreholes and small reservoirs.
- The role of different stakeholders, for example national governments, international organizations, TNCs, in assisting local communities in management of water resources.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the role and power of different stakeholders. Another approach might be to critically evaluate the importance of interactions between different scales of management using a sustainability framework.

For 5–6 marks, expect some weakly evidenced outlining of some local strategies in relation to management of water resources.

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

- either an evidenced explanation of the role/importance/work of local communities managing different water resources
- 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 ways in which different physical factors can affect the characteristics of hydrographs. [10]

Marks should be allocated according to the markbands.

A range of different physical factors affect the characteristics of river hydrographs. Many physical factors may be inter-related to affect the shape of the hydrograph. Physical factors may vary between rivers in different places, and also within the same large river basin. They may vary over different time scales, from seasonal to annual and long term. Climate change may have a long-term influence.

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

- Characteristics of the hydrograph include peak discharge, lag time, steepness of rising and falling limbs, and baseflow.
- Physical factors that affect the characteristics of hydrographs include:
 - rock permeability and soil type/thickness; topography and relief; the type and amount of vegetation cover
 - climatic factors, such as rainfall amount, duration and intensity
 - snowfall (precipitation held in storage)
 - drainage basin characteristics, such as basin shape, drainage density and bifurcation ratio.
- Climate change may cause the character of the hydrographs to change over time, eg the impact of reduced rainfall, or more intense rainfall.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the different scales/importance of physical factors, and the interactions between different physical factors, eg the impact of climate change on local water systems.

For 5–6 marks, expect some weakly evidenced outlining of the influence of two different physical factors.

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

- either an evidenced explanation of two or more physical factors affecting hydrograph characteristics
- 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) Identify the dominant land use that is replacing mangrove swamps on island **A**. [1]

Aquaculture

- (ii) Estimate the percentage of mangrove swamp loss caused by urban development **B**. [1]

Accept answers between 15 – 20% (units not required).

- (b) Outline **one** physical factor necessary for the formation of a mangrove swamp. [2]

Award [1] for the factor and [1] for explanatory development.

For example: Mangroves grow in the coastal intertidal zone [1], where freshwater mixes with saltwater [1].

Other possible factors include:

- In areas of low energy waves/sheltered areas, where slow moving water allows fine sediments to accumulate.
- In areas of tropical/sub-tropical climates / water temperatures of 20°C, which provide ideal environmental conditions for growth
- Shallow waters, allowing roots to be exposed and continue to grow.

- (c) Explain **two** environmental consequences of the loss of mangrove swamps in coastal areas such as those shown on the map. [3+3]

Award [1] for the consequence and up to [2] for development / explanation / exemplification.

For example: Removing the mangroves may mean the coastline is less protected from hurricanes / tropical cyclones [1], as mangroves absorb wave energy [1] and dissipate the force of the storm [1].

Other possibilities include:

- loss of biodiversity
- loss of breeding and feeding grounds for fish
- removal of natural filters of run-off from farms and sewage
- removal of potential stabilization of shorelines / prevention of erosion.

4. (a) Examine the role of sea level changes in the formation of relict cliffs and raised beaches. **[10]**

Marks should be allocated according to the markbands.

Sea levels have undergone significant changes over the last few thousand years, and these have had a significant impact on coastal landforms, resulting in coastlines of emergence (sea level fall) and submergence (sea level rise).

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

- Relict cliffs and coastal cliffs that were formerly active/eroded, but are now above sea-level and are inactive. They may be degraded by sub-aerial processes (have a less-steep profile) and may be vegetated.
- Relict cliffs and raised beaches are features of an emerging coastline, where there has been a fall in relative sea level.
- Raised beaches (which may be erosional or depositional) are former wave-cut platforms in front of active cliffs, but are now “raised” above sea level; they may also be former beaches now above sea level.
- Coastal emergence, caused by a fall in relative sea level, may be caused by eustatic or isostatic processes, or both.
- Eustatic changes are often associated with climate change, causing melting (sea level rise), or expansion/freezing (sea level fall), of ice sheets; these tend to be world-wide changes.
- Isostatic changes may be caused by tectonic uplift of the land, or uplift caused by the removal of the weight of former ice sheets.
- Many coastlines, especially in previously glaciated regions, see the effects of both of these processes – isostatic uplift caused by the removal of the weight of ice sheets after melting, superimposed on eustatic changes in sea level; the causes are often difficult to disentangle.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3). The formation could become complicated because of interactions between different eustatic and isostatic processes, eg sea level rise due to climate change may begin to drown isostatically uplifted areas. There may be many changes over time in relative sea levels.

For 5–6 marks, expect some weakly evidenced outlining of the role of sea level change in the formation of relict cliffs and/or raised beaches.

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

- either an evidenced explanation of the sometimes complex relationship between sea level change and formation cliffs and raised beaches in different places and time-scales
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

4. (b) Examine the roles of different stakeholders in the management of **one** coastal margin affected by erosion **or** flooding.

[10]

Marks should be allocated according to the markbands.

Coastal margins may be affected by erosion and flooding. Rapid erosion of cliffs may cause significant impact on human activity, such as loss of settlements, infrastructure and agricultural land. Coastal flooding not only causes damage, but may also cause significant loss of life and injury.

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

- Management should address either erosion or flooding of one coastal margin.
- The causes of erosion/flooding.
- The power and perspectives of different stakeholders, such as local peoples, tourists, local and national governments, and conservationists.
- Strategies vary between hard-engineering schemes, cliff-line stabilization and soft engineering, such as beach nourishment.
- Sea defenses to reduce flooding.
- Planning based on managed retreat of coastlines may also be considered.
- Management of patterns of land use.
- The effectiveness of strategies may be judged on other factors, such as aesthetic quality, cost, displacement of people, conservation of wetlands and wildlife, such as on coastal marshes. Also, the impacts on peoples and communities in other areas along the coast.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) of the roles or power of the stakeholders. Another approach is to examine their different perspectives.

For 5–6 marks, expect some weakly evidenced outlining of a coastal management strategy, possibly with implied stakeholders, in order to combat either flooding **or** erosion

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

- either an evidenced explanation of a management strategy to combat either flooding **or** erosion, with stakeholders roles explained
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

If both erosion and flooding are written about, only the first one mentioned is to be credited.

Option C – Extreme environments

5. (a) (i) State the difference in mean altitude, in metres, for south-facing and north-facing corries. [1]

2200 – 1500 = 700m (*units not required*)

- (ii) Estimate the percentage of cirques/corries facing east. [1]

15% (*accept 14–16*) (*% not required*)

- (b) Outline **one** erosional process responsible for the formation of cirques/corries. [2]

*Award [1] for the **named** process and [1] for explanatory development.*

For example: Plucking [1] is where ice tears rock away due to it thawing and (re)freezing [1].

Other erosional processes include:

- Abrasion
- Freeze thaw

- (c) Explain **two** consequences of a warming climate on ice distribution in a glaciated mountainous area such as this. [3+3]

In each case, award [1] for the consequence and up to [2] for further development.

For example: Ice disappears/shrinks overall [1] because of higher rates of melting [1] and possibly less snowfall [1].

Other consequences include:

- Ice remains at higher altitude
- Aspect – ice remains on north-facing slopes (hemisphere dependent) due to aspect and less sunshine on that slope
- Ice coverage could increase if the system changes in ways that foster this (far more snow; relatively small temperature increase).

6. (a) Examine possible ways of managing the causes and consequences of desertification. [10]

Marks should be allocated according to the markbands.

Desertification is a major problem in many arid and semi-arid regions, resulting in soil degradation, salinization, loss of vegetative cover, crop failure and threat to water supplies. Addressing desertification is critical in the eradication of poverty in vulnerable human populations and ensuring environmental sustainability. Management strategies should be implemented at the local and global scales, with the active engagement of stakeholders and local communities.

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

- The causes and consequences of desertification.
- The importance of local, national and global strategies, and the need to involve local communities.
- Integrated land and water management to protect soils from degradation and salinization; countering erosion through terracing and other measures.
- Protecting vegetative cover as a major instrument for soil conservation against wind and water erosion; planting trees.
- Applying a combination of traditional practices with locally adapted land use techniques.
- Introduction of drought-resistant crops and animal husbandry.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the challenges of desertification in different places and scales. They might consider whether one way is easier than the other. Another approach might be to look at different scales of desertification – the causes might be global warming, but the consequences are felt locally, at a different scale.

For 5–6 marks, expect some weakly evidenced outlining of some causes and/or consequences of desertification.

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

- either an evidenced explanation of different management strategies to combat the causes and consequences (do not expect balance) of desertification
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

6. (b) Examine how competition over resources in **one or more** extreme environments has led to tension among stakeholders. **[10]**

Marks should be allocated according to the markbands.

Both arid and cold extreme environments possess considerable and increasingly valuable natural resources. These include minerals, freshwater and scenic resources. Competition over the use of these resources has resulted in tensions and conflicts between different stakeholders, especially between local people and external powers.

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

- The issues may be discussed in relation to one or more extreme environments.
- Conflicts/tensions may be caused by increased demand for resources, such as minerals, land and freshwater, and increased pressures from tourism.
- Stakeholders occur at different scales, including local people/indigenous groups, governments, TNCs, tourists, environmentalists/conservation.
- The relative power of these stakeholders also varies with time and place.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the conflict between identified stakeholders, their relative power, and the scale of the conflict. Another approach might be to reflect critically on the degree of tension and possible conflict.

For 5–6 marks, expect some weakly evidenced outlining of stakeholder tensions in an extreme environment.

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

- either an evidenced explanation of how competition for resources has resulted in stakeholder tensions/conflict in one or more extreme environments
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

Option D – Geophysical hazards

7. (a) (i) Determine the difference in height between the spot heights at **A** and **B**. [1]

1446–125 = 1321 m (*units not required*)

- (ii) Estimate the distance in kilometres between **A** and **B** on the map. [1]

9.1 km (*accept 8.5–9.5*). (*unit not required*)

- (b) Outline how **one** piece of map evidence indicates that this is a volcanic area. [2]

Award [1] for relevant evidence and [1] for development linked to volcanic activity. There should be some specific reference to an area/place on the map to gain [1].

For example: Snæfellsjökull [1] is a large dome/cone-shaped volcano as seen from circular contour lines [1]

Other possibilities include:

- lava block field along the coast / NW of the area indicating lava flows from a volcano
- crater(s) – on named volcano – indicates volcanic activity.

- (c) Explain how volcanic hazard vulnerability in an area such as this could be reduced using:

- (i) GPS crater monitoring; [3]

Allow [1] for demonstrating an understanding of the term and [1] for each further development point explaining how vulnerability is reduced, up to a maximum of [3].

For example: GPS monitoring means that transmitters/receivers are placed around the volcano [1] allowing scientists to monitor and record data about the volcano's activity and changes [1] thus allowing for a timely evacuation of the populations affected by potential volcanic eruptions [1].

- (ii) lava diversions. [3]

Allow [1] for demonstrating an understanding of the term and [1] for each further development point explaining how vulnerability is reduced, up to a maximum of [3].

For example: Lava diversions can be building walls or incorporating lava tubes [1] as is used for volcanic eruptions on Mount Etna [1] which have helped divert the lava from the more populous areas and so saving lives and property [1].

8. (a) Examine how social **and** economic strategies may reduce people’s vulnerability to earthquake hazard events.

[10]

Marks should be allocated according to the markbands.

The vulnerability of people to an earthquake hazard varies spatially. Mitigating measures to reduce vulnerability to injury, disease and death include a variety of social and economic strategies. Levels of wealth, and planning by local and national authorities, will influence their effectiveness.

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

- Levels of vulnerability vary spatially, between and within communities.
- Reduction in vulnerability concerns both individuals and communities.
- Social strategies include increasing perception of the hazard risk, knowledge and degree of preparedness.
- Reduction in vulnerability might involve risk reduction through measures such as education, drills, increasing awareness.
- Increasing individual, family and community preparedness includes storing food and water for emergencies, emergency kits.
- Special preparation strategies may be needed for disabled, elderly and young children.
- Economic strategies / wealth – making buildings and infrastructure more resilient; improved communications (warnings); media.
- There is a relationship between social and economic strategies, at different scales.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines how vulnerability may be reduced at different spatial scales (individual, family, community), and the role and power of different stakeholders. Another approach might be to critically examine the interaction between social and economic factors at different scales.

For 5–6 marks, expect some weakly evidenced outlining of some social and/or economic strategies to reduce human vulnerability.

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

- either an evidenced explanation of a variety of social and economic strategies (do not expect balance) to reduce human vulnerability
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

8. (b) Evaluate pre-event strategies **and** post-event strategies for the management of mass movement hazards.

[10]

Marks should be allocated according to the markbands.

Mass movements pose a considerable risk to people and infrastructure, especially in upland areas with steep slopes and high rainfall. The potential risk may increase due to human activity modifying the slopes through the building of settlements and roads and changing the vegetation cover on vulnerable slopes. Hazard risk and vulnerability may be the result of different types of mass movement, from slow (soil creep, solifluction) to rapid (landslides, rockfalls).

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

- Pre-event strategies include:
 - identifying areas at risk (geological surveys and mapping)
 - GIS
 - slope stabilization, drainage
 - vegetating slopes/afforestation/grass
 - terracing, re-shaping
 - use of gabions and netting.
- Also, mitigating factors such as:
 - planning and land-use zoning
 - increasing levels of awareness; education.
- Post-event strategies (varying with type of mass movement and different time scales) include:
 - reducing injury/loss of life (search and rescue; medical aid; securing water supplies)
 - reconstruction
 - re-location of vulnerable settlements
 - modifications to infrastructure.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3), comparing the relative importance/success of strategies, or different scale examples. They may compare successes and failures for different places (of different stages of development). Another approach might be to systematically evaluate strategies for different mass movement processes, eg rapid to slow mass movement.

For 5–6 marks, expect some weakly evidenced outlining of pre- and/or post-event strategies.

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

- either an evidenced explanation of pre- and post-event strategies (do not expect balance) for managing mass movement hazard(s)
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

Award up to a maximum of [4] if a tectonic process is used instead of mass movement but has some valid pre-/post-event strategies.

Option E – Leisure, tourism and sport

9. (a) (i) Estimate the percentage of older adults playing basketball in 2008. [1]

22 (allow 21–23)

- (ii) Identify the year in which 50% of children played basketball. [1]

2018

- (b) Outline **one** factor that can influence the location of a sports stadium. [2]

Award [1] for the factor and a further [1] for development / explanation / exemplification.

For example: A basketball stadium needs to be easily accessible to supporters [1]; this favours a central urban area with good transport accessibility [1].

Other factors include, but are not limited to:

- land availability
- cost of land
- car parking
- noise
- population density
- culture and history
- government and private investment.

- (c) Explain why participation in basketball or other sports might increase over time for:

- (i) women; [3]

Award [1] for each relevant explanation/exemplification point.

For example: Gender equality rights are being legally enforced [1]; this results in changing attitudes and mindsets towards women in sport [1]; women are more empowered to participate in sport, for example, in the FIFA World Cup [1].

- (ii) low-income groups. [3]

Award [1] for each relevant explanation/exemplification point.

For example: Civil society organizations [1] are working with poor communities by providing equipment and access to facilities [1], such as youth rugby in townships in South Africa [1].

10. (a) Examine ways of managing the negative impacts of tourism’s rapid growth in some urban environments. [10]

Marks should be allocated according to the markbands.

The rapid growth of tourism in cities of cultural/historical importance has resulted in increased physical, economic and social stress for both residents and visitors. This may decrease the quality of life and make the city a less desirable place to visit. Management strategies need to be implemented for a more sustainable future and to increase site resilience. Credit should be given where “rapid” is implied but not necessarily explicitly stated.

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

- Negative impacts of urban tourism include overcrowding/reduction in perceptual and physical carrying capacities, increased pollution, and congestion.
- Management strategies may be at different scales, from local to national and international.
- Strategies for both visitors and residents.
- Strategies include restricting access (eg, Venice), reducing vehicular traffic, pedestrianization, bicycles.
- Encourage localization, and reduce the power of TNCs.
- Improving infrastructure, such as water supply and waste disposal.
- Restricting ownership and letting policies (housing strategies).
- Improved education of visitors and residents.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines conflicts between, and the power and perception of, different stakeholders (residents, tourists, TNCs, governments). Management strategies may vary spatially, and at different scales, for a sustainable future.

For 5–6 marks, expect some weakly evidenced outlining of one or two management strategies dealing with rapid **urban** tourist growth.

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

- either an evidenced explanation of two or more management strategies dealing with impacts of the rapid growth of tourism in urban environments
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

Award up to a maximum of [4] if a non-urban environment is used eg Machu Pichu

10. (b) Examine the advantages **and** disadvantages of the site used for **one or more** festivals. [10]

Marks should be allocated according to the markbands.

Festivals are increasingly important as a leisure and tourist activity. A wide variety of different festivals are held in many different locations, attracting large numbers of visitors. They may be in urban or rural areas, and range from large open-air music or sporting festivals to smaller, more intimate, literary and artistic festivals. Site is an important factor when choosing the location of a festival.

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

- Site factors will vary according to the type of festival, its duration, and numbers of participants.
- Site factors might include area/size (may affect carrying capacity).
- Geology and soils, relief and drainage.
- Provision of water supply, food, and disposal of waste.
- Accessibility of the site (may be important for large festivals) – affects sphere of influence and catchment area.
- Urban or rural (will vary with the nature of the festival).
- Landscape/scenery (might be important for literary/artistic festivals).
- Proximity to settlements (noise pollution).

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines accessibility and different scales – some festivals attract millions, others hundreds. Disadvantages could be based around a stakeholder analysis, including different power perspectives. Another approach is to look at the advantages of places that are very well connected compared with other places, thereby allowing interaction.

For 5–6 marks, expect some weakly evidenced outlining of advantages and/or disadvantages of one or more festival sites.

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

- either an evidenced explanation of the advantages and disadvantages (do not expect balance) of one or more festival sites
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

Option F — Food and health

11. (a) Estimate the area of the country of Nigeria, in km². Show your working. **[2]**

Award [1] for correct answer.

Award [1] for evidence of some valid working / data extraction (even if with incorrect answer).

Accept answers between 800,000 and 1,000,000.

Looking for evidence of use of scale eg: 1000 x 1000 m = 1, 000, 000 km² (units not required for full marks).

- (b) Outline **one** of the main components of the food security index. **[2]**

Award [1] for stating a correct component and [1] for valid outlining or further understanding of what the food index is measuring.

For example: Affordability [1] measures the ability of people to purchase food [1].

The three other components are:

- access to food
- nutritional quality/diet
- safety.

- (c) Explain **two human** factors that may have led to high food insecurity in countries such as those shown. **[3+3]**

In each case, award [1] for a relevant human factor and up to [2] for development/explanation/exemplification.

For example: High incidence of disease (HIV/AIDS, malaria, etc) [1] means fewer people available to work the land sufficiently [1], leading to a lack of food for their families [1].

Other possible factors include:

- poor farming techniques
- political instability
- cost of seeds/ fertilizers / foodstuffs
- corruption
- poor transport links
- poor storage
- population increases
- lack of aid due to militia etc
- inability to trade in world markets.

12. (a) Examine ways in which people's dietary choices are sometimes influenced by different types of transnational corporation (TNC). [10]

Marks should be allocated according to the markbands.

People's habits of food consumption and dietary choices have undergone significant changes in recent years in both higher-income and lower-income countries. The food chain, from production to marketing and consumption, is increasingly dominated by large TNCs that influence people's food choices. There is an increasing uniformity of food production and consumption, and concern that poor diets may lead to a greater incidence of obesity and heart disease. Food consumption habits and dietary choices may be influenced by different types of TNC – eg agribusiness, media, supermarkets and fast-food franchises.

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

- Agribusinesses form a crucial role in the food chain, from production (supply) to marketing and consumption.
- TNCs ensure a relatively cheap, reliable and consistent supply of food.
- Supermarkets, the media and fast-food chains promote certain types of food, affecting people's diets.
- Need for uniformity leads to a reduction in variability and lack of choice of different types of foodstuffs.
- Close links between production and retailing of food through outlets such as supermarkets, fast-food outlets, pre-cooked meals and other food supplies.
- A link between advertising in the media and agribusinesses, influencing patterns of consumption.
- Dietary choices may vary over time and space.
- Changing patterns of food consumption in low-income countries – movement away from traditional forms of agriculture and foodstuffs. Reduction in diversity of food production and diets.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the relative power of different categories/types/examples of TNC (eg, media, agribusinesses, supermarkets, fast-food franchises). Different places, eg isolated rural communities, could be less affected than people in urban centres. There is also the possibility that TNC influence is limited by factors like government health campaigns.

For 5–6 marks, expect some weakly evidenced outlining of how one or more different types of TNCs have influenced people's diets.

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

- either an evidenced explanation of how two or more different types of TNCs have influenced people's dietary choices
- 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 the role of diffusion and barriers in the spread of disease

[10]

Marks should be allocated according to the markbands.

The spread of infectious diseases may be increased by increasing globalization, and the movement of people between different parts of the world. Some disease outbreaks, such as influenza, may spread rapidly over a wide area. Although physical controls are important in limiting the spread, human factors, such as vaccination, quarantine and education play a crucial role.

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

- Responses may focus on one or more named diseases.
- Types of diffusion of diseases include expansion and relocation.
- Geographic factors may act as barriers in the spread of disease and the rate of diffusion.
- Barriers may be physical (relief or water features), political (eg, quarantine), economic or social (eg, controls such as vaccination campaigns). The role of international bodies, such as relief workers and the UN, might also be considered.
- Responses should refer to the areal spread of disease, at different scales, and the rates of diffusion.
- The effectiveness of barriers may also vary according to the disease.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that focuses on the spatial interaction between places with respect to the spread of disease, and the power of different stakeholders to erect effective barriers. Another approach is to examine different diffusion processes and the extent to which barriers are effective.

For 5–6 marks, expect some weakly evidenced outlining of how diffusion and/or barriers affect the spread of disease(s).

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

- either an evidenced explanation of the role of diffusion and barriers (do not expect balance) in the spread of disease(s)
- 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) Identify **two** types of vehicle allowed within the superblock model. **[1]**

Award [1] for any two, and [0] for only one.

bicycles / urban and emergency services / residents' vehicles (do not accept cars)

- (ii) Determine the number of residents living in each superblock (as enclosed by the marked roads) **[1]**

900

- (b) Outline **one** way in which the superblock model could modify the microclimate of an urban area. **[2]**

Award [1] for a valid environmental consequence of the superblock model and [1] for a link to microclimate.

For example: Less motorised vehicles reduces emissions **[1]**, which lowers air temperature **[1]** / which improves air quality **[1]**.

Other ways include:

- wind patterns (decrease / funneling)
- changing albedo as road surface changed for pedestrianisation

- (c) Explain **two** ways in which technologies can be used by urban planners to manage smart cities such as this more sustainably. **[3+3]**

In each case, award [1] for a correct way and up to [2] for development / explanation / exemplification linked to sustainability.

For example: Urban planners can use satellite data to monitor traffic **[1]**. This lets drivers know where to go to keep the city moving **[1]**, which is vital in cities that can become over congested **[1]**.

Other examples include but are not limited to

- scheduling waste collections
- parking availability
- irrigation controls for vertical/ roof-top gardens.
- driverless cars
- smart meters
- technologies linked to increasing sustainability eg e.v. charging stations

Do not accept general eco-city points like solar panels/power or use of public transport as these are not Smart City technologies.

14. (a) Examine the costs **and** benefits of urban redevelopment for different groups of stakeholders. **[10]**

Marks should be allocated according to the markbands.

Urban redevelopment, in both low- and high-income countries, may have a significant impact on neighbourhoods and local communities. Costs and benefits will vary between different stakeholders, who may have differing perspectives and power.

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

- Urban redevelopment includes land use changes, such as slum clearances and gentrification, development of brownfield and greenfield sites, affecting neighbourhoods and their populations.
- Slum clearances may include areas in cities of different levels of economic development – eg squatter settlements and inner-city slums.
- Residential populations in affected local neighbourhoods may have different viewpoints concerning land use changes, and be affected in different ways.
- Costs and benefits will vary between different stakeholders, such as local communities, city planners, developers and TNCs, who have differing perspectives and power.

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines how perspectives will vary based on who is benefitting; these may change on longer timescales. Costs and benefits may be spread according to the power of different stakeholders. In different places there may also be more or less protection for disenfranchised stakeholders.

For 5–6 marks, expect some weakly evidenced outlining of the costs and/or benefits of urban redevelopment for people/stakeholders.

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

- either an evidenced explanation of costs and benefits of urban redevelopment (do not expect balance) for different groups of stakeholders
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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

14. (b) Examine the influence of economic **and** political factors on the location of low-quality residential areas in cities.

[10]

Marks should be allocated according to the markbands.

The location of low-quality residential areas in cities may vary over space and time. It may vary between cities in low-income and high-income countries. Their location is affected by a variety of economic, social, political and physical factors, and importance is affected by the relative power of different stakeholders.

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

- Examples may be taken from one or more cities.
- Economic factors include variations in land value and the relative wealth/poverty of the populations. Also, employment, industrial activity and proximity to other types of urban land use.
- Transportation networks and accessibility.
- Political factors include urban planning, including possible segregation of low-income groups.
- Political factors may be more important in autocratic than democratic governments and societies.
- Other factors may also be important, such as physical (*eg*, high relief and poorly drained areas) and social (ethnic minorities and immigrant groups, segregation).

Good answers may be **well structured** (AO4) and may additionally offer a **critical evaluation** (AO3) that examines the importance of scale – *eg*, small cities or megacities. Another consideration is the interaction between different political and economic stakeholders. This depends on different places in the world (developing or developed) and different power structures in autocracies/democracies. Perspectives may differ on what “low quality” means.

For 5–6 marks, expect some weakly evidenced outlining of the influence of economic and/or political factors on the location of residential urban areas.

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

- either an evidenced explanation of how economic **and** political factors (do not expect balance) may influence the location of low-quality residential areas in cities
- or a discursive conclusion (or ongoing evaluation) grounded in geographical concepts and/or perspectives.

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