



Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCSE

In Geography Spec B (1GB0) Paper 03

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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)	<p>Award 1 mark for each identified physical factor shown or suggested by the landscape shown in Figure 1 or its title, up to a maximum of 3 marks.</p> <p>For example, credit references to:</p> <ul style="list-style-type: none"> • Mountains/altitude/height (1) • Slopes/gradient/topography (1) • Rocky ground/rocks (1) or soil (1) • River (limiting growth) (1) • Water supply close to river (1) • Temperature (1) • Precipitation (1) • Nutrients (1) • Drainage (1) • Floods (1) or drought (1) <p>Do not credit: Human factors human factors that cannot be inferred from the figure.</p> <p>Global factors such as latitude, biome – all not local</p> <p>Accept any other appropriate response.</p>	(3)

Question Number	Answer	Mark
1(b)	<p>D Tundra</p> <p>temperate grassland - not at this latitude tropical grassland - not at this latitude desert - not at this latitude</p>	(1)

Question Number	Answer	Mark
1(c)	<p>Award 1 mark for any of the following up to a maximum of 2 marks. Answers may relate to specific vegetation or climatic characteristics, or the distribution of the biome.</p> <ul style="list-style-type: none"> • Deciduous / seasonal trees (1) • Seasonal climate / four seasons / <i>idea of seasons</i> ('warmer summer but colder winter') (1) • Hotter/wetter <i>than another named biome</i> ('cooler than rainforest') (1) • May rain throughout year (1) or all year round (1) • Northern limit of approximately 40 to 50 degrees (1) • Southern limit approximately 30 to 40 degrees (1) • Covers UK / much of Europe / valid named countries (1) • Structure of forest e.g. mentions multiple layers (1) • Broad leaves (1) • High Biodiversity – relative to other named biome (1) • Detail of food chain e.g. 'top predator is brown bear' (1) • Nutrient rich soils (1) or ground litter (1) <p>Accept any other appropriate response</p> <p><i>Do not credit isolated or unqualified climatic statements:</i> <i>e.g. cold/cool winter, hot/warm summer, high rainfall, low rainfall, humid conditions, moderate/median conditions, large temperature range</i></p> <p><i>Do not credit:</i> evergreen trees; named species ('fox')</p>	<p>1 + 1</p> <p>(2)</p>

Question Number	Answer	Mark
1(d)	<p>Award 1 mark for a basic point and a further mark for an explanation/causality up to a maximum of 2 marks.</p> <ul style="list-style-type: none"> • More oxygen/O₂ added to atmosphere (1) <i>because of photosynthesis / CO₂ has been taken in</i> (1) • Less CO₂ added to atmosphere (1) <i>because trees/biomass has stored carbon</i> (1) • Climate change slower (1) <i>because carbon taken up by trees</i> (1) • Less greenhouse gases (1) <i>because of carbon storage</i> (1) <p>Higher humidity/rain/clouds (1) <i>because of transpiration</i> (1)</p> <p>Accept any other appropriate response.</p>	<p>(2)</p>

Question Number	Answer	Mark
2(a)(i)	C Wolf B rat - not a top carnivore A gorilla and D lion are not native to this environment	(1)

Question Number	Answer	Mark
2(a)(ii)	Award 1 mark for a valid adaptation for one or more taiga animal species. For example: <ul style="list-style-type: none"> • White colour/camouflage • fur/feathers/insulation • fat layers • hibernation • (seasonal) migration/migratory <p>Accept any other appropriate response. Do not accept plant adaptations.</p>	(1)

Question Number	Answer	Mark
2(b)	Possible valid definitions may refer to: <ul style="list-style-type: none"> • Non-living (parts of an ecosystem/food web) (1) • Non-biotic (1) • Not biotic / biological (1) • Not plants and animals (1) • Rocks and/or minerals (1) <p>Accept any other appropriate response.</p>	(1)

Question Number	Answer	Mark
2(c)	<p>Award 1 mark for a basic explanation of a threat shown in Figure 4, and 1 mark for applied knowledge of why it leads to decreased biodiversity (<i>extinction of species/loss of habitat</i>) up to a maximum of 2 marks for each reason.</p> <ul style="list-style-type: none"> • Increased fires (1) leading to <i>habitat loss</i> (1) • Pests/parasites (1) could <i>wipe out some species</i> (1) • High latitude species 'have nowhere to go' (1) and may <i>become extinct</i> (1) • Impact of invading species (1) could mean <i>net biodiversity loss</i> (1) <p>Accept any other appropriate response. Note - two reasons why - have to reward</p>	<p>2+2</p> <p>(4)</p>

Question Number	Answer	Mark
3(a)(i)	<p>Award 1 mark for correct data set-up and working, and a further 1 mark for correct answer, up to maximum 2 marks.</p> <p>Accept any appropriate working using data in the range 5-7 (1973) and 11-13 (2015). For example, award 1 mark for any of the following workings:</p> <ul style="list-style-type: none"> • $1973 = 6$ and $2015 = 11$ • $(12 - 5) / 5 \times 100$ • $(6,000,000 / 6,000,000) \times 100$ <p>Accept any answer within the following range: 57% to 160% (1)</p> <p>Maximum of one mark if:</p> <ul style="list-style-type: none"> • correct answer but no working out/data is shown. • wrong data but right working out with that data. 	<p>1</p> <p>1</p> <p>(2)</p>

Question Number	Answer	Mark
3(a)(ii)	<p>Award 1 mark for each piece of evidence indicating carbon footprint reduction over time, to a maximum of 2 marks.</p> <ul style="list-style-type: none"> • Uses Renewables (1) uses biofuels (1) uses HEP (1) • Use of carbon capture / CCS technology (1) • Decreasing use over time of coal (1) <p>Accept any other appropriate response.</p>	<p>1+1</p> <p>(2)</p>

Question Number	Answer	Mark
3(b)(i)	2001	(1)

Question Number	Answer	Mark
3(b)(ii)	<p>D 2,000,000 barrels</p> <p><i>Rationale - graph shows approx. 2000 thousand barrels per day in 1992 i.e. 2000,000</i></p>	(1)

Question Number	Answer	Mark
3(c)	<p>Award 1 mark for each reason based on Figure 7, and 1 mark for each development, up to a maximum of 3 marks.</p> <ul style="list-style-type: none"> • Norway has the smallest population (5 million) (1) so can export/sell its surplus/spare oil (85%) (1) and use profits to fund services (1) • Norway deliberately chooses to sell most of its oil for profit (1) because it has alternatives (HEP) (1) as a way of generating a very high GDP (1) <p>Accept any other appropriate response.</p> <p>Reward information gleaned from other resources – oil used for transport purposes and use of HEP.</p>	(3)

Question Number	Answer	Mark
3(d)	<p>In each case, award 1 mark for a specific social benefit (not simply 'services') for Norway's people (Figure 8) and 1 mark for development (may make links with Figure 7 or 8), up to a maximum of 2 marks for each benefit.h</p> <ul style="list-style-type: none"> • Maintains a generous welfare system/maternity/childcare benefits (1) by selling most (85%) of its oil (1) • Support for its ageing population (1) comes from SWF's global investments / 9,000 part-owned TNCs (1) • Norway's 1 HDI ranking shows it must be benefiting socially (1) through education and health funding (1) • Norway can afford generous childcare payments (1) giving parents to choice to work if they want to (1) <p>Accept any other appropriate response. Do not credit: 'pays for vital services' (unclear whether they are social services/benefits)</p>	<p>2</p> <p>2</p> <p>(4)</p>

Question Number	Answer
3 (e)	<p style="text-align: center;">AO3 (4 marks)/AO4 (4 marks)</p> <p>Answers should focus on both physical and human challenges (AO4) and in so doing may make an assessment (AO3) of their severity, etc.</p> <p>A03</p> <ul style="list-style-type: none"> • There are a range of issues and an overview might be that future access is going to become <u>very</u> challenging indeed • The challenges can only increase <u>over time</u> as the sources that are easiest to access are used up • Some physical challenges <u>might be tackled</u> in time with new technology • Political challenges <u>could be harder to overcome</u> with growing global demand for finite fossil fuel supplies • Local, national and global environmental laws stack up to make operations <u>very challenging</u> for companies • A view might be formed about which is the <u>most important</u> challenge <p>A04</p> <ul style="list-style-type: none"> • The latest projects are in even deeper water in the Barents Sea (Figure 9) • Exploration near the Lofoten Islands could be met with protests and opposition (Figure 9) • It is unclear who owns oil found at the boundary of Russian and Norwegian territorial water (Figure 9) • The risks to the settlement of Hammerfest might be viewed too great (although there is already oil in production there) (Figure 9)

	<ul style="list-style-type: none"> Eventually it may be necessary to move even further North but this could lead to the challenge of ice cover (Figure 9) The oil sources shown are all very remote from any markets / are near far north of Norway (Figure 9)
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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
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(f)(i)	<p>In each case: Award 1 mark for a basic strategy/way. Award 1 mark for <u>either</u> an explanation of how/why this affects use of oil/gas/coal (i.e. a specified fossil fuel), <u>or</u> explanation of how/why greater efficiency is achieved.</p> <ul style="list-style-type: none"> Insulation/double-glazing (1) in houses with gas central heating (1) Low-energy lightbulbs (1) may reduce amount of natural gas needed by power stations (1) Public transport (1) reduces petrol used per person (1) More efficient appliances/batteries e.g. phones (1) need recharging less frequently (1) Taxes/regulation (1) would prompt people/businesses to use electricity/petrol more carefully/efficiently (1) 	2 + 2

	<ul style="list-style-type: none"> • Solar power/panel technology (1) is now converting solar energy for more efficiently/effectively than before (1) <p>Accept any other appropriate response.</p> <p>Do not credit: carbon capture / CCS, afforestation, etc.</p>	(4)
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Question Number		
3 (f)(ii)	<p style="text-align: center;">AO3 (4 marks)/AO4 (4 marks)</p> <p>Answers should focus on economic costs and benefits for local people (AO4) and assess (AO3) their importance/severity/long-term effects, etc.</p> <p>A03</p> <ul style="list-style-type: none"> • Local people may gain <u>more</u> jobs from developing the oil than they would from other sectors, such as tourism and fishing • Oil industry employment may also offer <u>better quality</u> of local employment (higher pay, full-time, not affected seasonally) • Local people <u>benefit</u> from growth of support services for oil industry • Local fishing employment may be <u>greatly threatened</u>, i.e. oil spills • Oil extraction may scar the landscape irreversibly and prove <u>costly</u> for tourism in the <u>short- and long-term</u> • Perhaps, <u>most importantly</u>, tourism and fishing offer long-term benefits if managed sustainably while oil only last a while longer <p>A04</p> <ul style="list-style-type: none"> • Fishermen believe the impact on their industry will be costly and that the benefits of local oil production will be minor (Figure 10) • Norway's government asserts that using Lofoten oil to fund the state is a necessary and well established strategy (Figure 10) • Tourism operators think the plans are short-sighted because the unique Lofoten environment will be lost along with income (Fig. 10) • The view of younger citizens (university) is that there will be very harmful long-term economic costs (Figure 10) • Older citizens are aware of the benefits that oil money will bring given the immediate context of an ageing population (Figure 10) • The oil company representative believes the local fishing industry can co-exist while the profits can be beneficially invested in new energy research (Figure 10) 	

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
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	
4	<p style="text-align: center;">AO2 (4 marks)/AO3 (4 marks)/AO4 (4 marks)</p> <p>In order to fully justify a choice, the candidate must consider all three options and establish a clear argument about the meaning of 'best future' for Norway's economy and the environment (local or global). There is no preferred option. All options can be justified. The balance of the case will vary according to the option chosen.</p> <ul style="list-style-type: none"> • Option 1 can be justified by suggesting that this would be a progressive action that helps the environment. Norway can lead by example and lead the way in developing new technology. This might also bring economic gains and enhance Norway's international influence more than the Sovereign Wealth Fund did. • Option 2 can be justified by suggesting that it would be hard to replace the income Norway gains from oil. Realistically, this would not be best for the economy and, by extension, Norwegian society. Meanwhile, more could be done to sensibly limit damage to sensitive areas and preserve at least the local environment. • Option 3 can be justified because even if Norway ceases oil production, other countries will not and climate change is thus in any case inevitable. Using oil income to find solutions to climate change may therefore be the best way for Norway to secure its own economic and environmental future given the high threat it faces. <p>A02</p> <ul style="list-style-type: none"> • Attitudes are changing and some governments take climate change seriously • Many people in developed countries want to reduce carbon footprints • Future technologies may be the best alternative to fossil fuels • Attitudes vary and not everyone agrees fossil fuel alternatives are needed • Mining and drilling can do harm to ecologically sensitive areas • Biomes are adapted to very specific climates (temperature, precipitation) <p>A03</p> <ul style="list-style-type: none"> • In the long-term, 'business as usual' oil production is unsustainable even if energy efficiency measures are introduced • The 'best' option for Norway includes what is best for its local environment. • Climate change is probably inevitable unless technological solutions are found, so the best option for Norway's economy could be to use oil money to fund research. • Becoming a respected world leader in renewables might be a better way for Norway to move forwards economically than by having oil wealth. • Other countries are developing alternatives and future technology and there is no need for Norway to be a climate change martyr and give up all its oil wealth • The priority should be making sure sensitive areas like Lofoten are protected but that cannot happen in the long-term if we keep using fossil fuels. <p>A04</p> <ul style="list-style-type: none"> • Norway's oil revenues (Sovereign Wealth Fund) are its main income source (Fig 7). • Norway's SWF also gives the country global economic influence (introduction, Fig 8).

	<ul style="list-style-type: none"> • But Norway is also a world leader in potentially profitable and environmentally-friendly CCS / renewables (introduction, Fig 5). • Physical and political difficulties are mounting when trying to find new oil and threaten long-term oil revenues (Fig 9 and 6). • On account of its high latitude, Norway's taiga and its food web are especially sensitive to climate change and associated natural threats (Fig 1, 2, 3 and 4). • If protected, Lofoten offers alternative profitable ecosystem services (Fig 10).
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Level	Mark	Descriptor
	0	No acceptable response
Level 1	1–4	<ul style="list-style-type: none"> • 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
Level 2	5–8	<ul style="list-style-type: none"> • 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 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	9–12	<ul style="list-style-type: none"> • 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	<p><i>No marks awarded</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Learners write nothing. <input type="checkbox"/> Learners' response does not relate to the question. <input type="checkbox"/> Learners' achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning.
SPaG 1	1	<p><i>Threshold performance:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Learners spell and punctuate with reasonable accuracy. <input type="checkbox"/> Learners use rules of grammar with some control of meaning and any errors do not significantly hinder meaning overall. <input type="checkbox"/> Learners use a limited range of specialist terms as appropriate.
SPaG 2	2–3	<p><i>Intermediate performance</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Learners spell and punctuate with considerable accuracy. <input type="checkbox"/> Learners use rules of grammar with general control of meaning overall. <input type="checkbox"/> Learners use a good range of specialist terms as appropriate.
SPaG 3	4	<p><i>High performance</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Learners spell and punctuate with consistent accuracy. <input type="checkbox"/> Learners use rules of grammar with effective control of meaning overall. <input type="checkbox"/> Learners use a wide range of specialist terms as appropriate.

