



National
Qualifications
2022

2022 Geography

Global Issues and Geographical Skills

Higher

Finalised Marking Instructions

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General marking principles for Higher Geography

Always apply these general principles. Use them in conjunction with the detailed marking instructions, which identify the key features required in candidates' responses.

- (a) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.
- (b) If a candidate response does not seem to be covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.
- (c) Where the candidate does not comply with the rubric of the paper and answers two parts in one section, mark both responses and record the better mark.
- (d) Marking must be consistent. Never make a hasty judgement on a response based on length, quality of handwriting or a confused start.
- (e) Use the full range of marks available for each question.
- (f) The detailed marking instructions are not an exhaustive list. Award marks for other relevant points.
- (g) Award marks only where points relate to the question asked. Where candidates give points of knowledge without specifying the context, award marks unless it is clear that they do not refer to the context of the question.
- (h) Award marks for knowledge/understanding where points are:
 - relevant to the issue in the question
 - developed (by providing additional detail, exemplification, reasons or evidence)
 - used to respond to the demands of the question (e.g. evaluate, analyse).

Marking principles for each question type

There is a range of question types in this question paper. For each question type, the following provides an overview of marking principles, and an example.

Describe questions

Candidates gain marks for making relevant, factual points. These should be key points. The points do not need to be in any particular order. Candidates may provide a number of straightforward points or a smaller number of developed points, or a combination of these. Candidates must provide more than an outline or list to gain marks. They could refer to, e.g., a landscape feature, a landscape formation process, a situation or facts demonstrating geographical knowledge.

Explain questions

Candidates gain marks for explaining or suggesting reasons for the cause or impact of something, or for referring to causal connections and relationships. Candidates must do more than describe to gain marks here.

- Where the question asks about a landscape feature, candidates should refer to the processes leading to landscape formation.
- For a source-based question, candidates should make use of these and refer to them within their answer for full marks.

Where candidates provide a purely descriptive answer, or one where development is limited, award no more than half the available marks for the question. Other questions look for candidates to demonstrate higher-order skills and will use command words such as analyse, evaluate, to what extent, and discuss.

Analyse questions

Candidates gain marks for identifying parts, the relationship between them, and their relationships with the whole; and for drawing out and relating implications. Award an analysis mark where candidates use their knowledge and understanding or a source to identify relevant components (e.g. of an idea, theory, argument) and clearly show at least one of the following:

- links between different components
- links between component(s) and the whole
- links between component(s) and related concepts
- similarities and contradictions
- consistency and inconsistency
- different views or interpretations
- possible consequences or implications
- the relative importance of components
- understanding of underlying order or structure.

Where candidates are asked to analyse they should identify parts of a topic or issue and refer to the interrelationships between, or impacts of, various factors. E.g., where a question asks for an analysis of the soil-forming properties which lead to the formation of a gley soil, candidates should refer to how the various soil formatting properties contributed to its formation.

Evaluate questions

Candidates gain marks for making a judgement of the success, failure, or impact of something based on criteria. They should give a brief description of the strategy or project being evaluated, before offering an evidenced conclusion.

Account for questions

Candidates gain marks for giving reasons which are often (but not exclusively) from a resource, e.g.: for a change in trade figures; a need for water management; or differences in development between contrasting developing countries.

Discuss questions

Candidates gain marks for exploring ideas about a project, or the impact of a change. They should consider different views on an issue or argument. This might not be a balanced argument, but they should give a range of impacts or ideas within their answer.

To what extent questions

Candidates gain marks for considering the impact of a management strategy or strategies they have explored. They should give a brief description of the strategy or project being evaluated, before offering an evidenced conclusion. They do not need to offer an overall opinion based on a variety of strategies, but should assess each separately.

Marking instructions for each question

Section 1 – Global Issues

| Question | General marking principle for this type of question | Max mark | Specific marking instructions for this question |
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| 1. | <p>Award 1 mark for each consequence and award further marks where the candidate has developed this.</p> <p>Award a maximum of 14 marks for either positive or negative consequences.</p> <p>Award 3 marks where candidates give specific named examples within the case study area, which develop the answer.</p> <p>Award a maximum of 18 marks if the answer does not clearly relate to a specific named water management project.</p> | 20 | <p>E.g., the Colorado river project:</p> <p>Socio-economic positive consequences</p> <ul style="list-style-type: none"> • fresh water supply for growing desert cities (1 mark) e.g. Phoenix (1 E mark) • increased standard of living in hot, dry climate with air conditioning, swimming pools, landscaping etc (1 mark) • areas such as Lake Mead (1 E mark) provide an area for water sports and recreation (1 mark) • improved flood control (1 mark) • the construction/energy plant creates jobs in the area (1 mark) • more industries attracted, e.g., electronics and jobs created using HEP (1 mark) • expansion of irrigated land allowed increased agricultural output. (1 mark) <p>Socio-economic negative consequences</p> <ul style="list-style-type: none"> • the displacement of people from the site of the dam and reservoir (1 mark) • loss of native American burial sites and other sacred areas (1 mark) • disagreement between states and Mexico concerning water allocation (1 mark) • construction costs were very high (1 mark) the Central Arizona Project cost \$6billion (1 E mark) • subsidised water for farmers led to water wastage. (1 mark) <p>Environmental positive consequences</p> <ul style="list-style-type: none"> • reliable seasonal water flow for animal and plant life (1 mark) • reservoirs provide new sanctuaries for wildlife (1 mark) e.g. the blue heron. (1 E mark) |

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| | | | <p>Environmental negative consequences</p> <ul style="list-style-type: none"> • greater evaporation rates from large areas of water (1 mark), with more saline water in the river and farmland (1 mark) this also leads to changes in the local hydrological cycle (1 mark) • farmers downstream have been forced to change to more salt-tolerant crops (1 mark) • huge amounts of water loss through seepage in the sandstone rocks (1 mark) around Lake Powell (1 E mark) • loss of many animal habitats caused by change in river regime (1 mark), such as the Colorado delta area, resulting in less birdlife (1 mark) • led to an increase in invasive non-native species (1 mark) such as the zebra mussel. (1 E mark) <p>Or any other valid point.</p> |

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| 2. | (a) and (b) | <p>Candidates may choose to answer parts (a) and (b) separately or together.</p> <p>Award 1 mark for each valid description or comment on effectiveness.</p> <p>Award up to 3 marks where candidates give appropriate named examples which develop the answer, with a maximum of 1 mark awarded for a named example of each strategy.</p> <p>Award a maximum of 14 marks for either part (a) or part (b).</p> <p>Each evaluation should only be credited once – that is, candidates should be credited e.g. cost only once.</p> <p>Care should be taken not to credit reversals.</p> | 20 | <p>Points may include:</p> <ul style="list-style-type: none"> • one method used was to spray pesticides/insecticides on walls in homes in an attempt to kill the Anopheles mosquitoes. (1 mark) E.g., DDT (1 E mark) which was effective at first, however the mosquito became resistant to this (1 mark) and alternative insecticides are often too expensive for developing countries (1 mark) • breeding genetically modified sterile mosquitoes causes the species to die out (1 mark) however developing countries often don't have the technology required to undertake this (1 mark) • specially designed mosquito traps use CO₂ to mimic animals and humans. (1 mark) Mosquito traps have been effective at a small scale, but mosquitoes breed so quickly that it is impossible to trap them all (1 mark) • BTI bacteria artificially grown in coconuts. (1 mark) The fermented coconuts are broken open after a few days and thrown into the mosquito larvae infested ponds. (1 mark) The larvae eat the bacteria and have their stomach lining destroyed (1 mark) however this can be seen as wasteful as it needs to be repeated every 45 days (1 mark) • putting larvae-eating fish into stagnant ponds or padi fields, (1 mark) such as the muddy loach (1 E mark). As the fish breed, this has the added advantage for farmers who can eat some of the fish and add extra protein to their diet (1 mark) • flushing reservoirs every seven days as it takes longer than this period of time for the larvae to develop into adult mosquitoes. (1 mark) This can be a challenge where water needs to be stored for dry seasons (1 mark) • planting eucalyptus trees can help soak up excess moisture to remove the breeding grounds. (1 mark) However, in some areas they have become invasive and have driven out native species (1 mark) • covering standing water and water storage cans, near to homes and villages (1 mark) e.g. the Oxfam bucket, (1 E mark) |

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| | | | <ul style="list-style-type: none"> • medication to kill the parasite/prevent infection (1 mark) such as quinine/chloroquine/Lariam/Malarone (1 E mark) drugs to kill the parasite once inside humans have been effective for a spell, but the parasite often adapts and becomes resistant (1 mark) • trials have produced a safe vaccine (1 mark) such as RTS,S/Mosquirix (1 E mark) however, the vaccine is only 50% effective (1 mark) • educating people in the use of insect repellents (1 mark) or covering the skin at dawn/dusk when mosquitoes are most active, to reduce the chances of being bitten. (1 mark) The increased use of insecticide-coated mosquito nets at night (1 mark) which is one of the easiest and cheapest ways of preventing being bitten. (1 mark) <p>Or any other valid point.</p> |

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| 3. | (a) | <p>1 mark should be awarded for each valid point.</p> <p>Markers should take care not to credit physical causes of climate change.</p> | 8 | <p>Points may include:</p> <ul style="list-style-type: none"> • burning fossil fuels, e.g. coal, oil and natural gas release Carbon Dioxide into the atmosphere (1 mark) • coal has been used increasingly to power factories/generate electricity in power stations to heat homes (1 mark) • increased car ownership has resulted in more petrol and diesel being used to fuel cars (1 mark) • increased car exhaust emissions have resulted in more Nitrous Oxide (1 mark) • deforestation has resulted in less carbon dioxide being absorbed (1 mark) and the burning rapidly releases more CO₂ (1 mark) • methane has been released from landfill sites as waste decomposes (1 mark) and when drilling for natural gas (1 mark) • in padi fields, methane is produced by microbes underwater as rice plants decay (1 mark) Rice production is increasing to meet the demand in rapidly growing countries (1 mark) • the increasing demand for beef has resulted in more methane (1 mark) being created by belching cattle and from animal dung (1 mark) • methane is more than 20 times as effective in trapping heat than CO₂; (1 mark) it accounts for 20% of the enhanced greenhouse effect; and it remains in the atmosphere for 11-12 years (1 mark) • the increased production of fertilisers also adds to the amount of Nitrous Oxide in the atmosphere (1 mark) • nitrous oxide is 200-300 times more effective in trapping heat than Carbon Dioxide (1 mark) • refrigerators which are not disposed of correctly release CFCs (1 mark) when the foam insulation inside them is shredded. (1 mark) <p>Or any other valid point.</p> |

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| (b) | <p>Award 1 mark for an impact of climate change.</p> <p>Award further marks for development of each impact.</p> <p>Award a maximum of 2 marks where candidates give specific, appropriate named examples which further develop the answer.</p> | 12 | <p>Possible answers may include:</p> <ul style="list-style-type: none"> • sea level rises caused by thermal expansion of the oceans (1 mark) and also by the melting of glaciers and land-based ice caps (1 mark) • low-lying coastal areas will suffer flooding, (1 mark) e.g., Bangladesh (1 E mark) leading to large-scale displacement of people (1 mark) and loss of land for farming and destruction of property (1 mark) • climate change refugees moving to higher ground or to other countries (1 mark) from areas such as Tuvalu or the Maldives (1 E mark) will exert more pressure on resources such as housing, water and power supplies in the receiving area (1 mark) • there will be more extreme and more variable weather such as flooding and droughts, (1 mark) and more frequent and intense hurricanes due to increased sea temperatures (1 mark) • there will be an increase in precipitation, particularly in the winter in northern countries (1 mark) increase in extent of tropical/vector borne diseases, as warmer areas expand (1 mark) • possibly up to 40 million more people in Africa being exposed to risk of contracting malaria (1 mark) • predicted extinction of some land species, due to habitat loss (1 mark) • an increase in sea temperature leads to coral reefs bleaching. (1 mark) coral expels the algae causing it to turn white (1 mark) • changes to ocean current circulation may mean the thermohaline circulation starts to lose impact on north-western Europe, resulting in considerably colder winters (2 marks) • a more frequent El Niño/La Niña (1 mark) leads to changes in the monsoon (1 mark) • a prolonged dry season can lead to forest fires, (1 mark) e.g. Australian Bush fires. (1 E mark) <p>Or any other valid point.</p> |

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| 4. | (a) | Award 1 mark for each reason. Further marks may be awarded for development of each reason. | 8 | <p>The period of increasing energy consumption may be due to:</p> <ul style="list-style-type: none"> increased vehicle ownership due to two or more car household (1 mark) therefore increased demand for petrol (1 mark) increased ownership of electronic devices such as tablets (1 mark) due to changing technology and affordability (1 mark) building of larger homes/more single occupancy homes leading to more demand and use of energy, such as central heating systems. (1 mark) <p>For developed countries, the rate of increase in energy consumption is projected to slow down due to a number of reasons, including:</p> <ul style="list-style-type: none"> improved energy efficiency in residential sector (1 mark) – e.g. energy-saving fridges and LED lighting (1 mark) improved insulation of housing such as cavity wall insulation (1 mark) which cuts down on heat loss causing less heating to be required (1 mark) growth of more affordable, fuel efficient ‘greener’ hybrid cars (1 mark) government initiatives such as ‘cycle to work’ schemes (1 mark) encouraging people to leave their cars at home by subsidising the cost of cycle purchase. (1 mark) <p>Or any other valid point.</p> |

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| (b) | <p>Award 1 mark for each point on effectiveness.</p> <p>Candidates must discuss non-renewable sources of energy.</p> <p>Award 0 marks for renewable sources of energy.</p> <p>Award 2 marks for specific named examples which further develop the answer.</p> <p>If candidates discuss more than one energy source, mark all and award the marks for the highest scoring.</p> | 12 | <p>Possible answers for all fossil fuels might include:</p> <ul style="list-style-type: none"> • non-renewable energy provides instant power, as required (1 mark) meeting demand at peak times, such as early evening (1 mark) • fossil fuels are finite and once used, cannot be replaced. (1 mark) <p>For oil answers may include:</p> <ul style="list-style-type: none"> • one of the most abundant energy sources (1 mark) • no new technology needed to use it, so relatively inexpensive (1 mark) • liquid form makes it easy to transport and use (1 mark) • most countries now have to limit their production of CO₂ to meet climate change commitments (1 mark) e.g., the Paris Agreement (1 EG mark) of the three major fossil fuels (oil, gas and coal), oil reserves are the lowest (1 mark), estimated at only 50 years left (1 mark) • extracting crude oil can potentially produce spills (1 mark), which can result in severe environmental damage (1 mark), e.g. explosion of BP Deepwater Horizon Gulf of Mexico 2010 (1 EG mark) • increased costs in exploring and extracting remaining oil reserves e.g., (1 mark) will result in higher domestic energy bills. (1 mark) <p>For nuclear energy answers may include:</p> <ul style="list-style-type: none"> • although uranium is a finite resource, nuclear power can supply energy for hundreds or thousands of years (1 mark) • a small amount of radioactive material can produce considerable levels of energy (1 mark) e.g. a lump of uranium can produce 2 million times more energy than from a comparable lump of coal (1 mark) • nuclear power plants can be very reliable (1 mark), and can run without any interruption for up to 2 years (1 mark), not being affected by changing weather conditions, unlike wind power e.g. (1 mark) • does not give off atmospheric pollutants (1 mark) • can be highly toxic, with devastating and long-lasting consequences if there is a leak (1 mark), such as Chernobyl, Ukraine in 1986 (1 EG mark) • storing of nuclear waste is extremely expensive (1 mark) • security concerns, such as terrorist threat. (1 mark) <p>Or any other valid point.</p> |

Section 2 – Application of Geographical Skills

| Question | | General marking principle for this type of question | Max mark | Specific marking instructions for this question |
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| 5. | (a) and (b) | <p>Candidates should make reference to all sources, including the OS map, when discussing the suitability of the location, and the social, economic and/or environmental impacts of the tourist development on the surrounding area.</p> <p>Award 1 mark for each description of the site or explanation of the suitability of the site.</p> <p>Award 1 mark for each impact.</p> <p>Award 1 mark where candidates interpret the resource. Award up to 4 marks for map evidence, which may include correct and appropriate grid references and/or place/road names.</p> | 20 | <p>Suitability of the location:</p> <ul style="list-style-type: none"> the land is flat (1 mark), which will lower construction costs (1 mark) the site has previously been developed therefore services are in place (1 mark) the development site is near to the town centre (1 mark) therefore potentially will have high footfall (1 mark) and there is a tourist information office at 428644 (1 ME mark) the site will be sheltered from high tides by the stone jetty (1 mark) there is parking available for tourists (1 mark), e.g. at 431646 (1 ME mark) the site is located on the Lancaster Coastal Way (1 ME mark) and is a scenic location, with sandy bays for visitors and walkers to enjoy (1 mark) there are several caravan parks and campsites nearby, providing accommodation for visitors (1 mark), e.g. at 434628 (1 ME mark) the coastal location, with a sandy beach will make it easy to develop a seashore biome (1 mark) the location is accessible by public transport (1 mark) with Morecambe train station at 433642. (1 ME mark) The train line links to Lancaster, Heysham and the north. (1 mark) the site is also accessible by motorway and main roads (1 mark), with the M6 junction 34 (1 ME mark) only 7 kilometres away (1 mark) and the A589 passing the development site. (1 ME mark) The M6 leads to many large towns and cities in the North of England (1 mark) which could bring many visitors or employees (1 mark) it would be possible to establish research links (1 mark) with the University of Cumbria at 486609 (1 ME mark) there are a number of other tourist attractions nearby (1 mark) so day visitors could extend their stay (1 mark) |

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| | | | <ul style="list-style-type: none"> • however, the site could be liable to flooding (1 mark) as it is less than 5 metres above sea level (1 ME mark) and could be affected by high tides, especially in stormy weather (1 mark) • further development would be restricted as the site is limited in all directions (1 mark) • the nuclear power station at 402598 (1 ME mark) is less than 6 km away (1 mark) leading to worries about possible safety issues. (1 mark) <p>Social impacts:</p> <ul style="list-style-type: none"> • the education centre could encourage schools to visit the area to learn about the area/coastal ecosystems (1 mark) • access to the beach would be restricted if the development extended into the sea (1 mark) and tourists may avoid the area during the construction period due to the noise and air pollution (1 mark) • employment opportunities may encourage younger people to move into the area, addressing the ageing population (1 mark) as there are 4% more over 65-year-old people than the national average. (1 mark) <p>Economic impacts:</p> <ul style="list-style-type: none"> • the new tourist development will attract more tourists to the area, as visitor numbers may have dipped when previous amenities closed (1 mark) • many new jobs will be available during the construction of the centre (1 mark) and once the attraction opens there will be full time and part time vacancies (1 mark) which will increase the employment opportunities for the people of Morecambe, Heysham, Lancaster and beyond (1 mark) • some of the new jobs may be highly skilled and linked to university research projects (1 mark) which would bring more higher paid jobs to the area, giving people more disposable income (1 mark) • the number of people claiming unemployment benefits (currently above the average for the Northwest and Great Britain as a whole (1 mark)) may decrease due to the new opportunities available (1 mark) • other tourist attractions, hotels, restaurants and other services may see an increase in profits due to the rise in visitor numbers (1 mark) all of which will lead to the multiplier effect with more money in the local economy. (1 mark) |

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| | | | | | <p>Environmental impacts:</p> <ul style="list-style-type: none"> the biomes will allow rare plants and animals to be protected (1 mark) however, people in the local area may be concerned about the increase in traffic to the area (1 mark) e.g., the A589 (1 ME mark) the shell shaped biomes may be considered visual pollution and may not blend in with the natural environment. (1 mark) |

[END OF MARKING INSTRUCTIONS]