



MARKSCHEME

May 2001

GEOGRAPHY

Higher Level

Paper 3

Notes on individual questions

1. (a) **State the approximate scale of the aerial photograph, and briefly explain how you obtained this figure.** [2 marks]

Candidates should measure the scale precisely by comparing the size of features on the photograph with the same features on the topographic map, the scale of which is known at 1:25,000, and they will calculate the scale as being between 1:15,000 and 1:17,000 (inclusive) [2 marks]. If candidates correctly describe the procedure for estimating the scale by measurement and calculation, but do not give a scale within the acceptable range, they may be awarded only [1 mark]. If they give the correct scale and do not describe the procedure taken, they may be awarded [1 mark].

- (b) **Using the map and aerial photograph, describe the purpose and size of the factory at grid reference 529380, and suggest reasons for its location.** [4 marks]

This factory should be identified as a Butter and Cheese factory [1 mark]. The description of its appearance should include mention of the relatively large size (area) of its several buildings [1 mark]. Reasons for the factory's location include the following: (i) proximity to the town of Bega (which provides both market and labour force), (ii) proximity to the Bega River as a source of water, (iii) proximity to the main road (for transportation of raw materials inwards and finished products outwards), (iv) proximity to raw materials/milk/dairy produce from surrounding farms and (v) cheaper land on the town's periphery. Three of the above factors quoted should receive [2 marks], two factors should receive [1 mark], and one factor or no factors receive [0 marks]. It is not necessary to quote specific examples or data from the map to be awarded the marks for this question.

- (c) **Describe the principal changes which have occurred in the area shown in the aerial photograph since the map was printed.** [4 marks]

The most significant change to have occurred is the expansion of the town of Bega [1 mark], particularly towards the south of the town [1 mark]. The remaining [2 marks] may be awarded within the range of [0 to 2] inclusive on the basis of [+1] for any legitimate change that can be observed.

continued...

Question 1 continued

- (d) Quoting evidence from the map and aerial photograph, discuss the features of the physical environment which (i) make this a good situation for a town, and (ii) hinder the town's development.**

[6 marks]

Factors which make this location suitable for a town include access to water from the Bega and Brogo Rivers, relatively flat land on the inside of a curve in the course of the river, and productive agricultural land in the surrounding area [2 marks]. By far the most important factor which hinders the town's development is the large area of land subject to inundation (flooding) within the built-up area to the north and to the east (and to a lesser extent to the west) [2 marks]. The river itself with only one bridging point may be considered to hinder the town's development. It is expected that candidates will quote evidence from the map in support of these factors [2 marks].

- (e) Compare the information shown on the map with the information shown in the aerial photograph. Which is more useful to the geographer?**

[4 marks]

Although there is scope in this question for candidates to exercise originality in their judgement of the relative merits and usefulness of the map and aerial photograph, it is expected that candidates will recognise that there is some information shown on the map which does not appear on the photograph (such as place names, grid references, cadastral (property) boundaries, altitudes (using contours and spot heights), vegetation types), as well as information shown in the aerial photograph which does not appear on the map (such as individual buildings within urban areas, the vigour and condition of vegetation, fluvial features within the river, low relief landforms such as meander scrolls, and recent changes). Candidates must make a comparison to gain full marks.

2. Discuss the impact of human activity on urban climates.

[20 marks]

Candidates are permitted to approach this somewhat open-ended question in a variety of ways. However, it is expected that most will identify human activities which make significant impacts on urban climates such as domestic heating, mechanised transportation, manufacturing, air conditioning, construction of high rise buildings, and destruction of natural vegetation cover, describing in turn how each human activity impacts on temperature, wind speed, visibility, air quality, sunshine hours, humidity or precipitation of either large city areas and/or microclimates. Better candidates may discuss the different impact of human activities on the climates of urban areas in economically more developed countries (EMDCs) and economically less developed countries (ELDCs). Marks should be awarded on the following basis:

A mark between 18 and 20 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 14 and 17 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 13 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.

3. Identify the landform in the photograph, and describe the formation of this landform. [20 marks]

Candidates should identify the landform as a volcanic island [*1 mark*]. Additional information may be provided on the type of emissions from the volcano, but this is not necessary for the award of the mark. Candidates are then expected to explain the formation of such a volcano by providing a reasoned explanation of the processes of crustal plate movement, involving the formation of mid-oceanic ridges, subduction zones, hot spots and the consequent formation of volcanoes. Credit should be given if candidates include fluvial and coastal landforms visible on the photograph and possible evidence of a lateral blast or collapse on the left side of the island. In addition to the mark awarded for identifying the landform feature in the photograph (described above), marks should be awarded on the following basis:

A mark between 17 and 19 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 13 and 16 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 12 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.

4. **‘The more people alter the functioning of the water cycle, the more they seem to abuse it’. Discuss this statement with reference to one area you have studied.**

[20 marks]

This question requires candidates to discuss the consequences of human use of the water cycle in a particular area, with emphasis on abuse of the water cycle or inadequate regard of the consequences of actions taken. The response must focus on one named area or case study (which will often be a particular drainage basin, but may alternatively be larger or smaller in scale). A generalised response on human impact on the water cycle which does not focus on an area may not be awarded more than **[8 marks]**. A simple description of the water cycle in general without reference to a particular area or to human impact may not be awarded more than **[4 marks]**. A response on human impact on an ecosystem or an environmental case study may not be awarded more than **[12 marks]**. With these exceptions, marks should be awarded on the following basis:

A mark between 18 and 20 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 14 and 17 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 13 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.

5. **With reference to at least one specific example, explain how an ecosystem can become destabilised.** **[20 marks]**

The focus of this question is destabilisation of ecosystems, with a particular emphasis on a specific example or examples. The scale of the specific example(s) is not specified, but an example which is either too large or too small to demonstrate an understanding of the processes and interactions will carry its own penalty. Responses which do not focus on a specific example or examples may not be awarded more than **[14 marks]**, and then only for an outstanding response which fully analyses the complex and inter-related processes of change leading to destabilisation in ecosystems. The forces leading to destabilisation discussed by the candidate may be natural or human in origin, or a combination of both. With these exceptions mentioned above, marks should be awarded on the following basis:

A mark between 18 and 20 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 14 and 17 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 13 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.

- 6. The map shows the annual consumption of commercial energy per capita, expressed in kilograms of oil equivalent. Describe and account for the pattern shown in the map.**

[20 marks]

It is expected that candidates will identify the close relationship between economic development and annual consumption of commercial energy; this is a positive or direct relationship in that more economically developed countries tend to have higher consumption of energy per capita. It should be noted that only commercial energy is shown on the map, and subsistence forms of energy such as fuelwood and animal dung which are of extreme significance in many developing countries are not shown, leading to what is possibly an image which exaggerates the difference in total energy use between ELDCs and EMDCs. Having made this point, responses should explain such issues as the pattern shown in terms of different lifestyles, manufacturing technologies, mechanisation of transport, attitudes towards energy conservation and recycling. Marks should be awarded on the following basis:

A mark between 18 and 20 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 14 and 17 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 13 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.

7. **The map shows the annual consumption of commercial energy per capita, expressed in kilograms of oil equivalent. Name two countries shown on the map which are in different categories in the key, and compare the problems facing management of some important resources in those two countries.** [20 marks]

Responses to this question will vary considerably according to the countries selected. It is essential that the two countries selected are from different categories in the key; if the two countries are in the same category then the mark which would otherwise have been awarded should be halved. Where one of the countries is selected from the 'no data' category, the answer should be treated on its merits and marked normally, although it is likely that such a selection will be self-penalising in addressing the thrust of the question. It is not necessary to examine resource management in the entire countries selected; sample studies from the two countries are acceptable. If only one country is discussed, then the maximum mark that may be awarded is [12]. The thrust of the question is resource management in the two countries selected, and the problems and challenges in the management of those resources. It should be noted that the concept of management implies a level of care and conservation rather than outright exploitation, and it is expected that resource recycling, conservation and sustainable development of resources will be discussed appropriately in most responses. While energy will almost certainly be an important part of resource management, other resources (such as water, timber, minerals and various renewable resources) could also be examined according to the balance of resource endowment and use in the two countries. Given these points, marks should be awarded on the following basis:

A mark between 18 and 20 inclusive should be awarded for an excellent response which shows clear reasoning and which gives explicit factual information, where the arguments are developed in a logical manner, with evidence provided from a variety of sources and using illustrative examples to support the arguments.

A mark between 14 and 17 inclusive should be awarded for an above average response which is consistent, factually correct, explanatory and which attempts to justify its generalisations.

A mark between 8 and 13 inclusive should be awarded for a mediocre to satisfactory response which is somewhat descriptive but relevant to the question, where there is some use of factual data and which shows limited reasoning. The conclusions should be consistent with the reasoning presented.

A mark between 4 and 7 inclusive should be awarded for a weak response which is somewhat vague and which uses little factual data to support generalisations. The conclusions are inconsistent with the data or no conclusions are drawn.

A mark between 0 and 3 inclusive should be awarded for a very weak response which misses the point of the question, has an absence of factual data, contains much irrelevant material, and is incoherent or incomprehensible.
