Rewarding Learning

ADVANCED
General Certificate of Education
2012

Geography

Assessment Unit A2 2

assessing

Physical Geography and Decision Making

[AG221]

WEDNESDAY 30 MAY, MORNING

MARK SCHEME

MARK SCHEMES

Foreword

Introduction

Mark Schemes are published to assist teachers and students in the preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publlishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16 and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

Introductory Remarks

The assessment objectives (AOs) for this specification are listed below. Students must:

AO1 demonstrate knowledge and understanding of the content, concepts and processes;

AO2 analyse, interpret and evaluate geographical information, issues and viewpoints and apply understanding in unfamiliar contexts;

AO3 select and use a variety of methods, skills and techniques (including the use of new technologies) to investigate questions and issues, reach conclusions and communicate findings.

General Instructions for Markers

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all markers are following exactly the same instructions and making the same judgements so far as this is possible. Markers must apply the mark scheme in a consistent manner and to the standard agreed at the standardising meeting.

It is important to recognise that in some cases there may be other correct responses that are equally acceptable to those included in this mark scheme. There may be instances where certain judgements have to be left to the experience of the examiner, for example, where there is no absolute, correct answer.

Markers are advised that there is no correlation between length and quality of response. Candidates may provide a very concise answer that fully adresses the requirements of the question and is therefore worthy of full or almost full marks. Alternatively, a candidate may provide a very long answer which also addresses the requirements of the question and is equally worthy of full or almost full marks. It is important, therefore, not to be influenced by the length of the candidate's response but rather by the extent to which the reuirements of the mark scheme have been met.

Some candidates may present answers in writing that is difficult to read. Markers should take time to establish what points are being expressed before deciding on a mark allocation. However, candidates should present answers which are legible and markers should not spend a disproportionate amount of time trying to decipher writing that is illegible.

Levels of Response

For questions with an allocation of six or more marks three levels of response will be provided to help guide the marking process. General descriptions of the criteria governing levels of response mark schemes are set out on the next page. When deciding about the level of a response, a "best fit" approach should be taken. It will not be necessary for a response to meet the requirements of all the criteria within any given level for that level to be awarded. For example, a Level 3 response does not require all of the possible knowledge and understanding which might be realistically expected from an AS or AL candidate to be present in the answer.

Having decided that the level is, it is then important that a mark from within the range for that level, which accurately reflects the value of the candidate's answer, is awarded.

Knowledge and Understanding	Skills	Quality of Written Communication	Level
The candidate will show a wide-ranging and accurate knowledge and a clear understanding of the concepts/ideas relevant to the question. All or most of the knowledge and understanding that can be expected is given.	The candidate will display a high level of ability through insightful analysis and interpretation of the resource material with little or no gaps, errors or misapprehensions. All that is significant is extracted from the resource material.	The candidate will express complex subject matter using an appropriate form and style of writing. Material included in the answers will be relevant and clearly organised. It will involve the use of specialist vocabulary and be written legibly and with few, if any, errors in spelling, punctuation and grammar.	3
The candidate will display an accurate to good knowledge and understanding of many of the relevant concepts/ ideas. Much of the body of knowledge that can be expected is given.	The candidate will display evidence of the ability to analyse and interpret the resource material but gaps, errors or misapprehensions may be in evidence.	The candidate will express ideas using an appropriate form and style of writing. Material included will be relevant and organised but arguments may stray from the main point. Some specialist terms will be used and there may be occasional errors in spelling, punctuation and grammar. Legibility is satisfactory.	2
The candidate will display some accurate knowledge and understanding but alongside errors and significant gaps. The relevance of the information to the question may be tenuous.	The candidate will be able to show only limited ability to analyse and interpret the resource material and gaps, errors or misapprehensions may be clearly evidenced.	The candidate will have a form and style of writing which is not fluent. Only relatively simple ideas can be dealt with competently. Material included may have dubious relevance. There will be noticeable errors in spelling, punctuation and grammar. Writing may be illegible in places.	1

Section A

Option A: Fluvial and Coastal Environments

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1 (a) An appropriate description of the consequences of the implementation of the Three Gorges Dam should be given in the context of the resource. Consequences may include: the potential for increased damage should the dam fail; complacency of local people; the huge capacity of the reservoir in spite of exceptionally heavy rainfall; and revenue associated with continued power generation and shipping.

Level 3 ([5]–[6])
Valid consequences are presented in the relevant context and with clarity. The response is strongly supported by information gleaned from the resource including, for example, figures.

Level 2 ([3]–[4])
Perhaps only one valid consequence is presented in the relevant context, and/or there may be a lack of clarity. There is some, albeit restricted, support from resource-based information.

Level 1 ([1]–[2])
Consequences may be neglected or comments not placed in the relevant context. The response may not be supported by information gleaned from the resource, or it may lack validity or clarity. [6]

(b) The candidate should present an annotated diagram or diagrams to support an explanation of the way in which the chosen depositional coastal landform is created. Both diagrammatic material and written explanation are required.

Level 3 ([7]–[9])
An accurate and well-presented diagram/s is presented along with a clear explanation of the chosen landform formation. Depth/details are present. There is good use of appropriate terminology.

Level 2 ([4]–[6])
Either the diagram/s or explanation of the chosen landform formation is incomplete in a significant way (such as restricted depth/detail, poor quality of construction). There may be restricted use of relevant terminology.

Level 1 ([1]–[3])
The response may lack any relevant diagram (or diagram may be very weak) and/or the explanation of the chosen landform formation may be very restricted in depth, quality or relevance. Use of terminology may be weak. Landforms resulting from erosion are confined to this level. [9]

(c) The candidate is asked to describe the nature and impact of both hard and soft engineering strategies upon the human and physical environments within a regional scale case study of a coastal environment.

Level 3 ([11]–[15])
The answer refers to an appropriate and relevant case study example. Candidates at this level will address each element of the question explicitly (nature, impact, hard, soft, human, physical). The nature and impact of both hard and soft engineering are described with validity and clarity. A high level of appropriate detail is given. Terminology is good.

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Level 2 ([6]–[10])
The answer refers to an appropriate and relevant case study example. Although the nature and impact of both hard and soft engineering are described and there is some reference to human and physical environments, the response may be imbalanced or there may be some lack of clarity and or depth. Alternatively, the candidate may have omitted one element of the question. Case study detail may be restricted. Terminology may be restricted.

Level 1 ([1]–[5])
The answer may refer to a case study of an inappropriate scale or nature. More than one element of the question (nature, impact, hard, soft, human, physical) may be neglected. Case study detail may be very restricted. The response may be a cursory one. Terminology may be poor. [15] 30

2 (a) Award [1] × 2 for appropriate identification of the landforms (arch and stack/stump).

The candidate should present an annotated diagram or diagrams to support an explanation of the way in which the given landforms are related. Both diagrammatic material and written explanation are required.

Level 3 ([6]–[7])
An accurate and well-presented diagram/s is presented along with a clear explanation of the relationship between the landforms. Depth/details are present. There is good use of appropriate terminology.

Level 2 ([3]–[5])
Either the diagram/s or explanation of the relationship is incomplete in a significant way (such as restricted depth/detail, poor quality of construction). There may be restricted use of relevant terminology.

Level 1 ([1]–[2])
The response may lack any relevant diagram (or the diagram may be very weak) and/or the explanation of the relationship may be very restricted in depth, quality or relevance. Use of terminology may be weak. [9]

(b) Valid reasons in support of the implementation of channelisation should be outlined (e.g. flood control, land drainage, navigation, erosion problems) with appropriate reference to place/s.

Level 3 ([5]–[6])
At least two valid and detailed reasons for the implementation of channelisation are clearly outlined. Terminology is good. At least one valid place reference is made with some development.

Level 2 ([3]–[4])
At least two valid reasons for the implementation of channelisation are outlined, although there may be some lack of clarity and/or restricted relevant detail. Terminology may be restricted. At least one valid place reference is made although, perhaps, in an underdeveloped fashion.

Level 1 ([1]–[2])
Only one valid reason for the implementation of channelisation is given, or reasons given may be cursory in nature, invalid, confused or irrelevant. Valid place reference may be absent. Terminology may be poor. [6]

(c) The candidate is asked to outline the aims of river basin management in a valid case study location, and to describe the impacts of the scheme upon people and the environment.

Level 3 ([11]–[15])
The answer refers to a relevant case study example of an appropriate scale. The aims of the river management scheme in this location are clearly outlined. Valid and relevant positive and negative impacts of the scheme upon people and the environment are described with clarity and a high level of detail. Use of terminology is good.

Level 2 ([6]–[10]
The answer refers to a relevant case study example of an appropriate scale. The aims of the river management scheme in this location are outlined although, perhaps, with restricted clarity. Valid positive and negative impacts of the scheme upon people and the environment are described although perhaps, with restricted clarity and/or detail. Use of terminology may be restricted.

Level 1 ([1]–[5])
The answer may refer to a case study of an inappropriate scale or nature. One or more elements of the question (aims, positive or negative impacts upon people and the environment) may be neglected. Case study detail may be very restricted. Use of terminology may be poor. [15]

AVAILABLE MARKS

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Option B: The Nature and Sustainability of Tropical Ecosystems

AVAILABLE MARKS

3 (a) The focus of the question is the distribution of Tropical grasslands. Their location across the globe should be clearly described and the distribution explained with the aid of a diagram that incorporates the Hadley Cell circulation. The tropical grassland distribution is generally between the Tropics themselves and the Equatorial region and a description may include reference to latitude, continents, countries and/or regions such as the Savanna of Africa. The explanation involves the recognition of the distinctive wet-dry tropical climate, with summer rains associated with the polarward movement of the overhead sun (ITCZ). The strong seasonal contrast in rainfall patterns prevents the development of forests but allows seasonal grasslands to flourish.

Level 3 ([7]–[9])
A full and accurate description of global distribution is provided along with a relevant diagram that is used to help explain the distribution pattern described in relation to the nature and annual migration of elements of the Hadley Cell.

Level 2 ([4]–[6])
Material on all three elements of the question is provided (description, diagram and explanation) but some are significantly lacking in depth or accuracy. Global distribution may not be clarified in detail.

Level 1 ([1]–[3])
The answer lacks at least one key element of the question: description, diagram or explanation. Alternatively the overall response lacks accuracy, depth or detail. Reference to global distribution may be omitted. [9]

(b) The answer should address both requirements with clarity: economic and environmental arguments. Specific facts and figures from the resource should be accurately quoted in the response.
Economic – While in the short term (1 to 5 years) the economic figures favour the switch to bio-fuels from sugar cane plantations, the long-term (45-year) development favours retaining the forest and developing its potential for eco-tourism, timber and water supply. Sugarcane plantation may undermine the capital investment of £500 000 already made in one eco tourist lodge in the region.

Environmental – The proposal concerns clearing natural forest in an existing nature reserve to develop commercial agriculture with almost a quarter of the Reserve released from its protection. The Mabira region is described as having a, '. . . unique biodiversity with . . . species that need to be conserved', showing that the environment is a valued one. Clearance would threaten the local people as they rely on the forest for supplies of fuel (firewood and charcoal), medicine, food and water from the forest.
Candidates should show the ability to use information from the resource creatively and not merely quoting sections of it verbatim.

Level 3 ([5]–[6])
Both aspects of the question are addressed with clear and relevant use made of the resource for each. Understanding of the economic and environmental arguments against the proposal is demonstrated.

Level 2 ([3]–[4])
Both aspects are addressed but at least one lacks depth and relevant detail in the discussion.

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Level 1 ([1]–[2])
Discussion of one or other element is missing or no use is made of the resource material itself. [6]

(c) A regional scale case study should be named and detail relevant to that study should be apparent throughout the response. The first aspect is the description of the biomass and productivity of the forest, for this it is expected that relevant figures are provided along with the nature of its flora and fauna. The second aspect concerns the soil and in particular an explanation of its profile characteristics. Explanation will primarily concern the climate and nutrient cycling processes of the region.

Level 3 ([11]–[15])
A relevant regional study is used and each aspect is related to the study. The nature of biomass and productivity are described with accuracy and several characteristics of the oxisol are clearly explained.

Level 2 ([6]–[10])
A relevant case study is given and both the description and explanation sections are addressed but the overall depth and detail is restricted.

Level 1 ([1]–[5])
The response is significantly limited by a poorly developed case study, limited description of biomass and productivity and/or explanation of soil profile characteristics. [15] 30

4 **(a)** The focus of the question is the global distribution of deserts. Their location across the globe should be clearly described and the distribution explained with the aid of a diagram that incorporates the Hadley Cell circulation. The desert distribution is generally around the tropics and 30°N/S and a description may include reference to latitude, continents, countries and/or regions such as the Sahara of Africa. The explanation involves the recognition of the dominance throughout the year of the sub-tropical high pressure belt along the poleward subsidence limb of the Hadley Cell.

Level 3 ([7]–[9])
A full and accurate description of distribution is provided along with a relevant diagram that is used to help explain the distribution pattern described in relation to the nature of elements of the Hadley Cell.

Level 2 ([4]–[6])
Material on all three elements of the question is provided (description, diagram and explanation) but some are significantly lacking in depth or accuracy. Global distribution may not be clarified in detail.

Level 1 ([1]–[3])
The answer lacks at least one key element of the question: description, diagram or explanation. Alternatively the overall response lacks accuracy, depth or detail. Reference to global distribution may be omitted. [9]

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(b) The resource highlights two distinct ways in which research addresses the salinisation issue. Firstly, research into gene-modification may allow valuable crops to be grown under saline conditions and secondly, these plants may be able to remove salt from soils thus reducing the salinity levels themselves Specific facts and figures from the resource should be accurately quoted in the response. Answers should show that candidates have a good understanding of the salinisation issue itself.

Level 3 ([5]–[6])
Both ideas are clarified and specific material from the resource is used with accuracy.

Level 2 ([3]–[4])
Both ideas are noted but the use of the resource is restricted in its development.

Level 1 ([1]–[2])
One of the key ideas is overlooked or the resource material is merely quoted directly without development. [6]

(c) A regional scale case study should be named and detail relevant to that study should be apparent throughout the response. Under the impact section **both** environment (e.g. soil chemistry and structure etc.) and people (e.g. food, livelihood and income) should be addressed. Under possible solutions a description and an **evaluation of their sustainability** is required. Some may discuss gene-modification (Resource 4) as one of the solutions but this is only one (solutions is plural) and it has to relate to their chosen case study. The range and sustainability of solutions will depend on the case study selected.

Level 3 ([11]–[15])
A relevant regional study is used and both aspects are related to the study. The impacts of salinisation are described with accuracy for both the environment and people. Possible solutions for the problem are clearly evaluated in terms of their sustainability.

Level 2 ([6]–[10])
A relevant regional study is provided with a description of impacts and the evaluation of at least one solution, but one or other aspect is significantly limited in depth, detail or link to the named study.

Level 1 ([1]–[5])
One of the two required elements is missing from the response or the question is answered without use of a relevant regional study. [15]

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Option C: The Dynamic Earth

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5 **(a)** Any two types of evidence may be selected. This may include, for example 'magnetic striping, jigsaw fit and geological evidence'. The third of these includes mountain trends, rock types, ocean floor age and fossil evidence. For each, understanding of how the evidence links to plate tectonic theory should be clear with specific details and relevant terminology used.
(2 × [3]) [6]

(b) Both material from the resource and additional material on earthquake prediction are required here. The focus is on the limitations of efforts to predict earthquakes. The resource suggests that warnings that are vague in terms of time are of limited use and that false alarms could be counterproductive. Additional comments might concern the limited success of methods used currently, such as animal behaviour, gas emissions and other precursors. Alternatively the need for precision on the location or the scale of an event are additional topics that may be discussed. The response must make good use of material from the resource but also add to that limitations. No case study or spatial linked material is required but some candidates may use it with validity.

Level 3 ([7]–[9])
Good use is made of the resource with clear comprehension of the limitations it discusses. The answer then has additional material on the problems facing earthquake prediction.

Level 2 ([4]–[6])
While both reference to the resource and additional material are provided the depth and detail of either or both is limited.

Level 1 ([1]–[3])
An answer entirely based on the resource or without clear reference to it would be confined to this level. [9]

(c) Two relevant earthquake case studies are required here. Candidates may approach this question in different ways, perhaps taking each study in turn or, alternatively, examining the roles of knowledge and perception separately. The structure is not the issue but rather the understanding of how knowledge and perception affect the impacts and 'on the ground' management of the events.

Level 3 ([11]–[15])
Two relevant case studies are identified and accurate detail of impacts and management provided. The roles of both perception and or knowledge are clarified and applied to both studies in a relevant way.

Level 2 ([6]–[10])
Two relevant studies are named but **either** the detail provided for impacts and management or the focus of perception and/or knowledge is poorly developed.

Level 1 ([1]–[5])
The response lacks one of the three key elements namely; any relevant case study material (or only one study); description of impacts and management or the role of perception and knowledge. [15]

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6 **(a)** The focus of Resource 6 is the Chile earthquake of 2010 but it also alludes to the Haiti event in the same year. The command word, discuss, suggests that there is more than one view of the management. Firstly, the overall picture is a positive one for Chile's management with a low death toll in relation to Haiti and the visits of overseas experts hoping to learn from the country's management system. However, it is also clear that some poor decisions had been made and that law and order issues rose in the aftermath.

Level 3 ([7]–[9])
A number of aspects of the Chilean management are identified and full use is made of the detail provided in the resource.

Level 2 ([4]–[6])
Clear use is made of the resource but the response is limited by a lack of development of the facts provided. Although the good and bad aspects are both present, one or both is underdeveloped.

Level 1 ([1]–[3])
Little more than an unstructured regurgitation of the resource is given or, alternatively, there is inadequate use of the resource. [9]

(b) A range of potential economic benefits is expected and each should be placed in a relevant spatial context. The A2 specification refers to 'social, environmental and economic benefits'; only economic are required here. Examples include geothermal energy, soil fertility, tourism opportunities, land creation, mineral and rock deposits.

Level 3 ([5]–[6])
A least two valid economic benefits are identified with clear links made to volcanic activity. At least two valid references to place are made. Depth/detail are present.

Level 2 ([3]–[4])
At least two valid economic benefits are identified; links to volcanic activity may lack clarity. Perhaps only one valid reference to place is made. Depth/detail are restricted.

Level 1 ([1]–[2])
Only one valid economic benefit may be identified. Link to volcanic activity may be restricted. Perhaps place reference is omitted or invalid. Response may be cursory. [6]

(c) A relevant small scale case study is required with a clear description of how attempts were made to predict volcanic activity. Both the detail of these efforts and the limitations of them in the context of the study are discussed.

Level 3 ([11]–[15])
A relevant case study is presented and accurate detail of the efforts to predict volcanic activity is clearly provided. The limitations of the efforts are discussed in context and detail.

Level 2 ([6]–[10])
A relevant case study is presented and some detail of the efforts to predict volcanic activity is provided. The description may have limited detail or the discussion of limitations may lack depth.

Level 1 ([1]–[5])
The response either lacks a relevant case study or the description and/or discussion lacks specific study detail. [15]

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Section A

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Section B

Introduction: some guiding principles

The ideas outlined in the 'Guidance on Content' section are lines of thought that candidates might take in their report. They are not to be seen as the definitive answer, though it is to be expected that the points outlined below will feature, if only in part, in most answers. When allocating marks look favourably on answers which:

(a) avoid undue verbatim quoting from Resource Booklet and adopt a consistent style

(b) use the full range of the resource material appropriate to the task – particularly where it is provided in non-literary format such as the OS map, printed maps and photographs

(c) apply knowledge and concepts that are not specifically raised in the resource material, yet are both illuminating and relevant to the task.

(d) maximise opportunities presented by the resource material

(e) appreciate that "bias" might exist in resource material which expresses particular iews.

(f) avoid undue repetition of the same answer material in different sections or, if overlap is unavoidable, present it in a fresh way.

(g) back up points with specific detail, e.g. giving statistical information where it is provided rather than making vague statements when details are readily available.

Guidance on content

A. Introduction (Briefly describe the proposed project and discuss the national need for windfarms)

The proposed location for a new windfarm has been proposed for part of Scotland, on a part of the Monadliath Mountains in the Highlands, 24 kilometres south of Inverness. It is planned to consist of 33 wind turbines, built along a mountain ridge close to Carn Na Saobhaidhe. This is situated on a private estate, Dunmaglass (GR: 5922). Each of the 33 turbines will be 80 metres to the hub and the top of the blades will be 125 metres high. The turbines will produce enough electricity to supply 40,000 households and will substantially reduce the need to create electricity in non-renewable ways, which otherwise would create up to 189,000 tonnes of carbon dioxide and over 2000 tonnes of sulphur over the lifetime of the windfarm. The electricity generated will be transported along a 10 kilometre line, the last part of which will be buried (Resource 7B).

It would appear that there is a great need for windfarms if the UK is going to achieve its commitments on reducing carbon emissions. In order to achieve this, an important strategy will be to ensure that more of the UK's energy is created from renewable sources, and that includes wind. While this will mean that the UK will reach its targets for reducing greenhouse gases, it will also make sure that the UK has increased energy security. Imported oil and gas can have their prices raised without the UK having any means of reducing them. As the UK is becoming more and more dependent on imported natural gas in particular, this makes the country very vulnerable. Developing sustainable wind power will make the UK less dependent on these imports.

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The EU Renewable Energy Directive has been signed by the UK and this means that a target has been set of 15% of energy coming from renewable, including that produced by windfarms, by 2020. This is an increase of 13.5% on 2006 levels. Gas imports are forecast to fall by "up to 14%" if the targets signed up to by the UK are to be met.

To achieve these targets, it is estimated that wind power generation will have to be increased by a power of 10. There are some estimates that this will mean land-based turbines have to generate 12 more gigawatts of electricity, compared to the 2 presently generated. To achieve this, it is estimated that another 4000 new 3 MW onshore turbines would have to be built. The UK needs this development as a contribution to this growth in renewable power generated by land-based wind turbines.

Level 3 ([7]–[8])
The candidate clearly describes the proposed development and identifies the needs for such a development in a national scale effectively. Both elements are included and the needs considered are consistently national (which may be Scotland or UK, but should not be local or global). It is likely that national need is more extensive than the description, but the description is still effective and well handled.

Level 2 ([4]–[6])
The candidate makes fewer clear and correct points. There is little or no development of any point, but points made are valid. There may be a major imbalance between the discussion of the national need and the description of the project. If there are some points about local need, although the bulk of the need is national, top Level 2 cannot be awarded.

Level 1 ([1]–[3])
The candidate presents little content and a lot of it is irrelevant to the national need for the development or the description of it. Some of the points made may lack validity. [8]

Maximum [5] if only 'national need' or maximum [4] if only 'description' is present.

B. (i) Discuss the possible beneficial effects of the proposed development on people and the economy and the counterarguments.

Those who favour this scheme challenge the argument that they will create visual pollution. They concede that they will be seen in some places but there are only a few places in which this is the case, and mostly they can only be seen from some remote tops of hills, or from small farms. There will be some visibility from some minor roads close to the windfarm itself and from some parts of Inverness. It will not have negative impact on tourism, as it will generally not be visible from large settlements or from main routeways. There are only five places from which the impact of the view has been assessed as 'substantial adverse'. Some of the line connecting the wind turbines with the existing pylons is to be underground (Resource B) which will reduce the impact still further south of the Foyers area.

Having a windfarm is not going to be significant in reducing tourism to Scotland. Even if the tourists did get a glimpse of the windfarm, there is plenty of evidence from a survey of tourists in 2002 that they make no difference to the tourist (91%), and 4% of tourists in the same survey actually said that having windfarms would make them more likely to visit the area.

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As for the impact on residents, there is evidence that those who live closest to the developments are more positive about them than people living further away, with 45% of those living 10 kilometres or less being positive about them compared to just 17% of those living more than 10 kilometres away.

There will also be a positive impact on people and the local economy if the proposal goes ahead. Three local communities, Strathdearn, Strathnairn and Stratherrick, will all get help from the community fund set up by RES and this may bring in more than £4 million for these small communities over the 25 year life of the project. Evidence from other RES community funds in Northern Ireland would suggest substantial gains for these local communities with many improvements in community facilities being provided.

The investment by RES in this development is enormous – up to £100 million. Some of this investment will be in the labour needed to build the windfarm. There are more than 57 000 days of labour being provided in the various tasks required to get the windfarm built and operating. There is said to be about 80 jobs created during the construction, with about 40 being employed on the site on a permanent basis. It is said that most of this labour will be drawn from the local area or the surrounding region. There will be further labour required during the 25 year lifespan of the development with two engineers required, at least one of whom would be a local person and up to three gamekeepers will be employed at Drumaglass estate as a consequence of the development. There may be even more employment if the towers that support the turbines and blades are built in the Highlands. That would provide 50 people with work for a full year.

Those who argue against the scheme believe there is likely to be a detrimental impact on levels of tourism in the area. VisitScotland's survey points to about a quarter of tourists avoiding areas with wind farms and half of those surveyed felt that windfarms spoil how the countryside looks. It is estimated that over one and a half thousand people in tourism would be lost and tourist revenue would fall by over £67 million. While the development would create a number of jobs in the short term, in the long term there are very few.

Local people will not see cheap electricity but they will have to put up with their landscape being destroyed. The electricity will be taken to cities outside the region altogether.

This is just another development but when the 400 planned or proposed windfarms all over Scotland are taken together, the change to Scotland's landscape is enormous.

It has been estimated that the windfarm programme will cost £1.2 billion of taxpayers money, and may not even achieve a reduction in greenhouse gases. Electricity from wind is as much as twice the cost of electricity from natural gas, for example, so the whole country may have to pay more for its power.

NB Some candidates may discuss environmental factors in this section and this is acceptable, so long as they focus on the economic and social impacts of such changes to the environment. In B (ii), should the same environmental factors be revisited, candidates should not merely repeat the information, but should treat it in a fresh way.

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Level 3 ([8]–[10])
Candidate states clearly the main effects and the counterargument. Three or more different factors should be discussed. The account will have many of these characteristics:

- The points made will be consistently relevant and logically structured
- The ideas will demonstrate insight and a level of sophistication
- Clear understanding of all concepts will be demonstrated
- Use will be made of most of the relevant resource material – no significant points will be omitted
- Figures, where available and appropriate, will be used to good effect
- Ideas will be expressed clearly and effectively

Level 2 ([4]–[7])
Candidate will have fewer lines of thought or discussion may be limited. However, while ideas may lack depth and/or detail, they are still adequate. There may be a heavy imbalance between the two sides of the argument. The account may show deficiencies in the following ways:

- Understanding displayed but an over-reliance on verbatim quoting in places, even though appropriate
- Resource material used but some information not as well exploited as it could be
- Largely related to the question but some irrelevant material introduced
- Ideas not expressed particularly logically or clearly

Level 1 ([1]–[3])

- Simple understanding demonstrated but sketchily dealt with
- Excessive verbatim use of resources, sometimes not fully appropriately
- Some use made of the resource material but many relevant resources omitted
- Little or no structure or logic in the ordering of content [10]

(ii) Discuss the environmental damage of the proposed development and the counterarguments.

The site for this development in Dunmaglass Estate will impact on one of the few places in Western Europe which might be termed wilderness. It is a rich habitat but it is also easily damaged. As a home to 13 species which have international protection, it should not have this development, the opponents to the scheme argue. The photographs in 7D1 and 7D2 show an area which is almost untouched by humans. There are no roads into the mountains as Resource 7A shows, and the land is wilderness. While the windfarm itself only covers about 10 km^2, its impact on the whole area will be enormous.

Golden Eagles (see Resource D3) use the Monadliath Mountains to hunt in, around the proposed location of the windfarm. During the summer breeding season, there are a lot of eagles in the area, being the third most commonly recorded bird after ravens and pink-footed geese. There has already been a lot of work put into encouraging the eagles to breed in the area. They have not done so for 30 years, but Roy Dennis of the Highland Foundation for Wildlife is hopeful that they will breed there soon. The proposed development threatens the programme reintroducing Golden Eagles, and other species, into the UK. Golden Eagles often fly at just the height of the rotor blades in this windfarm, and research in Spain and the United States has shown that each year thousands of bird kills are caused by badly sited windfarms. These deaths have included eagles, so it is clear that these 33 enormous wind turbines pose a major threat to the Golden Eagles.

AVAILABLE MARKS

Opponents of the scheme argue that it will have a detrimental effect on the area because of its visual impact on the environment. The illustration to show its impact from the Environmental Impact Statement (Resource 7C), has been produced by RES, who are responsible for the development, and totally under-represents the actual impact that it will have. This windfarm is sited at a higher altitude than any other windfarm in the UK, at 600 metres above sea level. Then you have another 125 metres to the tip of the blades in the turbines. In consequence it will be seen for many kilometres and will even be visible from the mountain-top restaurant in the Cairngorms National Park, which is a very popular destination for tourists to Scotland. There will also be damage to wildlife, such as Golden Eagles. It is no wonder that this windfarm has brought more opposition than any of the others with 1200 objectors writing to the Scottish Government about it.

Scotland seems to be the location for the bulk of the windfarms being built in the UK. There are 400 more windfarms either planned or proposed covering much of Scotland's mainland and many of the outlying islands, as shown in the map in Resource 7G. Each windfarm does damage to the environment and causes visual pollution, but it is the sheer number of them that will ruin Scotland's landscape.

Those in favour of the development point out that there are over 400 breeding pairs of Golden Eagles in Scotland, but none breed in the Monadhliath Mountains and none have bred there for over 30 years. Extensive research by Scottish National Heritage has concluded that it is unlikely that the eagles will use the site. It is true that wind turbines can kill and injure birds, but it is not true that the windfarm threatens the whole Golden Eagle population of Scotland.

The scale of the development has also been exaggerated. In fact only 2% of the site of the development will actually be built upon. The site of the development may be 10 km^2 but the turbines and associated structures only cover one fifth of a square kilometre. The Dunmaglass site is ideal for wind power generation, and its relative proximity to the pylons to transport the electricity is also an advantage, reducing the need for long lines of new pylons. The last part of the line joining with the pylons south of Foyers will be put underground to reduce any potential damage to views in the area.

This windfarm will contribute, alongside all the other windfarms planned for Scotland and alongside other means of generating energy, to reducing greenhouse gas emissions, and therefore will help to improve the environment globally. The amounts saved are colossal: almost 190 thousand tonnes of carbon dioxide and over 2000 tonnes of sulphur dioxide, over the lifetime of the scheme. In fact the Dunmaglass scheme will link up with a cluster of even larger windfarms which are in planning. These will be set up 10 kilometres apart and will still not cause unacceptable levels of damage to the environment.

Opponents of the scheme make much of the fact that the windfarm will be visible from the restaurant on top of the Cairngorm Mountains. They fail to point out that the scheme is 42 kilometres away and will be but a very tiny speck in the far distance.

AVAILABLE MARKS

Level 3 ([8]–[10])
Candidate states clearly the main effects and the counterargument. Three or more different factors should be discussed. The account will have many of these characteristics:

- The points made will be consistently relevant and logically structured
- The ideas will demonstrate insight and a level of sophistication
- Clear understanding of all concepts will be demonstrated
- Use will be made of most of the relevant resource material – no significant points will be omitted
- Figures, where available and appropriate, will be used to good effect
- Ideas will be expressed clearly and effectively

Level 2 ([4]–[7])
Candidate will have fewer lines of thought or discussion may be limited. However, while ideas may lack depth and/or detail, they are still adequate. There may be a heavy imbalance between the two sides of the argument. The account may show deficiencies in the following ways:

- Understanding displayed but an over-reliance on verbatim quoting in places, even though appropriate
- Resource material used but some information not as well exploited as it could be
- Largely related to the question but some irrelevant material introduced
- Ideas not expressed particularly logically or clearly

Level 1 ([1]–[3])

- Simple understanding demonstrated but sketchily dealt with
- Excessive verbatim use of resources, sometimes not fully appropriately
- Some use made of the resource material but many relevant resources omitted
- Little or no structure or logic in the ordering of content [10]

C. Decision (State clearly your decision and justify it on the basis of the greater overall benefits)

The recommendation may overlap with some of the points made in B in relation to the potential economic and environmental impact of the windfarm. However, the emphasis here has to be on the greater overall benefits of developing or not developing the windfarm and the contrary view. In this section, for example, candidates can weigh up the relative merits of arguable damage to the environment with possible economic development and employment for local people. No mark for stating a decision alone without a justification.

Level 3 ([8]–[10])
Candidate states clearly a decision. A range of reasons is provided in justification. The account will have many of the following:

- There is evidence that the arguments of both sides are being balanced, one against the other
- Links are made between environmental and economic/social aspects of resource material, not possible in B
- Points are consistently relevant and logically structured
- There is a clear grasp of the concepts used

Level 2 ([4]–[7])
There are fewer lines of thought or discussion, but what there is is relevant and correct or supportable in what is argued. There may be deficiencies such as:

- Too much verbatim quoting or overuse of quotations in full
- Important sections of resource material not utilised
- Irrelevant material introduced
- Ideas not expressed particularly logically or clearly
- Understanding of concepts not always clearly demonstrated

Level 1 ([1]–[3])

- Few lines of thought and sketchy in detail
- Large gaps in the use of resource material
- Little or no structure or logic in the ordering of the concepts [10]

Format
Clear format headings **using the headings provided** throughout [1]
Clear subheadings using the subheadings provided in Section B [1] [2]

Role
Role adopted [1]
Role maintained [1] [2]

Graph
Reference in report [1]
Appropriateness of the technique used [1]
Accuracy of the data presented [3]
Conventions (key, labelled axes, title) [3] [8]

A table is not accepted as a graph [0] marks.

Section B

Total

AVAILABLE MARKS
50
50
110