Pearson Edexcel

Mark Scheme

June 2023

Pearson Edexcel GCSE
In Geography (1GB0) Paper 3

edexcel

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

June 2023
Question Paper Log Number P72571A
Publications Code 1GB0/03

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question Number	Answer	Mark
1(a)(i)	Tundra	**Clerical (1)**

Question Number	Answer	Mark
1(a)(ii)	C and E Rationale – these are main features of the distribution. A incorrect – the pattern is uneven B incorrect – trees are found away from the interior D incorrect – there is very little in the southeast; trees are mostly found in southwest and north	**(2)**

Question Number	Answer	Mark
1 (b)	Award 1 mark for any valid tropical or temperate forest biome. Many valid expressions exist, including: • Tropical / tropical rainforest / rainforest / tropical forest • Selva / equatorial forest • Deciduous / temperate / deciduous summer forest • Mangrove **Accept any other valid terminology.** **Do not credit:** • synonyms for taiga / boreal forest such as 'coniferous' • 'evergreen' • Amazon(ian) or other named regions • names of individual species ('oak forest' or 'birch wood')	**Expert** **(1)**

Question Number	Answer	Mark
1 (c)	In each case, award 1 mark for a basic suggested way **based on the Figures**, and 1 mark for further explanation, up to a maximum of 4 marks. Explanation may focus on specific ecosystems / biomes, or the distribution of ecosystems (plants/animals) in general. Explanation, including links between the different maps and photographs in Figures 1 and 2, may include: • Glaciers / ice / close to Arctic circle (1) where cold temperatures / lack of soil will limit vegetation growth (1) • Volcanoes (1) harm / destroys / prevent growth of ecosystems / plants (1) • Mountains / high altitude (1) where poor soils / low temperatures / permafrost limit growth / suit tundra (1) • Coastal edges / coastline (1) where warmer / milder / maritime climate suits forest ecosystems (1) • Snow-covered areas (1) are habitats for species with adaptations eg animals with white fur (1) **Accept any other appropriate response** **Do not credit** Statement of 'plate boundary' – must mention volcano, lava or other implied threat/hazard to ecosystems	**Expert** **2 + 2** **(4)**

Question Number	Answer	Mark
2(a)(i)	D Rationale – describes both flora and fauna richness. A incorrect – this is a rate of removal B incorrect – this is biome variation C incorrect – this is a chemical process	**(1)**

Question Number	Answer	Mark
2 (a)(ii)	In each case, award 1 mark for a basic reason **based on Figure 3**, and 1 mark for further explanation / development of why forest has not survived, up to maximum of 4 marks. **Human reason** • Deforestation by people / Vikings cut the trees (1) for fuel / timber / crops / agriculture (1) • People cleared forest for sheep (1) that require space / room for grazing / stopped trees from growing back / provide a food source (1) **Physical reason** • Strong winds / soil erosion (1) so tree roots lack soil / trees lack nutrients / fewer suitable habitats and so a reduced distribution (1) • Species died after climate change / ice age (1) because of changing / colder temperatures / they weren't suited / adapted to new conditions (1) Credit differing interpretations of 'human' and 'physical' (e.g. soil erosion can be framed as a 'human' reason caused by poor land management). **Marking notes** 'They cleared forest for sheep' without any development (using own knowledge – not more from Figure 3) is awarded 1 mark only because candidates are not adding own knowledge (it all comes directly from resource). **Accept any other appropriate response(s) *based on Figure 3*.**	**Expert** **2** **2** **(4)**

Question Number	Answer	Mark
2(b)	Award 1 mark for a basic explanation of an economic benefit **based on Figure 4** and 1 mark for further explanation, up to a maximum of 2 marks: • Forestry and timber work provides jobs (1) which can boost national economy / GDP / stimulate local multiplier effects (1) • Pine trees ruin landscape for tourists (1) which reduces income / revenues / visits (1) • Wood / timber sales / profits (1) are increased by fast-growing trees (1) **Accept any other appropriate response based on Figure 4**.	**Expert** **(2)**

Question Number	Answer	Mark
2 (c)	Award 1 mark for any valid adaptaion and 1 mark for the explanation, up to a maximum of 2 marks: • Evergreen / coniferous (1) due to short growing season / too little time for shedding and regrowth (1) • Needle leaves (1) to limit tranpiration / water loss / respiration / save energy (1) • Sloping branches / cone shaped tree (1) allowing snow to slip off (1) • Shallow roots (1) linked with frozen soil conditions (1) • Small / thin branches (1) that allow snow to fall off (1) **Accept any other appropriate response.** **Do not credit** • tall trees • characteristics that are not adaptations e.g. low biodiversity, nutrient store sizes	**Expert**
		(2)

Question Number	Answer	Mark
3 (a)(i)	Tourism	**Clerical (1)**

Question Number	Answer	Mark
3 (a)(ii)	Fishing and food / fishing / food	**Clerical (1)**

Question Number	Answer	Mark
3 (b)(i)	D Rationale – this is the percentile result for the simple operation 100 – (19 + 66 +2) A incorrect – there is no basis for this number B incorrect – this is 100 – (23 + 16) [column data] C incorrect – there is no basis for this number	**(1)**

Question Number	Answer	Mark
3 (b)(ii)	Award 1 mark for any of valid possible political causes of market / supply disruption. For example: • War / conflict (1) • Government (of oil producing country) raises prices (1) • Government mismanagement of economy (1) • Example of conflict e.g. Russian invasion of Ukraine, Gulf War, Arab-Israeli / Yom Kippur war (1) • Multi-lateral decision-making / OPEC policy (1) • Political mismanagement of markets (1) • Future carbon taxes might drive prices higher (1) **Accept any other valid suggestion.** Do not credit economic causes - unless it is implied that government / politicians / rulers may have played a role.	**Expert** **(1)**

Question Number	Answer	Mark
3 (c)	In each case, award 1 mark for a reason **based on Figures 5 and 6**, and 1 mark for further explanation, up to a maximum of 4 marks. Explanation should focus on why Iceland still needs a diverse energy mix / different energy sources. Possible reasons include: • Necessity of oil / fossil fuel / having oil in mix (1) as fishing fleets / aeroplanes need fossil fuel (1) • Using cheaper renewable energy for other things (1) e.g. heating homes (1) • Concerns with dependency on oil / volatile oil prices (1) so government strategy of developing renewables (1) • Not enough time has passed to phase out oil yet (1) because renewable energy are relatively new sources (1) **Accept any other appropriate response**.	**Expert** **2 + 2** **(4)**

Question Number	Answer	Mark
3 (d)	C 53 – 15 Rationale – correct range between upper & lower quartile A This is the entire range, not IQR B This is an entirely arbitrary operation D This is an entirely arbitrary operatio	**(1)**

Question Number	Answer	Mark
3 (e)	In each case, award 1 mark for a basic reason and 1 mark for further explanation or development, up to a maximum of 4 marks. **One physical reason** • Solar power uses sunlight (1) but some countries have weak sunlight / cloudy weather (1) • Wind power is created using turbines (1) but some countries lack suitable land for construction / lack coastlines for offshore turbines (1) • Many countries can't use geothermal energy sources (1) as they are away from tectonic plate boundaries (1) • Some countries lack water supply for HEP generation (1) for example some arid areas (1) • Climate is unreliable or changeable (1) which makes solar or wind unviable (1) • Plentiful fossil fuels are available instead (1) which therefore affects decision-making (1) **One political reason** • Government may not give permission for renewable projects (1) e.g. wind turbines that disturb the view (1) • Government will not subsidise renewable energy (1) as ir prefers to promote / rely on cheaper fossil fuels (1) • Governments may prioritise other things (1) e.g. tackling Covid / austerity / developing fracking / healthcare (1) • A government profits from oil sales (1) and has no incentive to develop renewables (1) **Accept any other appropriate response**.	**Expert 2 + 2** **(4)**

3 (f)	**AO3 (4 marks)/AO4 (4 marks)** Answers should address environmental impacts profiled in Figure 8. The assessment may offer a view of which activity is most severe/concerning, and why. **AO4 (skilled use of information from Figure 8)** • Hot water at HGP brings sulphur and nitrogen gases to surface. • Breeding grounds lost for reindeer and geese, threatening biodiversity. • Some fish species have died out due to KHPS reservoir. • Health problems in Reykjavik can be traced back to HGP. • Three TNCs are producing aluminium at multiple sites thanks to renewable energy's low costs. • Aluminium is using electricity on a massive scale, requiring 3/4 of all electricity used in Iceland. **A03 (making connections and /or arguments)** • The *most serious* local human impacts are health problems in the capital city linked with pollution associated with the geothermal energy at HGP. • The *most serious* local environmental impacts are linked directly with species loss due to the KHPS reservoir. • HEP generation has meant that large areas of land and plant communities have been *entirely sacrificed* so that energy can be produced. • HEP (at KHPS) could be viewed as having a *worse impact* than HGP (geothermal). • However, the renewable energy has *little or no negative impact* on the climate especially geothermal power. • But renewable energy is the reason why aluminium TNCs have come to Iceland, and so is *indirectly responsible* for any harm done by heavy industry.

Level	Mark	Descriptor
	0	No acceptable response
Level 1	1–3	Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3) Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4–6	Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7–8	Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Question Number	Answer	Mark
3 (g) (i)	2014	**Clerical (1)**
Question Number	Answer	Mark
3 (g) (ii)	Award 1 mark for mention of: • ocean temperature (change/rise) • water temperature (change/rise) References to temperature change/rise must mention **water/ocean** for award of the mark.	**Clerical (1)**

3 (h)	**AO3 (4 marks)/AO4 (4 marks)** Answers should address the strengths and weaknesses of Iceland's plan as viewed by other countries and contexts. The assessment may offer an overview of how much value there is in adopting Iceland's plan for other countries given Iceland's unusual geographical context. **AO4 (skilled use of information from Figure 10)** • Iceland is promoting greater use of geothermal and HEP. • Iceland is part of EU and can participate in EU targets for industry. • Iceland can plant many more trees because it was originally a forested land and has a climate which supports taiga forest re-growth. • Iceland will ban petrol and diesel vehicles by 2030. • Iceland is developing carbon capture and storage technology. • Citizens in Iceland are helping collectively to bring about change **A03 (making connections and /or arguments)** • Afforestation is an effective way of reducing / offsetting carbon emissions which *many countries can potentially adopt*. • However, climate and land availability *may not support this approach* in some local/national geographical contexts. • Renewable energy targets and goals are something which *all countries* can usefully consider adopting. • However, *not all countries* have the same potential for renewable energy production, nor technology needed for carbon capture or vehicle replacements. • Energy efficiency and reduced consumption are strategies which individual citizens *in any context* can adopt as this hinges on personal behaviour. • One view might be that citizen-centred action, such as energy efficiency, is the *most useful* part of the plan because it has value in all local/national contexts.

Level	Mark	Descriptor
	0	No acceptable response
Level 1	1–3	Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements are supported by limited evidence. (AO3) Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	4–6	Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	7–8	Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3) Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Q	Indicative content
4	**AO2 (4 marks)/AO3 (4 marks)/AO4 (4 marks)** In order to fully justify a choice, the candidate must consider all three options and establish a clear argument. There is no preferred option. All options can be justified. Option 1 – Take action to reduce harmful impacts of aluminium production e.g. by imposing stricter controls and green taxes on polluting industries. Done first, this would bring clear immediate benefits to local areas where most damage has been done. However, deterring FDI might not be economically and socially sustainable. Option 2 – Increased replanting of trees to replace Iceland's lost taiga forest. This has local biodiversity benefits and a positive global dimension (mitigation) which ultimately helps everyone. Sustainability goals could also be met through limiting of soil erosion. Option 3 – Make new laws to remove fossil fuels from Iceland's energy mix. This helps protect the environment and provides new opportunities for renewable energy, and the investment and jobs it brings. However, some sectors will suffer if this is done. **A02 (applied understanding)** • Transnational corporations (TNCs) are footloose and may avoid contexts where costs increase (option 1) and profits are reduced. • Stricter environmental standards (option 1) help address both the environmental and social strands of sustainable development, but may adversely affect GDP. • Re-forestation / re-wilding (option 2) restores habitats and contributes towards local biodiversity. • Re-forestation (option 2) provides ecosystem services by protecting the soil from run-off and erosion as part of water cycle movement. • Electricity can be decarbonized more easily than transport sector, because fossil fuels (option 3) are needed for vehicles (cars, shipping, aircraft) • Climate change mitigation requires that fossil fuel use (option 3) is phased out sooner rather than later, in line with global agreements e.g. Paris Agreement. **A03 (use of argument)** • Sustainability has social, economic and environmental strands which complicates the evaluation of all three options. • Moreover, there are short-term and longer-term futures to consider. Removing fossil fuels could create short term economic and social hardship for fishing communities. • Stricter controls on industry could benefit the environment but at the cost of investment and jobs, making it a less sustainable pathway for Iceland's people. • Replanting trees may create forestry jobs, reduce soil erosion and hopefully tourism will not be significantly harmed by the changes – offering the best 'all-round' future. • Iceland is a physically isolated country whose economy might be threatened by reduced global business connections resulting from green taxes. • Any climate change mitigation by Iceland will have little impact at a global scale due to its relatively tiny population/size, so the best option will have clear local benefits. **AO4 (use of evidence)** • Forest re-growth may be impossible because so much soil has been lost (Figure 3). • Forest re-growth may threaten tourist industry by changing the landscape if around 3 million trees are planted (Figure 4). • 47,000 tourism and industry jobs need to be protected, e.g. in Reykjavik (Figure 5). • Fossil fuels are still vital for tourism and transport (Introduction and Figure 6). • Even if industry goes elsewhere, the damage is already done at KHPS (Figure 8). • Climate threats to Iceland's environment and economy (fishing industry) are too great to be ignored (Figures 9 and 10).

Level	Mark	Descriptor
	0	• No acceptable response
Level 1	1–4	• Demonstrates isolated elements of understanding of concepts and the interrelationship between places, environments and processes. (AO2) • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) • Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (A04)
Level 2	5–8	• Demonstrates elements of understanding of concepts and the interrelationship between places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide some logical connections between concepts. An unbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) • Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	9–12	• Demonstrates accurate understanding of concepts and the interrelationship between places, environments and processes. (AO2) • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3) • Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Marks for SPGST		
Performance	**Marks**	**Descriptor**
SPaG 0	0	*No marks awarded* • Learners write nothing. • Learner's response does not relate to the question. • Learner's achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning.
SPaG 1	1	*Threshold performance:* • Learners spell and punctuate with reasonable accuracy. • Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall. • Learners use a limited range of specialist terms as appropriate.
SPaG 2	2–3	*Intermediate performance* • Learners spell and punctuate with considerable accuracy. • Learners use rules of grammar with general control of meaning overall. • Learners use a good range of specialist terms as appropriate.
SPaG 3	4	*High performance* • Learners spell and punctuate with consistent accuracy. • Learners use rules of grammar with effective control of meaning overall. • Learners use a wide range of specialist terms as appropriate.