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MARKSCHEME

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GEOGRAPHY

Higher Level and Standard Level

Paper 2

32 pages

Paper 1 and 2 markbands

These markbands are to be used for papers 1 and 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) (i) Define the term *groundwater*. ***[1]***

Water found below the surface of the earth ***[1 mark]***.

(ii) Estimate the percentage of groundwater shown on the diagram. ***[1]***

Accept answers in the range 25–30 % (inclusive) ***[1 mark]***.

(b) State *two* major types of natural surface freshwater (other than rivers). ***[2]***

Accept lakes, wetlands (marshes or swamps), depression storage/surface storage. Award ***[1 mark]*** for each source identified.

(c) Explain *three* consequences of a reduction in the volume of ice caps. ***[2+2+2]***

Accept any of the following. In each case, award ***[1 mark]*** for a valid consequence and ***[1 mark]*** for a valid explanation. For example:

- coastal flooding/inundation ***[1 mark]*** due to rising sea levels/more water stored in oceans ***[1 mark]***
- relocation of coastal settlements ***[1 mark]*** due to heightened long-term flood risk ***[1 mark]*** (but do not credit suggestion that massive flooding occurs "overnight" leading to death and destruction)
- accelerated global warming ***[1 mark]*** due to albedo reduction as ice melts ***[1 mark]***
- loss of productive agricultural land ***[1 mark]*** due to saline intrusion/contamination of freshwater
- landscape changes as land-based glaciers retreat ***[1 mark]*** due to moraine deposition *etc* ***[1 mark]***
- possible river flooding ***[1 mark]*** due to melting of ice caps/glaciers ***[1 mark]***.

Credit other valid consequences and explanations.

(d) Discuss the relative importance of the factors affecting the characteristics of hydrographs. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

One approach would be to look at a single river: temporal variations are based on factors such as precipitation (amount, intensity, type), antecedent rainfall and seasonal changes in vegetation/interception. Another approach is to compare a different river: geology, soils and land-use (urbanization), drainage basin size and shape, relief, all play an important role.

Factors should be linked with characteristics that can include rising limb, falling limb, lag-time and peak discharge. Diagrams should be credited.

Certain domain factors could be identified such as geology (when discussing different basins), or antecedent conditions (when discussing variations in response to two similar sized rainfall events). Urbanization over time is a key factor that can transform hydrographs. Clearly, any evaluation of relative importance is context specific.

At band D, a range of factors should be described that are linked to some recognizable hydrograph characteristics.

At band E there should be either a wider or structured discussion of factors (may compare different basins, as well as considering seasonal changes or urban/rural contrasts) or a viewpoint is argued about the relative importance of factors (but for a more limited range of factors/scenarios).

At band F, expect both elements.

2. (a) Referring to photographic evidence, identify *and* briefly describe *two* natural features of the river valley floor clearly shown in the photograph. ***[2+2]***

Award ***[1 mark]*** for each valid, clearly visible feature that is identified. Award ***[1 mark]*** for each brief description using photographic evidence.

Possible features could include: meandering river, braided channel, floodplain, delta entering the lake, river cliff (lower left). For example:

- there is a meander bend ***[1 mark]*** where the river is shown to be curving around an area of high relief ***[1 mark]***
- there is braiding ***[1 mark]*** the photograph shows the river is split into three or four channels by deposition ***[1 mark]***.

Do not credit suggestions that are not clearly visible.

(b) Suggest *three* ways in which humans might modify the floodplain shown in the photograph to reduce flood risk. ***[2+2+2]***

Award ***[1 mark]*** for the identification of each valid method and ***[1 mark]*** for further development through explanation or applied use of an example.

- construction of levees ***[1 mark]*** to increase channel storage ***[1 mark]***
- land-use zoning ***[1 mark]*** to ensure buildings are kept away from high risk flood locations ***[1 mark]***
- channel engineering/straightening ***[1 mark]*** to increase velocity and remove excess water quickly ***[1 mark]***
- flood relief channels ***[1 mark]*** to divert water away from high-risk/high-value property ***[1 mark]***
- storage basins and dams ***[1 mark]*** to reduce river discharge ***[1 mark]***.

Credit other valid suggestions and developments.

(c) "Wetland management strategies are never a complete success." Discuss this statement, with reference to *one named* major wetland. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Responses should clearly name, describe and locate one relevant major wetland. If more than one wetland is referred to, credit only the first.

Major wetlands include, for example, the Kissimee, the Mississippi Delta, the Norfolk Broads, but not small-scale ponds (award up to ***[6 marks]*** for an inappropriate scale of study if the discussion is good).

Strategies (there should be at least two included) should be clearly outlined with respect to why they were needed and what their aims were. Strategies can then be evaluated in terms of how successful they have been (or not). Good answers may approach the strategies from different perspectives (*eg* biodiversity, human water security, tourism, *etc*).

Answers that do not refer to a specific wetland should not proceed further than band C.

At band D, responses should describe one or more strategies for a major named wetland, and may assert success/failure.

For band E, there should be either greater detail of the strengths and weaknesses of a range of (at least two) strategies, or a more sophisticated discussion of the veracity of statement (but with less factual support).

At band F, expect both elements.

Option B — Oceans and their coastal margins

3. (a) (i) Describe the location of dead zones. ***[2]***

Possible statements may include:
- more dead zones in the Gulf of Mexico / along the coast at 30°N / around Caribbean
- they are mainly located on the east coast (of the USA)
- there are none at high latitudes
- there are only two on the west coast.

Award ***[1 mark]*** for each valid statement.

(ii) Outline how chemical waste may result in a dead zone. ***[2]***

Award ***[1 mark]*** for establishing a link with mortality/reproduction impairment for marine life and ***[1 mark]*** for a suggestion of how this leads to a dead zone/larger scale of mortality. For example:
"Chemicals entering the water are toxic to fish ***[1 mark]*** with wider impacts due to food chain transmission ***[1 mark]***."

(b) Briefly explain the formation of:

(i) *one* coastal landform resulting mainly from erosion; ***[3]***

Erosional features are likely to include cliffs, arches, stacks.

Award ***[1 mark]*** for a clearly identified coastal landform linked to a process and a further ***[1 mark]*** for each valid explanatory statement.

For example: "A cliff ***[1 mark]*** formed when hydraulic action creates a wave-cut notch ***[1 mark]*** which leads to the collapse of the rock above ***[1 mark]***."

(ii) *one* coastal landform resulting mainly from deposition. ***[3]***

Depositional features may be linked to constructive waves and wind. Likely features could include beaches and bars, spits, tombolos, sand dunes, salt marsh, *etc*.

Award ***[1 mark]*** for a clearly identified coastal landform linked to a process and a further ***[1 mark]*** for each valid explanatory statement.

For example: "A spit ***[1 mark]*** is formed by longshore drift moving beach material sideways ***[1 mark]*** when the wind drives the waves at an oblique angle to the shoreline ***[1 mark]***."

(c) "Management strategies for coastlines are generally *ineffective*." Discuss this statement with reference to *one named* coastline you have studied. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

An area of coastline should be named and located. If more than one coastline is referred to, credit only the first.

In order to judge how effective actions have been, the (conflicting) pressures on the coastline should be identified in order to establish why management was needed. Possible content might include: hard and soft coastal defences, ecosystem restoration, managed retreat, ecotourism, *etc*.

Better responses may discuss what is meant by "ineffective" (*eg* compares different user groups along the same coastline, or takes short and long term view or another cost-benefit approach).

Answers that do not refer to a specific stretch of coastline should not proceed further than band C.

At band D, responses should describe some strategies for a named coastline, and may assert they were effective/ineffective.

For band E, there should be either greater detail of the strengths and weaknesses of a range of (at least two) strategies, or a narrower but more sophisticated discussion of the veracity of statement (*eg* good account of how a strategy can be effective for some users, but damaging for others).

At band F, expect both elements.

4. (a) (i) Define the term *exclusive economic zone (EEZ)*. ***[1]***

An area of sea/seabed in which a coastal nation has sovereign rights.
OR
An area of sea extending from the coast of a country.

(ii) Outline how a conflict might arise from competition over exclusive economic zones (EEZs). ***[3]***

Award ***[1 mark]*** for identifying a possible conflict focus *eg* oil/fish/land.
Award ***[1 mark]*** for suggesting why there is competition *eg* neighbouring states or historical claims.
[1 mark] can be awarded for use of examples (named countries) or some development of the conflict focus or competing claims.

(b) Explain the role of oceans:

(i) as a store of carbon dioxide; ***[3]***

Award ***[1 mark]*** for each of the following, up to a maximum of ***[3 marks]***:
- oceans are the largest store
- compares this with the minor role of other stores (for example fossil fuels, the atmosphere and biosphere)
- some of the carbon dioxide passes through the food chain and sinks to the ocean floor, where it is stored sediments
- credit other valid points about oceanic storage of carbon.

(ii) as a source of carbon dioxide. ***[3]***

Award ***[1 mark]*** for each of the following, up to a maximum of ***[3 marks]***:
- oceans play a key role in the transfer of carbon with the atmosphere
- oceans both absorb and release carbon dioxide to the atmosphere
- carbon dioxide is also released from ocean organisms by photosynthesis
- carbon dioxide is released during volcanic activity when sediments are destroyed by subduction
- credit other valid points about oceanic emissions of carbon.

(c) "To provide sustainable fish yields we must stop overfishing the oceans and promote aquaculture instead." Discuss this statement. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Overfishing reduces the size of fish stocks so is therefore unsustainable *eg* Grand Banks, North Sea. Some understanding of the reasons for overfishing should be present *eg* rising demand, changing diets, factory fish farming, use of dynamite in fishing, sea-floor dredging, improved technology, *eg* use of satellites, sonar, freezing technology on ships, *etc*.

Sustainable fish yields refers to the maximum size of yield that can be obtained without depleting the long-term size of fish stocks. Oceanic aquaculture can play a role in this by raising fish, shellfish, crustaceans and seaweed commercially, usually for food.

The statement suggests we must promote aquaculture and there are indeed great benefits of raising fish in captivity while allowing wild stocks to recover, restock and breed. However, aquaculture has costs too. Technological costs are high (drugs, antibiotics and steroids). Other costs include the sea lice and disease that spread from farmed fish into wild stocks. Pollution, from feces, and chemicals can spread into surrounding waters. Accidental escape of fish can affect local gene pools.

If sustainability of natural populations is therefore threatened by aquaculture, then other management methods become more appropriate, for example, increasing fish stocks through conservation, fish quotas, harvesting krill and ocean plants.

At band D, overfishing and/or aquaculture are described and the latter may be presented as the solution to the former.

Band E should either discuss both overfishing and aquaculture issues in greater detail, or discuss the value of aquaculture compared with other management methods *eg* fishing quotas.

At band F, expect both elements.

Option C — Extreme environments

5. (a) (i) Identify any *one* landform shown in area A on the photograph. ***[1]***

Butte, cliff, plateau, pediment, plain, scree/talus slope, mesa.

(ii) Suggest how landform B in the photograph was formed. ***[3]***

Basic understanding of the weathering and erosional processes in arid extreme environments should be demonstrated. Landform (butte) need not be named. If an incorrect landform is identified in part (i) (such as a zeugen), award a maximum of ***[2 marks]***. Do not credit wind erosion.

Award ***[1 mark]*** for each of the following suggestions:

- original land surface was eroded by backwearing/slope retreat
- a specific weathering process has played a role (*eg* heating and cooling, or freeze-thaw), or erosion by water
- sloping talus layer is produced by mass movement.

(b) Explain *two* environmental impacts of tourism on *one named* extreme environment. ***[3+3]***

In each case, award ***[1 mark]*** for each identified environmental impact linked to a tourist activity and ***[2 marks]*** for further development and explanation of how the physical environment is affected.

Possibilities include erosion, mass movement, land degradation, vulnerability to hazards, water usage, waste disposal, disruption to biodiversity. Positive changes are possible *eg* irrigation, restoration.

For example: "Erosion of land surface by off-road vehicles ***[1 mark]***. This destroys what little vegetation helps bind the soil together in semi-arid areas ***[1 mark]*** which can then contribute to desertification ***[1 mark]***."

Award up to a maximum of ***[3 marks]*** for a generic account of tourism impacts with no reference to the specifics of a named extreme environment.

(c) Contrast the challenges for mineral extraction in periglacial environments and hot, arid environments. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

The challenges for mineral extraction in periglacial areas include low temperatures, seasonal lack of daylight, permafrost, thermokarst, remoteness, inaccessibility, water supply, transport difficulties, environmental conservation, attracting and retaining workforce.

Challenges in hot, arid areas include the high temperatures, lack of water, dust and sandstorms, remoteness, inaccessibility, attracting and retaining workforce, environmental conservation and transport difficulties.

Remoteness, inaccessibility and the challenge of attracting a workforce are features that can be described in relation to either environment. However, good answers will seek contrasts (such as inaccessibility due to low numbers of tundra travel days, linked with active layer thawing, as opposed to mobile dunes in arid areas).

For band D candidates must describe some challenges found in periglacial and arid areas (all of the above list are not necessary), with some basic link to mineral extraction established, rather than all human activity in general. Do not expect contrasts to be made explicit at this level.

Band E should either provide greater detail of how specific challenges for mineral extraction arise in both cases, or can offer a strongly contrasting account of the two extreme environments.

At band F, expect both elements.

6. (a) From information shown on the graph:

(i) State the number of months of the year when the average temperature is below 0°C. ***[1]***

Six months ***[1 mark]***

(ii) Estimate the annual temperature range in °C. ***[1]***

28 to 30 inclusive, or a range of -13°C (or -14°C) to +16°C

(iii) Apart from temperature, outline *one other* climatic characteristic shown on the graph that indicates Arkhangelsk is located in an extreme environment. ***[2]***

Award ***[1 mark]*** for one of the following:
- identifies no sunshine in December and January
- the number of wet days is high (over 20 in 4 months of the year)
- relatively low precipitation throughout the year.

Award ***[1 mark]*** for outlining an implication for people or the environment that shows why this can be regarded as extreme.

For example: "There is no sunshine in December ***[1 mark]***, which means even evergreen plants cannot photosynthesize at all ***[1 mark]***."

(b) Explain *three* ways in which people have adapted to the extremes of weather and climate in periglacial areas such as Arkhangelsk. ***[2+2+2]***

Award ***[1 mark]*** for each adaptation and a further ***[1 mark]*** for an explanation that links this with periglacial weather and climate (should be specific about season, and not generalized).

If more than three adaptations are considered, accept only the first three.

A variety of responses are possible at different scales from individual to communities within a large urban area:

- clothing needs to be wind proof/insulated/layered ***[1 mark]*** as strong winds contribute to wind chill in winter months ***[1 mark]***
- cars having extra heaters ***[1 mark]*** to stop diesel fuel freezing due to extreme cold in winter ***[1 mark]***
- buildings on stilts ***[1 mark]*** to avoid potential issues with permafrost thaw in summer ***[1 mark]***
- clearance of snow on roads / gritting of roads ***[1 mark]*** during winter months snow and long periods of ice on roads ***[1 mark]***
- extra use of lighting to work ***[1 mark]*** during winter when daylight is limited/absent ***[1 mark]***
- some people may take vitamin D supplements ***[1 mark]*** in winter to make up for a lack of sunshine ***[1 mark]***
- costs of adapting to such a wide range of conditions ***[1 mark]*** *eg* winter and summer clothing ***[1 mark]***.

Credit other valid adaptations and specific links to seasonal challenges.

For a simple list of "cold" adaptations award a maximum of ***[3 marks]***.

(c) "Desertification is the main environmental risk for agriculture in hot deserts and semi-arid areas." Discuss this statement, with reference to examples. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Desertification is the extensification or intensification of desert conditions and a major risk in many parts of the world today. Other environmental risks include salinization, flash floods, and saline intrusions. Some risks are linked (*eg* desertification could encourage irrigation and trigger salinization).

There are a number of ways to discuss the statement. One way is to compare desertification with the severity of other risks *eg* salinization. Another way is to discuss how the risk of desertification varies according to climate and wealth of different countries (*eg* Sahel and Gulf states), or between hot deserts and semi-arid areas.

For Band D, candidates should describe the risk to agriculture of desertification and/or another environmental threat for named arid/semi-arid area(s) (may not distinguish at this level).

Band E should either provide much greater detail of how desertification affects agriculture in different areas (may contrast hot deserts and semi-arid areas) or evaluates the severity of at least one additional risk, such as salinization.

At band F, expect both elements.

Option D — Hazards and disasters – risk assessment and response

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

Award ***[1 mark]*** for each of the following trends, and exceptions to/clarifications of the trends identified:

- general trend is up to 1941–51, then down to 1991–2001
- or may see a rise to 1891–1900, then general decline to 2010 but with some marked exceptions
- recent upturn 2001–2010, or since 1971–80 (with exceptions)
- rising trend is interrupted by anomalies at 1861–70, or 1901-10, 1921-30
- may view lows at 1921–30 (18) and highs at 1941–50 (34) as interrupting a trend of some sort
- after 1941–50 there were fewer than 25 hurricanes
- 1941–50 showed a sharp rise in the number of hurricanes ***[1 mark]***.
- a fluctuating trend
- other valid comments that identify a trend, or exceptions/anomalies to that trend.

(b) (i) Outline the essential characteristics of drought. ***[2]***

Award ***[1 mark]*** for a valid definition of drought, and an additional ***[1 mark]*** for development. For example:

Lower rainfall than the long-term average ***[1 mark]***

for a prolonged period of time ***[1 mark]***
OR
With resulting impacts on the environment or human activity as a result of water shortages ***[1 mark]***.

(ii) Explain the cause(s) of *one named* drought event. ***[4]***

Award ***[1 mark]*** for the timing (accept some margin of error) and general location of one drought event *eg* 2008–9 in Australia. Award up to ***[3 marks]*** for the explanation that follows.

For instance, credit any of the following ideas, if applied in a valid context:

- El Niño event ***[1 mark]*** when Pacific trade wind reversal ***[1 mark]*** increased air pressure in Australia 2008 ***[1 mark]*** bringing dry, subsiding air ***[1 mark]***
- La Niña event ***[1 mark]*** when Pacific trade wind strengthening ***[1 mark]*** resulted in colder eastern pacific ocean and high pressure ***[1 mark]*** leading to drought in Texas in 2011 ***[1 mark]***
- Excessive use of water by humans ***[1 mark]***. Over-extraction of groundwater, or over-irrigation ***[1 mark]*** resulted in water shortages ***[1 mark]*** and drought in Australia in 2010 ***[1 mark]***.

Credit other valid examples and approaches.

(c) "The level of economic development is the most important factor that influences the vulnerability of a population to environmental hazard risks." Discuss this statement. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Most responses will support the statement but high-scoring answers must present an argument to support their viewpoint that also examines other factors. Answers could refer to factors such as investment in warning systems, public education/awareness, effective lines of communication, preparedness and quality of emergency response, insurance, building codes, ability to coordinate the above. These are usually better developed in richer societies. Very good answers may refer to the fact that even in richer countries, some sections of the population are more vulnerable than others (may use case study of New Orleans, for example).

Other factors not related to economic development could include population density, knowledge of the area, culture, the magnitude of the hazard and the type of area (*eg* coastal) that the population inhabits.

For band D candidates must describe how economic development affects vulnerability with reference to at least one hazard type.

Band E should either provide much greater detail of a range of hazard risks that are related to economic development or discuss the concept of vulnerability in relation to at least one additional factor, such as population distribution.

At band F, expect both elements.

8. (a) Describe *two* ways in which land-use planning (zoning) can reduce hazard risk for a *named* hazard type. ***[2+2]***

The hazard type should be clearly stated otherwise award no more than ***[2 marks]*** for a generalized answer not directly related to a hazard.

In each case, award ***[1 mark]*** for identifying a land-use planning strategy, and ***[1 mark]*** for describing the nature of the risk.

For example:

- housing can be prohibited on low-lying areas ***[1 mark]*** which suffer inundation when hurricanes strike ***[1 mark]***
- emergency services can be located in areas of low earthquake risk ***[1 mark]*** for instance away from major fault zones ***[1 mark]***.

(b) Explain *three* reasons why people continue to reside in areas that are known to be affected by hazards. ***[2+2+2]***

Award ***[1 mark]*** for each valid reason why people continue to occupy a site and ***[1 mark]*** for some explanation of why they tolerate the hazard risk.

Possible site reasons could include: fertile soils, mineral deposits, tourist potential, attachment to home, inertia, lack of funds to move / poverty.

Possible explanation of why risk is ignored/tolerated may include: some people know the risk (experts) but not others; perception of severity of hazard; belief that recurrence will not happen anytime soon; confidence in defences / personal resilience.

For instance:

- "Attractive landscapes are found in coastal areas ***[1 mark]***. People think the day-to-day benefit of living there outweighs the occasional risk of a storm surge ***[1 mark]***."
- "A volcano may only explode every 500 years or so ***[1 mark]***. So people won't abandon their homes for such a very small chance ***[1 mark]***."
- "Many tourist jobs are found in coastal areas with a hurricane risk ***[1 mark]*** and people trust the warning systems work ***[1 mark]***."
- "People have a fatalistic attitude ***[1 mark]***, and remain in an area because of tradition/religious beliefs ***[1 mark]***."

There may be other approaches and these should be credited.

(c) "Hazard events are predictable, disasters are not." Discuss this statement. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Hazard events are the occurrence of a hazard, the effects of which change demographic, economic and/or environmental conditions. By contrast, disasters are the realization of major hazard events that cause widespread disruption to a community or regions that the affected community is unable to deal with adequately without outside help.

Some environmental hazard events are more predictable than others *eg* hurricanes and volcanoes. Others are less so *eg* earthquakes, tsunami and human-induced technological hazards. Earthquake prediction might suggest where, but not when, and not the size of the event – so there are aspects of "predictable" to address that may be a feature of good answers.

Disasters are less predictable because the final intensity/magnitude of the hazard event, the resilience of defences and structures, and the extent of the area affected are unknown until after the event. The density of the population and wealth of the area affected are also contributory factors that mean the scale of disaster is not known until after the event when financial reckoning occurs.

For band D, candidates must comment on the predictability of hazards and disasters.

Band E should either provide greater detail about some range of hazard and disaster events, and the extent to which either are predictable, or offer some discussion of the concept of predictability, which has different dimensions (scale, cost, recovery).

At band F, expect both elements.

Option E — Leisure, sport and tourism

9. (a) Outline what is meant by the terms:

(i) primary tourist resources; ***[2]***

Primary resources are pre-existing attractions ***[1 mark]***.

Award the final ***[1 mark]*** for identifying a possible pre-existing attraction: features of the natural environment (climate, landscape, and ecosystems), indigenous people, cultural resources and heritage sites, *etc*.

(ii) secondary tourist resources. ***[2]***

Secondary resources are purpose-built ***[1 mark]***.

Award the final ***[1 mark]*** for identifying a possible purpose-built attraction: accommodation (hotels, campsites, and guesthouses), catering, entertainment, transportation, and information, *etc*.

(b) Using examples, explain *three* reasons for the growth of tourism in more remote locations. ***[2+2+2]***

Award ***[1 mark]*** for each basic reason that is identified/stated, and a further ***[1 mark]*** for explanation of how this leads to growth of tourism in remote locations. (The concept of "remote" may depend on where the tourist's home is. The same example can be used more than once).

For example:

- internet tourist websites have raised awareness ***[1 mark]*** of remote locations where visitors can now go, such as Antarctica ***[1 mark]***
- improved accessibility to remote Pacific islands ***[1 mark]*** has been helped by improvements in cruise ship designs ***[1 mark]***
- rising incomes in developed countries ***[1 mark]*** means people have the funds for "the trip of a lifetime", such as Europeans travelling to see South America ***[1 mark]***
- rising incomes in emerging economies ***[1 mark]*** means more people have the funds for "the trip of a lifetime", such as Chinese visitors to Europe ***[1 mark]***.
- over-development of some tourist areas ***[1mark]*** has led to a desire to visit less crowded, more remote, areas such as The Maldives ***[1 mark]***.

(c) To what extent do the advantages of ecotourism outweigh any disadvantages? ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Good answers should show a sound understanding of the concept of ecotourism (responsibly supporting the environmental and local communities). Accept suitable references to sustainable tourism.

Likely socio-economic themes include: positive impacts such as employment (informal and formal), infrastructure, developing facilities, reduced out-migration, reducing stereotypes. Environmental themes include maintaining biodiversity / local ecosystems, maintenance of genetic materials, climate regulation and flood control. Negative impacts might include loss of culture, clash of cultures and disrespect of local customs; also trampling and habitat loss if not done properly.

The evaluation of the statement might include multiple perspectives (external companies may benefit more from tour packages than locals do) or a temporal perspective perhaps applying a model (such as Butler or carrying capacity) *ie* advantages/disadvantages become more evident over time as tourist incomes or visitor pressures grow.

For band D, candidates must describe one or more ecotourism/sustainable tourism schemes and some effects on communities and/or the environment.

Band E should either provide greater detail about both community and environmental advantages and disadvantages (these need not be perfectly balanced) or offer some more sophisticated evaluation of the statement (*eg* perspectives or timescales).

At band F, expect both elements.

10. (a) Using map evidence, name *and* locate *two* different leisure activities or facilities shown in the area north of gridline 16. ***[2+2]***

Possibilities include:
- chairlifts ***[1 mark]*** *eg* "square 0317" ***[1 mark]***
- camping ***[1 mark]*** *eg* "square 9917" ***[1 mark]***
- viewpoint ***[1 mark]*** *eg* "square 0317"/"square 0216" ***[1 mark]***
- restaurant ***[1 mark]*** eg "square 0917" ***[1 mark]***.

Award ***[1 mark]*** for each activity and ***[1 mark]*** for specific location on the map (whether by grid references or place names or relation to other places).

If the activity is correct but the grid reference the wrong way round, award only ***[1 mark]***. If the activity is correct but it is located south of gridline 16, award only ***[1 mark]***.

(b) Referring to the map, explain *three* factors that may influence the shape of the catchment area for the sports stadium. ***[2+2+2]***

Possible factors for ***[1 mark]*** each include:
- relief/valleys
- lake/shore
- transport links (including roads and ferries)
- population distribution and settlements
- there may be other valid factors.

In each, case award a further ***[1 mark]*** for a statement linking the factor to the catchment shape.

For example: "Transport lines run along valleys ***[1 mark]*** allowing people from further away to travel to the stadium more easily ***[1 mark]***."

(c) Examine the use of sport and recreation as a regeneration strategy in *one or more* urban areas. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Regeneration can involve provision of new employment or renovated/new facilities / housing / infrastructure. It may be a short-term or long-term strategy and the durability of the strategy can be commented on (*eg* whether multipliers are created, *etc*).

Responses could also consider both the positive and the negative role/impacts of sport and recreation in the regeneration of urban area(s), and could evaluate its relative success or failure, including aspects of sustainability, according to different viewpoints or perspectives (*eg* a new sporting stadium and/or accompanying neighbourhood gentrification could lead to displacements).

For band D, candidates must describe a sporting/recreation strategy in at least one named urban area that needed regeneration.

Band E should either provide greater detail about the strategy(s) and the wider role played in regeneration (may make links with housing, services, infrastructure, employment, *etc*) or offer some more sophisticated evaluation of the usefulness of the strategy(s) (*eg* different perspectives or timescales).

At band F, expect both elements.

Option F — The geography of food and health

11. (a) Describe the pattern of the changes in average life expectancy shown on the map. ***[4]***

Award ***[1 mark]*** for each of the following patterns, and exceptions to/clarifications of the patterns identified:

- overall pattern is one of increases in almost every region
- the exception is the Caribbean
- the largest increase in life expectancy is in Central/South America
- less wealthy regions have higher increases than more wealthy regions
- illustrates points using data / provides some quantification.

Credit alternative approaches.

A list of regions and rates, with no pattern, should gain ***[2 marks]*** only.

(b) Suggest *three* reasons, *other than* improved health programmes, why life expectancy has increased in *named* regions in recent years. ***[2+2+2]***

Award ***[1 mark]*** for identifying a reason, and ***[1 mark]*** for some development for a named region. Award only ***[1 mark]*** if no region is specified.

Possible reasons include:

- improved food supply ***[1 mark]*** means fewer deaths from famine in Africa ***[1 mark]***
- improved access to safe water ***[1 mark]*** means fewer cholera deaths in Asia ***[1 mark]***
- rise in incomes ***[1 mark]*** means improved nutrition in Asia ***[1 mark]***
- improved surgery/medical response ***[1 mark]*** means reduction in mortality from accidents in Europe ***[1 mark]***
- fewer women die in childbirth (maternal mortality reduction) ***[1 mark]*** due to spending on MDGs in Asia and Africa ***[1 mark]***
- fewer deaths from disasters *eg* flooding ***[1 mark]*** due to improved flood response/adaption measures across Asia ***[1 mark]***
- credit other valid reasons and developments.

(c) Referring to examples, examine how transnational corporations (TNCs), including agribusinesses, affect food production and food availability. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

There are many possible approaches to this question, but essentially TNCs and agribusiness either increase or decrease food availability. TNCs and agribusinesses, such as Cargill, Dole or Del Monte, may increase food availability through producing food crops, though not necessarily in the regions where the agribusinesses are located. Examples may be **either** of regions where food is produced, **or** of the TNCs/supply chains.

TNCs and agribusinesses specializing in the production of non-food cash crops or exotic foods may reduce the amount of food available locally, as less land is available for food crops or people leave their own plots of land to work as an employee on land farmed by TNCs/agribusiness.

There are alternative, equally valid, approaches such as looking at the environmental damage that can result in some cases from agribusiness practices and which could adversely impact local farmers.

For band D, candidates must describe some ways in which TNCs generally affect food production and/or availability for named places/TNC operations.

Band E should either provide greater exemplified detail of food production/availability issues or offer some more sophisticated evaluation of the distinction between production and availability (*eg* distinguishes between who is producing the food and who is consuming it).

At band F, expect both elements.

12. (a) Identify *two* possible physical factors (A and B) that may affect the incidence and/or spatial extent of the disease. ***[2]***

Award ***[1 mark]*** for each factor. Possible responses include: relief and rivers, temperature, humidity, presence/absence of specific fauna such as mosquitoes, and occurrence of stagnant water. Accept other valid factors.

(b) Briefly outline how population distribution can affect the incidence of the disease. ***[2]***

Award ***[1 mark]*** for any of the following:

- a concentrated distribution/high density of population may lead to higher rates of transmission/spread/diffusion/incidence in an area
- a dispersed population may mean lower rates of transmission/ spread/diffusion/incidence in an area
- credit alternative statements provided they relate population distribution to incidence of a disease, rather than its spatial extent
- accept discussion of effects of the age distribution of a population.

(c) Explain *two* management strategies that have been used to limit the spread of *either one named* water-borne disease *or one named* vector-borne disease. ***[3+3]***

Note that the question specifically excludes sexually transmitted diseases. Both strategies must relate to the same disease; if not, award up to a maximum of ***[3 marks]***.

For each strategy, award ***[1 mark]*** for identifying a management strategy (provided the strategy is relevant to the named disease) and ***[2 marks]*** for describing and explaining it. The strategy need not be located, but credit use of a located example if provided.

Possible strategies include: vaccination/inoculation, education, pest control/insect eradication, improvement of water quality, making effective treatment options readily available and affordable.

For example:

- "Drainage of land ***[1 mark]*** means mosquitoes lose their habitat so there is less malaria ***[1 mark]*** as seen in Italy's Pontine marshes ***[1 mark]***."
- "Avoiding mixing sewage with drinking water ***[1 mark]*** can be achieved by lining wells ***[1 mark]***. This breaks the oral–fecal transmission route for cholera ***[1 mark]***."

(d) "For all communities, the prevention of disease is at least as important as its treatment." Discuss this statement, referring to *one or more* examples of disease. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

The relative importance of policies of prevention/treatment of a disease will depend partly on the disease in question, and partly on any framework that is used to help shape the discussion *eg* comparing the importance of long-term eradication/mitigation with the short-term ethical imperative to help sufferers; or recognizing the resistance to contraception in some cultures.

Only one disease is required for the discussion. Therefore a range of geographic factors can feature in the answer, such as the economic, social, political, demographic characteristics of the community, country or region involved.

For band D, candidates must describe some ways in which one or more diseases can be both prevented and treated.

Band E should either provide greater exemplified detail of prevention and treatment options and the geographic factors that inform influence choices or offer some more sophisticated evaluation of the statement (*eg* discusses "important", perhaps by contrasting a short-term and long-term view, or discusses the different viewpoints and perspectives of contrasting cultures).

At band F, expect both elements.

Option G — Urban environments

13. (a) State *four* main characteristics of a central business district (CBD). ***[4]***

Characteristics that can be outlined for ***[1 mark]*** each include:
- low residential population
- economic/tertiary activity (shops, offices, entertainment) found here
- at the centre of a settlement or at intersection of routes
- very high buildings especially at PLVI
- functional zoning of types of service
- vertical zoning *eg* offices above shops
- convenience shops at edges of CBD
- "Core and frame" structure
- evidence of zones of discard/assimilation
- high value pedestrian flows
- high traffic flows (or low if pedestrianized)
- there may be other valid points.

(b) Explain the processes of gentrification and counter-urbanization. ***[3+3]***

Gentrification

Explanatory points for ***[1 mark]*** each, to a maximum of ***[3 marks]*** include:
- usually seen as a centripetal/inwards movement
- more affluent people move in, displacing less affluent people
- house prices rise/there are home improvements
- incomers are looking for cheap properties for renovation (and profit)
- other pull factors include: vibrancy / authentic city life / proximity to CBD / work (do not over-credit multiple pull factors, as this is only one aspect of the process of change)
- broader neighbourhood changes as affluence rises *eg* restaurants
- credit other valid aspects of the process of change.

Counter-urbanization

Explanatory points for ***[1 mark]*** each, to a maximum of ***[3 marks]*** include:
- a centrifugal/outwards movement
- moving to new town/out-of-town village/commuter town near edge of town (but do not credit suburbs/suburbanization)
- can also be beyond the commuting zone *eg* remote rural areas
- age-selective process associated with retired migrants
- also may involve young families with children
- migrants are drawn by "quality of life"/environment, *etc* or pushed by high prices, crime *etc* (do not over-credit multiple push-pull factors, as this is only one aspect of the process of change)
- credit other valid aspects of the process of change.

(c) Contrast the causes and effects of air pollution for *two named* urban areas. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

The most effective answers will be those that use properly contrasting examples such as two cities at contrasting levels of development (this approach is recommended in the guide, page 38).

Depending on the exact examples chosen, causes may include human factors (transport, industry, and domestic burning of coal, gas, paraffin) and physical factors (*eg* anti-cyclonic weather conditions).

The effects are likely to include impacts on health (impact of traffic in Mexico City), microclimate (lack of "blue sky days" in Beijing), biodiversity (decline of sensitive species *eg* lichen), weathering (especially of limestone buildings) and the costs for tourism (clean-up of polluted buildings, or the cost of lost tourism *eg* Chinese cities in 2012–13).

Good opportunities for making a contrast may be found by highlighting the different roles played by physical factors, governance, stages of economic development *etc* that pertain to the two chosen studies.

For band D, candidates must describe some causes and effects of air pollution and make some reference to two examples (balance between all of these elements is not expected at this level).

Band E should either provide greater exemplified detail of both causes and effects in both cities (with greater balance) or offer a more sustained and explicit contrast (but across a narrower range of ideas).

At band F, expect both elements.

14. (a) Outline the pattern and trend shown in the figure. ***[2+2]***

Award up to ***[2 marks]*** for pattern, and up to ***[2 marks]*** for trend.

- all regions show moderate to very high proportions in the slums (pattern)
- with Sub-Saharan Africa worst affected (pattern)
- most areas show improvements taking place (trend)
- only Western Asia shows deterioration over time (trend).

Credit other significant points not covered by the markscheme. The actual words "pattern" and "trend" do not need to be used.

(b) Explain *three* factors that influence the location of squatter settlements in urban areas. ***[2+2+2]***

Award ***[1 mark]*** for each factor and a further ***[1 mark]*** for the development or exemplification.

Possible factors include: unoccupied land (at the city edge); transport routes such as roads, transport hubs such as bus stations/railway stations/airports; poor quality marginal land; proximity to work opportunities, (such as factories or higher class residential areas), refuse/waste tips, derelict sites, cheap land value. Accept other valid factors. For example:

- "Location near transport routes ***[1 mark]*** allows access to job opportunities in city centre ***[1 mark]***."
- "Land at the edges of the city has nothing there so people build their own homes there ***[1 mark]***. There may be less risk of clearances by bulldozers if no-one else wants to use the land ***[1 mark]***."

(c) "The rapid city growth caused by in-migration can never be controlled." Discuss this statement, referring to *one or more* examples. ***[10]***

Credit all content in line with the markbands. Credit unexpected approaches wherever relevant.

Answers can discuss city-wide policies (such as migration restrictions through permits *eg* China's migrant labour system, or policy refusal to expand the city *eg* green belt legislation, or tougher controls on squatter settlements at edges). This can be linked with the continuing challenge of in-migration/pressures on rural dwellers to leave their land and move to city.

A discussion might compare the effectiveness of different controls in a single city, or controls adopted by two different cities. Either approach is fine when considering the veracity of the statement. A distinction might also be made between spatial growth (urban sprawl) and population growth (numbers). This could be the basis for a more thoughtful discussion.

Examples could include Shanghai, Mumbai, Mexico City, Cairo – most cities experiencing rapid in-migration are in NICs and LEDCs. Inappropriate examples (such as London) will need to be marked on their individual merit (an inappropriate case study may still be the basis for a creditable evaluation, perhaps band D).

For band D, candidates must describe in-migration/city growth and an attempt at migration control with some reference to one or more examples (balance between these elements is not expected at this level).

Band E should either provide greater exemplified detail of city growth/in-migration and the effectiveness of control measures or offer a more thoughtful discussion of the veracity of the statement (but with less factual support).

At band F, expect both elements.