

Markscheme

May 2015

Geography

Higher level and standard level

Paper 2

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Paper 2 markbands

These markbands are to be used for paper 2 at both standard level and higher level.

	AO1	AO2	AO3	AO4	Paper 2
Level descriptor	Knowledge/ understanding	Application/ analysis	Synthesis/ evaluation	Skills	Marks 0–10
A	No relevant knowledge; no examples or case studies	No evidence of application; the question has been completely misinterpreted or omitted	No evaluation	None appropriate	0
B	Little knowledge and/or understanding, which is largely superficial or of marginal relevance; no or irrelevant examples and case studies	Very little application; important aspects of the question are ignored	No evaluation	Very low level; little attempt at organization of material; no relevant terminology	1–2
C	Some relevant knowledge and understanding, but with some omissions; examples and case studies are included, but limited in detail	Little attempt at application; answer partially addresses question	No evaluation	Few or no maps or diagrams, little evidence of skills or organization of material; poor terminology	3–4
D	Relevant knowledge and understanding, but with some omissions; examples and case studies are included, occasionally generalized	Some attempt at application; competent answer although not fully developed, and tends to be descriptive	No evaluation or unsubstantiated evaluation	Basic maps or diagrams, but evidence of some skills; some indication of structure and organization of material; acceptable terminology	5–6
E	Generally accurate knowledge and understanding, but with some minor omissions; examples and case studies are well chosen, occasionally generalized	Appropriate application; developed answer that covers most aspects of the question	Beginning to show some attempt at evaluation of the issue, which may be unbalanced	Acceptable maps and diagrams; appropriate structure and organization of material; generally appropriate terminology	7–8
F	Accurate, specific, well-detailed knowledge and understanding; examples and case studies are well chosen and developed	Detailed application; well-developed answer that covers most or all aspects of the question	Good and well-balanced attempt at evaluation	Appropriate and sound maps and diagrams; well structured and organized responses; terminology sound	9–10

Option A — Freshwater – issues and conflicts

1. (a) State **two** possible uses of water for industry. **[2]**

Award **[1]** each for any of the following up to a maximum of **[2]**:

- electricity / HEP
- transport
- raw material
- cooling
- waste disposal
- recycling, eg paper
- manufacturing of goods
- cleaning (must be related to industry) – eg in fish factory
- other creditable suggestions.

- (b) Outline **two** possible reasons for the conflict shown. **[2+2]**

The conflicts can relate to water quality or water quantity. In each case, award **[1]** for identifying a specified reason of conflict and **[1]** for some outlined development, either of why the conflict occurs, or what its impact is on ecosystems.

For example: Irrigation can lead to agricultural runoff **[1]** which pollutes rivers with nitrates leading to eutrophication **[1]**. Dam building to increase water supply for agriculture **[1]** means fish cannot migrate and breed **[1]**.

Possible reasons could include, but are not limited to:

- groundwater depletion
- salinization
- drainage diversion
- dam building
- pollution/eutrophication.

Award no more than **[1]** in total for responses that simply assert that there is not enough water to go around, unless some additional details are given.

- (c) Explain how a drainage basin functions as an open system. **[4]**

Award **[1]** for identifying that the system has inputs (precipitation/rainfall) and outputs.

Award **[1]** for each of the following, up to a maximum of **[2]**:

- discharge, evaporation and/or transpiration are the outputs (must identify two)
- transfers take place, such as overland flow (must specify at least one transfer)
- stores such as soil moisture, interception storage (must specify at least one store)
- operation of feedback loops.

Reserve the final **[1]** for explicit recognition of the meaning of “open” (allows transfers across system boundary).

Up to **[4]** may be awarded for a diagram that includes specific inputs, outputs, stores, transfers and feedback related to a drainage basin. If the system diagram is not related to a drainage basin, award up to a maximum of **[2]**.

- (d) Compare the importance of river erosion and deposition in the development of floodplain landforms.

[10]

Key processes include erosion (abrasion, hydraulic action, corrosion) and deposition (sorted by sediment size and shape).

Landforms include floodplain, meanders, oxbow lakes, levees, braided channel, delta, river terrace, slip-off slopes, *etc.*

Do not expect wide coverage of landforms if the quality of the argument (compare) and detail of the process is strong. Any argument should focus on the comparative importance of erosion and deposition for individual landforms or the floodplain as a whole.

Good answers may compare the importance of different processes for different landforms on a case by case basis (*eg* compare the role that both erosion and deposition play in floodplain or meander formation). Another approach might be to offer an overview of the development of the floodplain as a whole, during times when either erosion or deposition dominates (linked to flood events perhaps).

For band D, expect some description of some landforms, with some basic link(s) with river processes (erosion and/or deposition).

At band E, expect either a more detailed explanation of landforms (*eg* different types of erosion) or a structured comparison (*eg* can group landforms into erosional and depositional types).

At band F expect both of these elements.

There may be other approaches and these should be credited accordingly.

Marks should be allocated according to the markbands.

2. (a) (i) Define the term *stream discharge*. [1]

The rate of stream/river flow / the volume/amount of water passing a point per unit of time (may specify hours/days – any unit of time is acceptable). Must have time.

- (ii) State **two** river transport processes **and** outline how each process operates. [2+2]

Suspension, solution, saltation, traction, flotation.

In each case award [1] for naming the process and [1] for some specific detail of the process eg may quantify the particle size (accept “large” or “small”), rock type, chemical processes, or use specialist vocabulary.

For example, award [2] for “Some material is carried in solution, such as material dissolved by carbonation” or “suspension is when small particles are carried in the water”.

Do not award more than [1] for an outline that does no more than define the terms (“suspension is when particles are carried in the water” or “solution is when the load is dissolved in the water”).

- (b) Explain how hydrographs can be used to forecast **and** manage flooding. [5]

Award [1] for the description of a hydrograph (drawn, stated or implied), for example “the hydrograph shows response of a river/stream to a precipitation event over time”.

Award [1] for each explanation of how a hydrograph is used to help with flood management/warning. Award additional marks for any development that uses specialist knowledge of hydrographs and/or floods. There may be other valid approaches and these should be credited. Answers may focus on ideas of “archive” hydrographs, “live” hydrographs (using GIS *etc*), or both.

For example:

- historical hydrographs can be used as models for future flooding [1], allowing estimate of time lag to peak discharge to be made [1] which provides vital information for evacuation times [1] or provides guide to extent of possible flooding / areas at risk [1]
- knowledge of rural and urban hydrographs helps us know what might happen in particular locations [1] because urban hydrographs are flashy [1]
- discharge prior to rainfall event shown on hydrograph [1] shows how much/little rain is needed before bankfull discharge is reached [1]
- return periods for high-magnitude floods [1] can be estimated eg one in a hundred year events [1] which may influence land-use zoning [1] and flood protection schemes eg size of levees [1]
- credit other valid points not covered by the mark scheme.

- (c) Examine the possible impacts of the mismanagement of groundwater resources. **[10]**

Groundwater management may comprise over-abstraction or pollution, either of which may constitute unsustainable management depending on the scale or rate of the change. The focus may be on agriculture and groundwater pollution and may make use of a detailed local case study.

The impacts could be physical (subsidence, ecosystem damage), human (dwindling supplies, conflicts and possible attempts at resolution either locally or internationally *eg* transboundary aquifers). Mismanagement may also comprise distribution inequities or losses due to inefficient storage and transfer technology.

An entirely physical or human answer can be awarded full marks if it covers a range of (at least three) well-developed impacts.

Good answers may be carefully structured around different types of impact (either for processes, people or ecosystems), or may examine the temporal and/or spatial extent of any impacts. Another approach might be to examine different kinds of mismanagement, or contrasting views of user groups about what constitutes mismanagement (may use concept of sustainable development).

For band D, expect some description of some problems related to water quality and/or quantity.

At band E, expect either more detailed explanation of some impacts or an examination of the meaning of “mismanagement” (*eg* unsustainability).

At band F expect both of these elements.

There may be other approaches and these should be credited.

Marks should be allocated according to the markbands.

Option B — Oceans and their coastal margins

3. (a) Outline the global distribution of oceans. **[4]**

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

Possibilities include:

- oceans cover about 70 % of the Earth's surface **[1]**
- however, their distribution is uneven. There is more ocean in the southern hemisphere than the northern hemisphere **[1]**; valid quantification, eg up to 90 % of the southern hemisphere is ocean **[1]**
- there are seasonal variations in the amount of open water, especially in the Northern Hemisphere (Arctic) **[1]**
- names at least three oceans in context with distribution **[1]**.

Credit other valid distributional comments.

If only a list of oceans is provided, award no more than **[1]**.

- (b) Explain **two** ways in which wind action helps different coastal landforms to develop. **[3+3]**

Award **[1]** for each wind action that is described, eg prevailing winds, and a further **[1]** for explaining how this helps an identified landform **[1]** to develop.

Wind action could be discussed in terms of: strength (strong onshore winds); direction; destructive/constructive waves; length and direction of fetch.

Possible coastal landforms include: shingle beaches and ridges (berm), sand beaches, sand dunes, cusps, cusped foreland, barrier beaches, caves, stumps, wave-cut notch, wave-cut platform. The role of wind must be made clear for full marks if a landform approach is taken (see third example below).

For example:

- wind action transports sand onshore **[1]** and explains how this gets trapped by vegetation, eg marram grass **[1]** to form sand dunes **[1]**
- prevailing winds influence longshore drift (along with ocean currents) **[1]** and explains the movements of swash and backwash **[1]** that helps form spits, bars or tombolos **[1]**
- wind action influences wave energy **[1]** and therefore erosion such as hydraulic action or abrasion **[1]** and this helps form erosional features such as cliffs and stacks **[1]**.

- (c) “Geopolitical conflicts over oceans, including their resources, will only get worse in the future.” Discuss this statement.

[10]

Conflicts over resources are likely to increase – partly due to population growth and partly due to economic growth/rising living standards. This is driving up demand for resources such as oil, gas and fish. As land-based resources decline, pressure to develop ocean-based resources will increase. Examples are likely to include oil and gas in the Arctic, ocean fisheries (a “common resource”).

However, it may be possible to manage resources *eg* Common Fisheries Policy, Marine Stewardship Council, *etc.* The severity of future resource shortages is also unknown and is contingent on many factors.

Good answers may show greater understanding of the term “geopolitical conflicts” and may discuss the extent which tension or actual conflict is the result. Another approach might be to examine the geographical scale of the different players who are in conflict: these might range from nation states to individuals (*eg* piracy).

For band D, expect some description of one or more conflicts clearly linked to oceans and/or their resources.

At band E expect either more detailed explanation of one or more conflicts or some structured discussion of the degree to which they are likely to worsen, or be resolved, in the future.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

4. (a) State **two** subaerial processes that may affect the cliff in the photograph **and** briefly outline how each process operates. **[2+2]**

Accept a wide range of processes, provided they are non-marine processes.

Award **[1]** for each process and **[1]** for an outline of how the process operates.

Subaerial processes can include mass movements, surface run-off and various types of weathering.

Possible examples include:

- slumping/mass movement **[1]** is when a cliff collapses due to overlying rock strata/saturated soil becoming unstable/shear strength exceeds resistance **[1]**
- salt weathering **[1]** (allow chemical weathering on the cliffs). Salt crystals expand and cause stress to occur in many rocks, leading to disintegration and flaking **[1]**
- freeze-thaw **[1]** when fluctuating temperatures allow water to freeze and shatter cliff face **[1]**
- biological weathering **[1]** when tree roots (physical) / organic acids (chemical) disintegrate/decompose cliff **[1]**
- surface run-off **[1]** occurs when precipitation falling on the land runs over the cliff face leading to gullying/carries away sediment under gravity **[1]**.

- (b) Explain **two** conflicts that could arise from attempts to manage cliff failure. **[3+3]**

Conflicts may be about governance, cost, impacts on different stakeholders, degree of sustainability, aesthetics *etc.*

Award **[1]** for a description of the cliff management technique that shows how it prevents failure, **[1]** for identification of the nature of the conflict / the groups in conflict, and **[1]** for the explanation of the conflict.

For example: There may be conflicts between people wishing to use a beach for recreation and those trying to prevent coastal erosion **[1]** *eg* the use of tetrapods/rip-rap to absorb wave energy **[1]** on some beaches has reduced the recreational amenity **[1]**.

Credit any other valid points.

- (c) Examine the contribution that conservation can make to protecting oceanic fish stocks.

[10]

Candidates may agree that conservation policies are needed or else the world's fisheries become unsustainable. Examples could include the decline of certain fishing grounds such as the Grand Banks of Newfoundland or the North Sea. Particular species may be identified – blue fin tuna, cod, whales *etc.*

Methods to conserve fish stocks and make fishing more sustainable include:

- reducing the fishing yields by restricting time spent at sea, the size and number of boats
- imposing fishing permits, quotas and import tariffs
- preventing improvements in efficiency, by increasing mesh size and discouraging the marketing of juvenile fish.

Good answers may recognize there are limits to protection due to rising demand, illegal fishing, factory fishing, changes in technology, so protection is not guaranteed. They may also question the scale of protection (some places may be easier than others to manage sustainably; some fish stocks may be more easily conserved). Another approach may be to argue that other methods are needed to make a contribution too, including an increase in aquaculture that could produce enough fish to meet demand.

For band D, expect some description of marine conservation.

At band E, expect either more detailed explanation of marine conservation or a structured examination of different methods (or scales) of conservation.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

Option C — Extreme environments

5. (a) (i) Outline the main erosional process that accounts for the feature shown in the photograph. [2]
- Wind/Aeolian (or abrasion) [1].
Softer rock strata are removed by sand blasting/abrasion [1] leaving the more resistant layers.
- (ii) Identify **and** explain the formation of **one** water-formed feature commonly found in a hot, arid environment. [4]
- Award [1] for identification of any valid water-formed feature *eg* wadi, mesa, butte, canyon, inselberg, pediment, alluvial fan / bahada, salt lake / playa.
- Do not credit oasis.
- Award [1] for a valid description or sketch of the landform if provided and up to [3] for a valid explanation.
- For example, wadi [1]. A dry, steep-sided river bed [1] formed by water erosion/downcutting through the rock layers [1]. Flash floods/ephemeral streams have high energy [1].
- (b) Explain how **two** factors (other than heat) restrict human settlement in hot, arid environments. [2+2]
- Award [1] for each factor and a further [1] for a link to human settlement.
- For example, remoteness [1] means that it is very difficult to provide services to people [1].
- Possible factors include: inaccessibility, remoteness, lack of water, possibility of salinization with irrigation, perceived infertility of soils, increasing desertification.

- (c) “Some human activities in extreme environments are more sustainable than others.” Discuss this statement, with reference to **one or more** types of extreme environment.

[10]

Responses may either look at a range of activities in one extreme environment or a narrower range of activities across two or more extreme environments.

Extreme environments are generally considered to be very fragile environments and largely inhospitable. However, they do provide numerous opportunities for economic activities (mining, tourism, agriculture), settlement, *etc.*

Possible themes include:

- in cold environments, governments have to carefully balance economic and environmental agendas, *eg* the state of Alaska has to balance the energy needs of the USA (further exploration and production) with the requirement for conservation and environmental management
- possible conflicts may exist between tourism, wildlife movement and the transport of oil; or with the fragility of the permafrost (insulation, oil infrastructure)
- in arid environments, the focus of sustainability could be agriculture or mineral extraction, *eg* uranium extraction in Niger
- tourism in alpine areas.

Good answers may progress beyond simply agreeing or rejecting the statement and may discuss the validity of the statement with reference to different strands of sustainability (economic/social/environmental). Another approach might be to discuss how sustainability could be dependent on factors other than environmental challenges, such as access to capital (for irrigation, air conditioning *etc.*).

For band D, expect some description of the impacts of human activity in one or more extreme environments (sustainability may not be explicit).

At band E, expect either more detailed explanation of the sustainability/impacts of human activities in one or more extreme environments or a structured discussion of what is meant by sustainability in this context.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

6. (a) (i) State **and** locate **one** example of mineral extraction in an extreme environment. [2]

Award [1] for identification of a mineral and [1] for valid location.

Possibilities include: oil in Alaska / gas in Siberia / uranium mining in Niger / copper mining in the Atacama desert / oil in Saudi Arabia.

- (ii) Outline **one** economic reason why the mineral identified in (a)(i) is extracted in this extreme environment. [2]

Award [1] for identifying a reason, eg market value or local job creation and [1] for further outlining.

For example: "Declining world reserves of oil [1] have made prices very high [1]", or "extreme environments lack many employment opportunities [1] due to low density population [1]".

- (b) Explain **two** physical challenges for resource development posed by extreme environments. [3+3]

In each case award [1] for identifying the challenge and [2] for development.

One or more extreme environments may be used (no penalty for using only one). Both periglacial and hot, arid environments are acceptable.

Responses may focus on mining and/or associated settlement and communications. Challenges include climatic factors, other physical characteristics, remoteness, inaccessibility, inhospitable living conditions, specific characteristics for area or example chosen.

- (c) Examine why desertification has become a problem in some parts of the world. **[10]**

Desertification is an environmental issue resulting from pressure on resources.

Candidates should show knowledge of the causes of desertification: social, political, economic, and climatic factors (infrequent or irregular rainfall, overgrazing, over-cultivation, deforestation, poor irrigation, over-population *etc*).

The problems/consequences could be environmental, economic, or social (for example, poor vegetation growth, damaged soils, vulnerability to soil erosion, reduced land available for crops and pasture, expanding sand dunes, reduced income, increased rural poverty, reliance on food aid, forced migration).

There is opportunity to discuss strategies to prevent desertification (managing land use and livestock, managing water usage, afforestation, population control, availability of capital).

Good answers may examine reasons why some parts rather than others have been affected despite similar climatic conditions regions (may examine different degrees of problem or challenge and/or include the uneven success of management).

Another approach might be to carefully structure an answer to highlight different types of problem, or different groups/stakeholders/perspectives who are adversely affected (or not). Another approach might be to examine/synthesise how a range of factors combine to trigger desertification.

For band D, expect some description of some problems/causes associated with desertification (may assert the problem is getting worse).

At band E, expect either more detailed explanation of the causes of desertification in particular places or a structured examination of different kinds of problem/places.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

Option D — Hazards and disasters – risk assessment and response

7. (a) Identify which hazard:

(i) affected the least number of people in 2012; [1]

Volcanoes

(ii) affected the greatest number of people between 2002 and 2012. [1]

Droughts

(b) Suggest **two** reasons why the number of people affected by storms in 2012 is lower than in previous years. [2+2]

In each case award [1] for a basic explanation of why the 2012 figure is smaller and [1] for some development (using knowledge of the hazard) or the applied use of an example, such as a large named hazard event occurring in 2002–2012.

- There may have been fewer hurricanes in 2012 [1] – may suggest reasons eg ENSO [1].
- There is natural variation in the strength of large hurricane events [1] and may link to higher return period idea (or similar) or may quote known case study data for 2002–2012 period, or may use Saffir–Simpson scale [1].
- Not all tracks reach populated areas [1] and may give details or knows case studies of “near misses” in 2012 [1].
- Credit suggestions of climatic variability or ENSO cycles [1] linked to critical temperature of 26°C [1].
- Prediction and monitoring [1] – allows for evacuation and therefore fewer affected [1].
- Other valid suggestions.

- (c) Explain what is meant by the:
- (i) rehabilitation response to a hazard event; [2]
- Award [1] for definition and [1] for further development or exemplification.
- For example: Rehabilitation describes treatment or help for people who have been harmed in some way [1]. It involves different types of help (eg counselling alongside surgery) [1] or after the Haiti earthquake 300 000 people needed help/rehabilitation [1].
- (ii) reconstruction response to a hazard event. [2]
- Award [1] for definition and [1] for further development or exemplification.
- For example: Reconstruction describes the replacement of buildings damaged by a hazard event [1] (allow rebuilding of a country's economy). It involves different types of work (eg repair work or new building) [1], or the reconstruction cost after Hurricane Katrina was US\$81bn) [1].
- (d) Examine why some areas of the world have a high hazard risk for **either** earthquakes **or** volcanoes. [10]

Hazard risk distribution comprises both the spatial distribution of earthquakes/volcanoes and population patterns and characteristics.

The physical explanation should include key factors such as tectonic margins, processes (subduction), possibly types of margin, and/or hotspots. Human factors may include coastal distributions of population, vulnerable megacities, income levels and property risks (the examination may compare the pattern of property risk in high-income countries with the pattern of mortality risk in low-income countries), adaptation measures.

If a candidate considers both earthquakes and volcanoes, only credit the first.

Good answers are likely to provide a structured examination of different human aspects of hazard risk (people/property) and may also distinguish between different physical aspects of the hazard risk (primary/secondary hazards). Another approach might be to use the concept of scale (eg examines how risk vary at both a macro-scale/continental scale and also at a micro-scale, such as along specific fault lines).

For band D, expect some description of plate margins and/or the existence of countries/populations at different levels of economic development.

At band E, expect either more detailed explanation of why margin movements bring risk(s) to different locations or a structured examination of the human risks for different areas.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

8. (a) (i) Define the term *disaster*. [1]

A major hazard event that needs outside help.

(ii) Outline **two** long-term actions a community can take to reduce the economic impact of hurricanes. [2+2]

In each case award [1] for a basic way to reduce economic losses and [1] for some development (using knowledge of hurricanes, economics, planning, governance *etc*) or the applied use of an example, such as measures introduced after a named hurricane.

- Strengthen buildings [1] and may have details of structures or where this was done [1].
- Purchase insurance [1] and may explain how policies operate to reduce costs for individuals [1].
- Land-use planning [1] and may give details of areas to be avoided *eg* low lying land with flood risk [1].
- Improved warning systems [1], may suggest details, or describes a place where this was done [1].

(b) Explain the causes of **one named** human-induced hazard event. [5]

Award [1] for correctly identifying a named human-induced (human error) hazard event such as the 2010 major industrial waste spill in Hungary, the Chernobyl nuclear power incident, the Gulf of Mexico oil spill (does not need to state year).

Award up to [4] for the explanation, for example:

- human error in design/operation identified [1] and may provide further explanation of this [1]
- provides specific details of the hazardous material provided *eg* names gas, radioactive isotopes [1]
- provides detail of how physical processes *eg* ocean currents, wind, led to a larger area or particular areas being affected [1] and may give examples of areas [1]
- shows why the event constituted a hazard risk to humans *eg* oil affected populated areas of Florida [1]
- credit other valid explanatory material (on the cause of the event / why it constitutes a hazard).

“High tech” problems triggered by a natural hazard *eg* Fukushima 2011 can be awarded up to [3] only.

- (c) Examine the reasons why people continue to live in areas that have been affected by severe drought hazard events.

[10]

Drought should ideally be understood as below average/expected/normal precipitation (and not simply arid environments). The answer should ideally be related to the global distribution of actual drought, including named areas (may consider irregularities of mid-latitude air mass movements; cyclic shifts; El Niño and La Niña).

Answers that deal with naturally arid regions (that are not necessarily subject to drought, such as normal summers in the Mediterranean) can reach band E (but not band F) if the discussion of human behaviour or adaptation is good.

Reasons might include:

- lack of knowledge including serious secondary risks (wildfires)
- lack of economic options / poverty / inertia / fatalism
- political issues *eg* refugees forced into drought-stricken areas
- too trusting of insurance/governance
- resilient/adaptive behaviour *eg* water storage, deep wells, crop diversification, temporary migration *etc.*

Good answers may examine in a structured way how reasons may vary according to the type of geographical area (level of development, scale, physical location *eg* continentality, geopolitics *eg* conflict zones). Another approach might be to examine the timescale over which drought events have occurred or knowledge of their recurrence intervals.

For band D, expect some description of a drought and/or some reasons why people do not relocate from hazardous areas in general

At band E, expect either more detailed explanation of reasons why people remain in drought-prone areas or a structured examination of different kinds of area/context for drought.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

Option E — Leisure, sport and tourism

9. (a) Describe the trends shown on the graph. **[4]**

Award **[1]** for recognition that arrivals are increasing in all three regions.

Award **[1]** for quantification (use of data).

Award up to **[2]** for any two of the following:

- Europe is always the highest
- steep increase in Europe between 1995 and 2000
- Asia and the Pacific have seen recent steep increase, especially after 2000, from about 100 million to about 200 million
- high relative increase in Africa but still low overall (from about 10 million to about 50 million)
- the rates of growth might be compared; for example, the growth rate in Africa has been much greater as a % of the starting point than elsewhere.

- (b) Explain **three** reasons for the changes in international tourist arrivals shown on the graph. **[2+2+2]**

Award **[1]** each for a valid reason, that relates to international tourism growth, and a further **[1]** for development or exemplification of the reason.

For example:

- the cost of air travel has reduced in recent years **[1]**, so that more tourists can travel cheaply eg from Europe to Asia **[1]**
- increased tourism advertising in Africa has been heavily promoted in the media **[1]**, so that tourists are increasingly attracted to new/more exotic destinations eg The Gambia from China **[1]**.

A wide variety of reasons could be given, including:

- increased affluence and leisure time for travel **[1]** and may provide details of changing employment patterns
- growth of package holidays/TNCs **[1]** and gives specific details of eg Thomas Cook
- development of tourist infrastructure at destinations **[1]** and gives specific detail eg Hamad (Doha) airport in Qatar **[1]**
- credit cards/Visa Cash make travel easier **[1]**
- online booking/ICT make planning/booking easier **[1]**.

- (c) Examine the extent to which sustainable tourism might be successfully implemented in different environments.

[10]

Sustainable tourism aims to meet economic social and environmental goals and to preserve tourist resources for future generations.

Possible ways/strategies of implementing sustainable tourism might include:

- protection of the natural environment
- managing resources to prevent depletion
- reducing the ecological footprint of tourism
- managing visitor numbers
- involvement of local people in the tourist activities
- economic and social benefits to local people and the nation
- development of infrastructure.

Negative impacts of tourism which might detract from the success of sustainability strategies could include over-exploitation of the environment, economic “leakage” of tourist revenues, or cultural dilution.

“Environments” could be interpreted as different places/cities/rural locations/ecosystems or biomes.

Good answers may provide a structured examination of what is meant by sustainable tourism (economic/social/environmental strands) and the extent to which these different goals have been met. Another approach might be to provide a structured examination of differing approaches to managing tourism in different geographical environments/contexts (levels of development, scale, *etc*).

For band D, expect some description of the outcomes of relevant/sustainable tourism strategies in one or two environments/places.

At band E, expect either more detailed explanation of the outcomes of tourism strategies in two places (do not expect balance) or an examination of the extent to which different sustainability goals have actually been achieved.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

10. (a) Briefly describe what is meant by:

(i) heritage tourism; [2]

Heritage tourism is tourism based on a historic legacy [1] (landscape feature, historic building or event) as its major attraction [1].

[1] may alternatively be awarded for naming a valid example such as the Taj Mahal or Machu Picchu.

(ii) ecotourism. [2]

Ecotourism is tourism focusing on the natural environment [1] and respecting local communities [1].

[1] may alternatively be awarded for naming a valid example such as Monteverde cloud forest in Costa Rica.

(b) Explain **three** political factors that affect participation and success in international sport. [2+2+2]

Award [1] for each factor identified, and [1] for further development or exemplification.

For example:

- Government spending on specific/internationally-orientated sport facilities such as swimming pools and stadiums [1] thereby increasing chance of success in Olympic Games [1].
- The government's hosting of an international sporting event, such as the Olympics [1], has promoted national pride and encouraged people to participate more widely in sport [1].
- The government's role promoting sport in education, eg in national curricula, to promote sport in schools and colleges [1] enables elite athletes to reach global potential [1].
- Political initiatives to promote sport / government advertising [1] with emphasis on "world-beating" potential [1].
- Government support in the hosting of an international sporting event.
- Political isolation of North Korea or other countries [1] so North Korea under-represented in many global competitions [1].
- Specific political values may encourage or deter participation [1] eg Islamic states' attitudes to female participation or Soviet-era gymnastics, etc [1].

Credit other valid political factors.

- (c) “The benefits of hosting an international sporting event always outweigh the costs.”
Discuss this statement, using appropriate examples.

[10]

Likely benefits and costs might include issues arising from:

- building infrastructure – stadiums, accommodation, and transport facilities
- international reputation
- impacts on the economy of the host country
- regeneration of urban areas
- sporting legacy
- encouragement of participation in sporting activities.

Good answers are likely to provide a structured discussion of different kinds of costs/benefits. Another approach would be to discuss how perspectives may differ on what constitutes a benefit (or cost). Another approach would be to choose examples which allow a discussion of whether the veracity of the statement is place-specific (may provide contrasts for countries at different levels of development, for instance).

For band D, expect some description of some costs and benefits for one or two international sporting events.

At band E, expect either more detailed explanation of costs and benefits for one or more events (do not expect balance) or a structured discussion (may discuss the cost-benefit balance for different groups of people in different kinds of place).

At band F expect both of these elements.

Marks should be allocated according to the markbands.

Option F — The geography of food and health

11. (a) Describe the relationship between life expectancy and income inequality shown on the graph. [3]

The relationship is inverse/negative [1], which means that as countries' income inequality increases, life expectancy is lower ([1] for this or other appropriate description), with the final [1] reserved for some attempt at quantification or identification of any anomaly.

- (b) Suggest **one** possible reason for the relationship you have described in (a). [3]

Award [1] for identifying a reason, and a further [2] for developing it, including [1] for a clear link to life expectancy.

For example: In countries with greater income inequality, a higher proportion of the population lives in relatively poor conditions [1], with poor/inadequate access to water, food or healthcare [1]. These people are therefore disproportionately vulnerable to sickness and disease, reducing their probable life expectancy [1].

It is equally acceptable to link differences in ethnicity to variations in life expectancy, provided they are supported by evidence.

- (c) Using **one** example, explain how agricultural subsidies can affect food production. [4]

The example could include the impacts on more than one country, *eg* subsidies in EU/USA have effects for other countries *eg* Jamaica. Subsidies may either stimulate food production or diminish it, depending on the example used.

Award [1] for naming a valid example, and up to [3] for its development.

For example, in Europe the Common Agricultural Policy [1] established guaranteed minimum prices [1] for certain farm products. This led to overproduction of some foods (*eg* butter and some vegetables) [1] and a fall in production in other countries [1].

Other possibilities include:

- in the USA [1], subsidies for growing corn for biofuel [1] reduced the amount of corn grown for human consumption [1], raising corn prices on the international market [1]
- dumping/sale of food from subsidized over-production in high-income countries [1] damages the agricultural sector in some low-income countries [1], and may develop the example [1].

Award a maximum of [2] if no example is given of either a crop/product or a location or no explicit link made to subsidies.

- (d) Examine the relative importance of the human **and** physical factors that led to a recent **named** famine.

[10]

Famine is understood as a widespread decline in the availability of food in a region that leads to hunger and increased mortality rates.

Depending on the example examined, possible physical factors include:

- climate change/fluctuations
- soil exhaustion
- crop pests/diseases
- environmental hazard events such as drought, hurricane, major earthquake, *etc.*

Possible contributory human/economic factors include:

- civil war/refugee movements
- poverty
- inequality
- politics/corruption/governance.

The example should be recent (preferably no earlier than 1990s). The use of an earlier example is permissible but may not be awarded band F. If more than one famine event is cited, credit the best example given. Physical and human factors need not be examined in equal depth for the award of full marks.

Good answers may provide a structured examination that arrives at an evidenced conclusion (ie the answer arrives gives a substantiated view of which factor is most important. Another approach might be to show how different factors are interrelated/amplify one another. Another approach might be to examine how different factors operate at different scales (global climatic changes *eg* ENSO combine with local factors such as land management).

For band D, expect some description of some physical and human factors that cause famine (do not expect balance).

At band E, expect either more detailed explanation of a range of physical and human factors (do not expect balance), or a structured examination of the relative importance or interdependence of factors.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

12. (a) Describe the pattern of food availability in rural areas of India shown on the map. [4]

Award [1] for each valid statement. For the full [4] the response should refer to all levels of availability (very low, low, moderate, *etc*), though these need not be in equal depth.

For example: High food availability is found in three separate areas [1]: in the north, centre and south-west of the country [1]. The areas of very low/extremely low food availability tend to be the north west and north east of the country [1]. Most of the country has low or moderate food availability [1] including the east coast [1]. Valid use of place names in describing the pattern on the map [1].

- (b) Distinguish between food availability and food security. [6]

Food availability refers to having a sufficient quantity of food [1] available on a consistent basis [1], at an affordable price [1] and may be linked to food security [1].

In addition to food availability, food security (as defined by the WHO) also includes:

- access to food/food entitlement [1] (*ie* having the resources, economic and physical, to obtain appropriate foods)
- for a nutritious diet [1] and
- appropriate use based on knowledge of basic nutrition and care [1].

Credit alternative relevant approaches.

For [6] the answer does not need to be balanced but must cover both terms and distinguish between them.

- (c) Examine how the impacts of diseases are affected by diffusion **and** barriers. **[10]**

Likely responses will focus on named diseases, *eg* malaria or HIV/AIDS, or categories of disease, *eg* water-borne, vector-borne or sexually transmitted. Topical answers may examine the 2014–15 outbreak of ebola in west Africa and the uneven impacts (Nigeria was barely affected due to effective monitoring along its borders).

Diffusion can occur by relocation or expansion.

Different types of barriers include:

- political/administrative boundaries
- relief or water features
- vaccination campaigns.

Good answers may unpack the term “impacts” and may provide a structured examination of different impacts for human health, mobility (travel restrictions), workforce, GDP *etc* (some of these impacts are likely to be more diffusion-dependent than others, and some are more likely to be barrier-dependent). Another approach might be to examine how the effectiveness of barriers may vary according to the nature of the disease.

For band D, expect either some description of some disease impacts that are mostly related to diffusion and/or barriers, or a description of different types of diffusion and barriers.

At band E, expect either more detailed explanation of relevant impacts of diseases or a structured examination of different types of impacts, diffusion or barriers.

At Band F expect both of these elements.

Marks should be allocated according to the markbands.

Option G — Urban environments

13. (a) (i) Identify the economic activities located at 760122 **and** 736133. **[1+1]**

Water treatment plant
Post office

(ii) State **two** reasons for the location of the sports stadium (Nazareth Speedway) in 7211. **[1+1]**

Award **[1]** for each of the following, up to a maximum of **[2]**:

- more space available
- cheaper land values
- away from residential areas so less of a problem from noise
- relatively flat land
- access by highway.

(b) Referring to map evidence, explain **three** likely types of urban stress in Nazareth. **[2+2+2]**

Award **[1]** for identifying a valid type of urban stress and **[1]** for map evidence.

The most likely types of stress for which there is map evidence are:

- pollution (credit different types of pollution, eg noise pollution, air pollution from the quarry in 7312)
- potential congestion due to grid street pattern in the centre of town
- depletion of green space due to expansion of quarries/increase of built-up area (eg 7512).

There may be other types of urban stress and these should be credited if valid.

- (c) Using **one or more** examples, examine the social **and** economic impacts of in-migration on cities.

[10]

Possible impacts include:

- social urban problems – a youthful population; potentially high birth rates, poverty, spread of diseases, over-crowded schools, housing, ethnic conflict
- economic urban problems – unemployment, underemployment, low wages
- economic benefits – labour supply for employers, larger market
- social benefits – more schools, more hospitals (than in rural areas), ethnic/cultural diversity
- management as an impact/response to the issue.

Both social and economic must be addressed, but do not expect balance.

Good answers may provide a structured examination of the impacts that, in addition to positive and negative impacts, also considers how these may vary according to perspective of different groups of people. Another approach might be to consider the time or spatial scale of any impacts. Another approach might be to provide a structured examination of how impacts might vary for differing places / cities at different stages of development / different approaches to urban governance.

For band D, expect some description of some social and/or economic impacts of in-migration for a named urban area.

At band E, expect either more detailed explanation of some social and economic impacts (do not expect balance) or a structured examination of some variety of impacts (perspectives/scale/time) for people/places.

At band F expect both of these elements.

Marks should be allocated according to the markbands.

14. (a) With reference to urban environments, describe:

(i) **one** type of centrifugal movement; [2]

Centrifugal movements include suburbanization, counter-urbanization and urban sprawl [1] and the description should convey that this is an outward movement of people [1].

(ii) **one** type of centripetal movement. [2]

Centripetal movements include rural–urban migration, gentrification, re-urbanization / urban renewal [1] and the description should convey that this is an inward movement of people [1].

(b) Explain **two** features of the internal structure of the central business district (CBD). [3+3]

Award [1] for each feature identified, and up to [2] for extended description and explanation (but must have some explanation for full marks).

For example: The centre/core of the CBD tends to have the tallest building/skyscrapers [1] in a city. This is because land prices are highest in the city centre [1] due to shortage of space/high demand for more central location / developers build upwards to create more retail/service space [1].

Other possibilities include:

- internal zoning [1]: clustering of certain facilities and services in particular areas [1] eg high order retailing in the centre (core), services towards the edge (frame) [1]
- certain types of shops/services may cluster (clothing/jewellery/electronics) [1] due to the reputation that an area develops [1] and to allow consumers to comparative-shop [1].

(c) Evaluate the success of **two** different urban management strategies.

[10]

Management strategies can relate to:

- housing issues (quantity, quality – self-help, site and service, redevelopment, renewal, gentrification)
- population issues – migration control, population growth
- transport issues – congestion, air quality, greenhouse gas emissions, improvements to public transport
- employment – number and types of jobs
- service provision – access to education and health care
- environmental issues – air pollution, water pollution.

The successful funding and provision of measures can be credited as a self-evident sign of success. A more detailed evaluation of success might additionally provide actual data/evidence of any urban changes associated with the strategies (such as population, economic, pollution data).

Good answers may provide a structured examination of success that, in addition to the strengths and weaknesses of strategies, also considers how these may vary according to perspective of different groups of people (a sustainability approach might be adopted). Another approach might be to consider the time or spatial scale of any success (in some cases it may be too soon to judge what the legacy will be realistically). Another approach might be to provide a structured examination of how success varies for the two chosen places (which may well be cities in countries/contexts at different stages of development).

For band D, expect some description of two urban management strategies (do not expect balance).

At band E, expect either more detailed explanation of the strategies (do not expect balance) or a structured examination of their level of success (goes beyond simple success/failure and examines different perspectives/timescales/developmental contexts/*etc*).

At band F expect both of these elements.

Marks should be allocated according to the markbands.
