Paper 3 Mark scheme

Question number	Answer	Mark
1(a)(i)	Global (scale)/world (scale)/large (scale) ecosystem	**(1)**

Question number	Answer	Mark
1(a)(ii)	Tropical savannah/grassland/savannah	**(1)**

Question number	Answer	Mark
1(a)(iii)	Tundra	**(1)**

Question number	Answer	Mark
1(b)	B	**(1)**

Question number	Answer	Mark
1(c)	Award 1 mark for each of the following, up to a maximum of 2 marks. Food (hunting, gathering) (1) Traditional medicines (1) Building materials (timber, fibres) (1) Fuels (wood fuel) (1) Water (1) Do not accept oil/gas or other fossil fuels or resources that require destruction of the biosphere, e.g. minerals. **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
1(d)	Award 1 mark for basic mechanism and a further one mark for impact on soil health, up to a maximum of 2 marks. Leaf fall leads to litter which decays into humus (1), which provides nutrients for plant growth (1). Source of organisms, such as earthworms (1), which improve soil quality and/or structure (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
2(a)(i)	Award 1 mark for each of the following up to a maximum of 3 marks. Very tall trees (1) Canopy layer (1) Layered or stratified forest structure (1) Straight and or narrow trunks (1) Very dense vegetation growth (1) Reject answers that cannot be derived from the photograph, e.g. buttress roots, lack of ground cover, lianas/creepers **Accept any other appropriate response.**	**(3)**

Question number	Answer	Mark
2(a)(ii)	Award 1 mark for an identification of a reason, and a further mark for an explanation of the reason, up to a maximum of 4 marks. The hot/wet tropical climate (1) is ideal for growth of tropical forests which have high biodiversity (1); the complex stratification of the rainforest (1) ensures a wide range of ecological niches (1). Peru contains a number of different biomes such as tropical forest and desert (1) parts of these biomes are isolated and relatively untouched (1) so biodiversity has not been effected by human activity (1) so there is a wide range of different species (1). **Accept any other appropriate response.**	**(4)**

Question number	Answer	Mark
3(a)(i)	Award 1 mark for correct set up of GDP increase calculation, and a further mark for correct answer, up to maximum 2 marks. Increase of 6% on 11000 = 11660 (1) Increase of 6% of 11660 = 12359.6 (1) OR $11000*1.06^2 = 12359.6$ (2) OR 12359.6 (1) Accept responses that round up to 12360. Do not accept 12320 **Maximum of one mark if no working out is shown.**	**(2)**

Question number	Answer	Mark
3(a)(ii)	Award 1 mark for each of the following up to a maximum of 2 marks. Decrease of 15% of people living below the poverty line since 2000 (1). Increase of 20% connected to electricity since 2000 (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
3(b)(i)	D	**(1)**

Question number	Answer	Mark
3(b)(ii)	Award 1 mark for point about energy production/energy consumption and a further mark for expansion, up to a maximum 2 marks. Because production is falling/not increasing (1) while consumption was rising (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
3(b)(iii)	Award 1 mark for point about oil price and a further mark for explanation as to its effect, up to a maximum of 2 marks. If oil prices move up/down (1) this affects the profitability of extraction, making it more/less likely to be extracted (1). **Accept any other appropriate response.**	**(2)**

Question number	Answer	Mark
3(c)	Award 1 mark for point about sale of drilling rights and a further mark for explanation why this concerns group(s), up to a maximum of 4 marks. 85% of the blocks are on Indian land (1) the Indians oppose development as they lose their rights to the land as they do not own any subsurface rights, which leads to disputes (1). 40% of the blocks have further problems as they overlap with Indian Cultural Reserves (1) threatening the Indian traditional way of life and their long-term existence as a distinct people (1). Potential health risks to people (1) from both air pollution and contamination of water supplies (1). Reject purely environmental and economic concerns. **Accept any other appropriate response.**	**(4)**

Question number	Indicative content
3(d)	**AO3 (4 marks)/AO4 (4 marks)** Answers should focus on the relative benefits to the national economy (GDP growth, energy security) versus local benefits (jobs, higher incomes) but also consider how negative impacts might temper those benefits. **AO3** • There is a range of benefits but overall the national benefits might be seen as more significant than the local benefits in terms of scale. • The involvement of foreign TNCs might be seen as key in reducing the likely benefits for Peru, although government could intervene here using taxation. • Local multiplier effect and creation of jobs as a result of oil development. • However, energy industries are capitally intensive with low local employment. • Reducing oil imports could also make everyone's energy supplies more reliable and perhaps cheaper although, once again, that is dependent on government tax policies. • Economic benefits for one group might be offset by negative impact on others, with the local economy being spoilt by pollution and deforestation. • Environmental damage is not 'cost-free' with long-term consequences that might be greater than short-term benefits. **AO4** • Basis for industrial development (Figure 9) through use in manufacturing processes. • Economic benefits may be translated into social benefits – reliable power (Figure 9). • Export-led growth might lead to rapid economic growth – boom (Figure 9). • Recent history of growth in GDP per capita ($5 500–$11 000) (Figure 5) suggests benefits from growing oil production (Figure 7). • Positive impacts might be offset by negatives – TNCs, local corruption (Figure 9).

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(e)(i)	Award 1 mark for basic reason and a further mark for development up to a maximum 4 marks. Renewables such as wind power/solar arrays can have a detrimental impact on the landscape (1) by creating ugly/unsightly installations (1). Wind farms have been linked to disruption of wildlife (1), such as impacts on birds/bats (1). HEP or tidal development are large scale and can cause flooding of large areas (1) with potential loss of biodiversity and / or landscape quality (1). **Accept any other appropriate response.**	**(4)**

Question number	Indicative content
3(e)(ii)	**AO3 (4 marks)/AO4 (4 marks)** Answers should focus on explaining why some of the groups in Figure 10 are against development. **AO3** • It could be argued that the rainforest ecosystem is globally important in terms of ecosystem services, meaning we all lose. • Cutting back on consumption would be good for the environment and render further expansion unnecessary. • TNCs (particularly energy companies) have a poor record historically for their operations in developing countries so the economic 'gains' may very well be exaggerated. • Environmental losses are not 'costed' so 'high-value environments' are not, in reality, given a monetary value. • Land rights issues raise significant legal issues as both new settlers and Indians could lose rights to land when blocks, (shown on Figure 8), are given/sold to oil and gas companies, thus representing a loss. • Erosion of Indian culture – by overall development of roads, loss of traditional way of life and culture, new diseases and bad habits such as alcoholism; already 40% of blocks overlap with cultural reserves (Figure 8). • Many oil and gas blocks are close to protected areas (Figure 8), or overlap them, which could reduce income from ecotourism for indigenous people leading to economic loss. **AO4** • Environmentalists oppose the development because of the damage done to the 'pristine' environment (Figure 10). • They also take exception to the alliance between the government and TNCs (Figure 10). • They use the abandonment of EISs as evidence of this collusion (Figure 10). • Indian indigenous communities object on principle because of loss of land rights (Figure 10). • They also object to the environmental impact on their water supplies (Figure 10). • NGOs such as FENAMAD are likely to share the views of the communities that they support (Figure 10). • New settlers express no direct views but it can be inferred that new settlers will share some of the environmental concerns (Figure 10).

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	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	Indicative content
4	**A02 (4 marks)/AO3 (4 marks)/AO4 (4 marks)** In order to fully justify a choice, the candidate must consider all three alternative options and establish a clear argument about the meaning of 'best long-term' plan. There is no preferred option. All options can be justified. The balance of the case made will vary according to the chosen option. • Option 1 can be justified by suggesting that the future is uncertain and failure to develop the resource is unacceptable because if wisely used it can lead to benefits for all the Peruvian people. Environmental concerns can be addressed by better management. • Option 2 can be justified by suggesting that slower development will allow more time to allow local indigenous communities to adjust and to control potential negatives for both their culture and the environment. Alternative development ideas might also offset the tendency for oil revenues to leave their source regions. • Option 3 can be justified as the only one that directly addresses the negative impacts of oil exploitation and its long-term impacts on both the local and global environment (which in turn will impact on all Peruvians) but also the needs of the countries' poor, not just the indigenous communities. **A02** • Tropical rainforests are fragile environments which are very significant in controlling global climate so changes to them have global consequences. • Tropical rainforests have very high levels of biodiversity so pressures on them resulting in land-use changes have global consequences. • The exploitation of oil has environmental impacts that will have long-term impacts on both social and economic development. • Oil is an important resource both as a source of conflict and as a factor in international relations. • Different groups have very different views about energy futures. • In some developing countries (such as Peru) there are shifts in opinion about unsustainable energy consumption. • Energy consumption globally is extremely uneven, especially oil consumption, much of which is used for transport and so central to the growth of the global economy. **AO3** • Peruvian people will be affected differently in both the short term and long term, depending on how much power they have and where they live.

Question number	Indicative content
	• Critical choices have to be made about how the resource revenues are used, how TNCs are taxed and how that money can be used to benefit all groups. • 'Best' can be broken down into social, economic and political improvements and measured accordingly allowing a 'greatest good for greatest number' conclusion. • Social improvements would include health, life expectancy, and education, which will improve if income from oil stays in Peru and is recycled in terms of improved social infrastructure. • Economic improvements would be both in terms of growing GDP per capita but also reduction in inequalities and poverty, especially among indigenous communities. • Political improvements would include the empowerment of indigenous peoples, a reduction in political corruption and perhaps a stronger international 'voice'. • In every area, improvements for one group are likely to be offset by limited improvements or, indeed, underdevelopment for others. • In the long term the oil will run out so long-term development and thus 'best' would be the investment of oil revenues in the diversification on the Peruvian economy away from a simple resource-exporting economy to a more balanced, industrialised economy. **AO4** • Very few Peruvians people actually live in Amazonia (13%) so negative local impacts are not experienced by many (Introduction and Figure 3). • Very divided society with those of European origin still in control and the wealthiest (Introduction). • Long history of co-operation between government and TNCs as a 'good country to do business with' (Figure 7). • Peruvian oil is medium cost so better than high-cost oil shale or tar (Figure 5). • Reduction in poverty to date suggests some benefits from oil (Figure 5). • Costs and benefits of oil extraction which fall unevenly (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 performanc:* • 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.