



MARKSCHEME

May 1999

GEOGRAPHY

Higher Level

Paper 3

GEOGRAPHY HIGHER LEVEL PAPER 3

Notes On Individual Questions

1. (a) Draw an annotated sketch map of the area shown in the map extract to show the relationship between the major landforms and the pattern of communications and settlement.

[5 marks]

To receive full marks, the sketch map should be accurate within the limits of time imposed by an examination, it should cover the area shown on the map extract, and should include a scale, title, and clear labelling. It should also include an accurate indication of the different landform regions, which will probably (but not necessarily) focus on three main types of landform area - the upland glacial zone to the south and south-east of the area, the relatively flat valley floor in the mid-north of the map, and two areas of moderately steep hillslopes, one to the north of the map extract and the other between the valley floor and the upland glacial area. The map, which must be annotated to receive full marks, should highlight the concentration of settlement and communications links on the valley floor and the total absence of these (except for some walking tracks) on the upland glacial areas.

- (b) Using specific evidence from the map extract, describe the main hydrological features of the area.

[3 marks]

Candidates would be expected to identify the glaciers in the south and south-east of the map extract and the rivers in the bottom of the valley as the dominant hydrological features in the area. The Unterer Grindelwaldgletscher (glacier) in the south-east of the map extract is one of the sources of the water which flows through the Weisse Lütschine and into the area's main river channel, the Schwarze Lütschine. From this, candidates should note the seasonal fluctuation of flow that would be expected in the area's rivers. The rivers in the area are strongly influenced by the shape of the landforms across which they flow, with dendritic drainage being found on the hillslopes, and the only evident meandering pattern occurring in the Schwarze Lütschine which flows through the valley floor.

- (c) Identify *four* main means of transportation and movement used in the area shown, and draw a table to list briefly advantages and disadvantages of each.

[4 marks]

Although there are other possibilities, it is expected that the four main types of transport identified will be rail (or train), road (or car, bus, etc.), cable car (or ski lift) and walking track (foot, walking) [2 marks] for all four, [1 mark] for two or three, [0 marks] for nil or one. It is expected that the discussion of advantages and disadvantages [2 marks] will focus on aspects of speed, accessibility, and cost.

(d) For Photo A:

- i. identify the grid reference from which the photo was taken**
- ii. estimate the compass direction in which the camera is pointing.**

For Photo B:

- i. identify the grid reference from which the photo was taken**
- ii. estimate the compass direction in which the camera is pointing.**

[4 marks]

[1 mark] should be awarded for each of the following answers:

- A. i. 455638 (allow 456638 also)
- A. ii. East-south-east (allow also south-east)
- B. i. 468635 (but allow any point on the cable car route between 467636 and 471633)
- B. ii. North-west (allow west-north-west)

(e) Referring to the map extract, describe the geographical situation of Grindelwald, and discuss the advantages and disadvantages of this site.

[4 marks]

Grindelwald is situated on the gentle slopes of the valley floor of the Schwarze Lütschine (river), with most of the town being on the northern bank *[1 mark]*. Advantages of the site would include factors such as reliable water supply, protection from strong winds, southerly aspect for sunlight, proximity to skiing and walking areas to support the town's tourist economy, spectacular scenery which also supports tourism, and abundant gently sloping land for future expansion *[2 marks]*. Disadvantages of the site are few, with the main disadvantages probably being isolation or difficulty of transport caused by the rugged terrain and bad weather in winter *[1 mark]*.

2. **The image above shows the world pattern of clouds on a typical day in January. With reference to the global pattern of atmospheric circulation, describe and account for the distribution of clouds in the image. Discuss the ways in which the pattern shown is likely to differ in July, and suggest reasons for these differences.**

[20 marks]

The satellite image shows a fairly typical January pattern of clouds. A band of clouds is found to the immediate south of the equator where the heat equator, or ITCZ (inter-tropical convergence zone) of low atmospheric pressure is situated. To the north and south of this band of clouds, the bands with an absence of clouds mark the belts of high pressure which are found at about 30°N and 30°S of the equator (on average). Towards the poles from these belts of high pressure, belts of clouds mark the zones of low pressure associated with the polar fronts; the characteristic curved bands of cloud mark the cold fronts which characterise these zones. This distribution of clouds should be explained in terms of the global pattern of atmospheric circulation, with the clouds marking zones of uplift (low pressure) and the clear areas marking zones of descending air (high pressure). It is expected that better candidates' responses will be distinguished by the use of clear diagrams to explain the global pattern of atmospheric circulation. The pattern in July would differ in that the entire pattern would shift northwards as the ICTZ follows the heat equator.

3. **“The highest and lowest areas of the lithosphere are both found at the earth's plate boundaries”. With reference to the processes of plate tectonics, explain why this is so.**

[20 marks]

It is expected that candidates will approach this question by discussing the processes which commonly occur at the margins of the earth's crustal plates. Although the discussion need not be limited to the following, it is likely that emphasis will be placed on processes which lead to extreme differences in height, such as orogenesis on the one hand, and subduction on the other. Essays which accurately identify appropriate processes, describe these processes and relate the processes to extremes of altitude using relevant diagrams and illustrative examples should be rewarded appropriately.

4. **With the aid of a well labelled diagram, explain the processes which occur naturally in the operation of the water cycle. Describe the functioning of the water cycle at a local level in an area which you have studied, mentioning especially the ways in which these functions may have been affected by human activities.**

[20 marks]

There are two parts to this question, each of which is worth approximately half the total marks available. However, an outstanding response to one part of the question may compensate for some shortcomings in the response to the other part, and marks should be awarded as a total out of *[20 marks]* rather than as *[2 marks]* out of *[10 marks]* each. The first part of the question asks candidates to describe the operation of the water cycle in a general sense. It is expected that to receive full marks candidates will use a well labelled diagram as a basis to describe the operations of the water cycle, using terminology such as (but not necessarily) precipitation, evaporation, condensation, storages and flows, transpiration (or evapotranspiration) and groundwater. The second part of the question requires candidates to apply this general understanding to a smaller scale example, focusing on the relative balance of natural operations and human influenced factors. The precise scale of the example is not really important, but candidates will tend to disadvantage themselves by attempting to describe examples which are too large (such as a continent or nation) or too small (such as a back yard).

5. **Explain why ecosystems are often vulnerable to change. Illustrate your answer with a description of an actual example of an ecosystem which is under pressure to change from either natural or human forces, or a combination of both.**

[20 marks]

It is expected that candidates will explain the vulnerability of ecosystems to change by describing the complex web of inter-relationships and inter-dependencies which exist within and between ecosystems. Because higher order components of an ecosystem are dependent on larger numbers of lower order components (the pyramid of numbers), any disruption at a lower order has a chain reaction of increasing magnitude at all higher orders in the ecosystem. The example of an ecosystem chosen may be local or extensive in scale, but it must be a single ecosystem in the sense that all its elements are interdependent or interrelated. Thus, a biome would be too large in scale to be appropriate to the question, although candidates who attempt to answer using an entire biome need not be penalised by the marker, as such answers will generally be self-penalising by their superficiality. The discussion of natural and human forces which are leading to change do not necessarily have to be in equal depth, as most ecosystems are more strongly influenced by one than the other, but both must at least be mentioned to gain full marks.

6. **“Whether something is a resource or not depends on economic, technological and cultural factors which can change over time”. Evaluate this statement.**

[20 marks]

Although mark allocations are provided for each part of the question, markers should feel free to reward especially good responses in one part which compensate for deficiencies in other parts within the overall total of *[20 marks]*. In part (a), candidates should begin their answers by defining the term ‘natural resource’. Variations are possible in this definition, but the idea should be conveyed that a natural resources is anything which occurs in nature which is of use to people. A sound definition of natural resource would be worth *[2 or 3 marks]*. Part (b) will probably provide the bulk of most candidates’ responses. To gain full marks, candidates should include discussion of all three factors (economic, technological and cultural) with reference either to natural resources in general or to two or more specific natural resources. A complete, analytical and accurate discussion of part (b) could result in *[10 to 12 marks]* or so. Part (c) should draw together the material presented in part (b) by relating it specifically to the quote given in the question. Candidates must state a position of agreement or disagreement (which will probably be qualified rather than unilateral for most better responses) and support this viewpoint with data, much of which may well have been presented in answering part (b). A factually correct, logical and coherent discussion on part (c) could be awarded about *[5 to 8 marks]*.

7. **“When natural resources are used, it is inevitable that the environment will suffer”. Evaluate this statement.**

[20 marks]

Although mark allocations are provided for each part of the question, markers should feel free to reward especially good responses in one part which compensate for deficiencies in other parts within the overall total of *[20 marks]*. In part (a), candidates should begin their answers by defining the term ‘natural resource’. Variations are possible in this definition, but the idea should be conveyed that natural resources are anything which occurs in nature which are of use to people. Although specific mark allocations are not made to parts of this question as candidates are free to balance their responses as they choose, a sound definition of natural resource would be worth *[2 or 3 marks]*. Part (b) will probably provide the bulk of most candidates’ responses. To gain full marks, candidates should discuss three environmental problems which will usually be taken from the list given in the question, but which may substitute environmental problems of a similar scale or magnitude. Whatever three problems are selected, the discussion must focus on the causes and effects of these problems, and must make more than a passing reference to specific places which exemplify the problems. A complete, analytical and accurate discussion of part (b) could result in *[10 to 12 marks]* or so. Part (c) should draw together the material presented in part (b) by relating it specifically to the quote given in the question. Candidates must state a position of agreement or disagreement (which will probably be qualified rather than unilateral for most better responses) and support this viewpoint with data, much of which may well have been presented in answering part (b). A factually correct, logical and coherent discussion on part (c) could be awarded about *[5 to 8 marks]*.

INTERNATIONAL BACCALAUREATE BACCALAUREAT INTERNATIONAL BACHILLERATO INTERNACIONAL

ECONOMICS / ECONOMIE / ECONOMÍA

Multiple Choice Answers/Solutions des Questions Multiples/Respuestas para la Selección Múltiple

Examination Session / session d'examens / sesión de exámenes de

May / mai / mayo 1999

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HIGHER LEVEL / OPTION FORTE / NIVEL SUPERIOR

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|--------------|--------------|--------------|---------|
| 1. <u>D</u> | 16. <u>C</u> | 31. <u>B</u> | 46. ___ |
| 2. <u>D</u> | 17. <u>B</u> | 32. <u>C</u> | 47. ___ |
| 3. <u>C</u> | 18. <u>D</u> | 33. <u>A</u> | 48. ___ |
| 4. <u>A</u> | 19. <u>D</u> | 34. <u>D</u> | 49. ___ |
| 5. <u>A</u> | 20. <u>D</u> | 35. <u>D</u> | 50. ___ |
| 6. <u>B</u> | 21. <u>B</u> | 36. <u>B</u> | 51. ___ |
| 7. <u>D</u> | 22. <u>A</u> | 37. <u>C</u> | 52. ___ |
| 8. <u>A</u> | 23. <u>C</u> | 38. <u>B</u> | 53. ___ |
| 9. <u>A</u> | 24. <u>D</u> | 39. <u>C</u> | 54. ___ |
| 10. <u>C</u> | 25. <u>B</u> | 40. <u>B</u> | 55. ___ |
| 11. <u>C</u> | 26. <u>A</u> | 41. ___ | 56. ___ |
| 12. <u>C</u> | 27. <u>A</u> | 42. ___ | 57. ___ |
| 13. <u>B</u> | 28. <u>C</u> | 43. ___ | 58. ___ |
| 14. <u>B</u> | 29. <u>B</u> | 44. ___ | 59. ___ |
| 15. <u>A</u> | 30. <u>D</u> | 45. ___ | 60. ___ |