INTERNATIONAL BACCALAUREATE
BACCALAURÉAT INTERNATIONAL
BACHILLERATO INTERNACIONAL

MARKSCHEME

May 2000

GEOGRAPHY

Higher Level

Paper 3

10 pages

1. (a) For each photograph, A and B, state the direction in which the photograph was taken (*i.e.* the direction towards which the camera was pointing). ***[2 marks]***

Photograph A was taken looking towards the west-north-west (also accept north-west) *[1 mark]*. Photograph B was taken looking towards the south-west *[1 mark]*. Bearing equivalents for these directions are acceptable if accurate.

(b) (i) For the area shown in photographs A and B, outline briefly the types of information shown on the map which are not shown in the photographs. ***[2 marks]***

Candidates would be expected to identify factors such as place names, national boundaries, grid references, contours and spot elevations. A reasonably complete list should be awarded *[2 marks]*, with *[1 mark]* being awarded for superficial though accurate responses.

(ii) For the area shown in photographs A and B, outline briefly the types of information shown in the photographs which are not shown on the map. ***[2 marks]***

Candidates would be expected to identify factors such as detailed density and types of vegetation, areas of maximum river flow, density of traffic flow, atmospheric characteristics (such as spray from the falls), and perspective on relief. A reasonably complete list should be awarded *[2 marks]*, with *[1 mark]* being awarded for superficial though accurate responses.

(c) Describe the impact of the Zambezi River on the pattern of transport and communication in this area. ***[3 marks]***

It is expected that candidates will note that there is only one crossing of the Zambezi River in the area shown *[1 mark]*, a combined road, rail and footpath bridge. The only human feature which crosses the Zambezi in the area is the 33 kV power line which crosses the gorge at 779161 *[1 mark]*. Although there is a dense network of tracks and/or game trails in the area, and a sparser network of roads, those routes approaching the Zambezi River are all truncated or diverted by it, either because of its width (north of the Falls) or by the depth of its gorge (south of the Falls). Being economically less developed countries, Zimbabwe and Zambia would be unlikely to make funding available for constructing additional crossings of the Zambezi a significant priority in this area of reasonably sparse population density. The remaining mark for this question should be awarded according to the detail and accuracy of information given such as the above.

(d) Suggest reasons for the varying density and types of vegetation in the area shown on the map. ***[3 marks]***

Most of the area shown on the map comprises sparse and medium bush. The bush is of relatively sparse density because of the area's low and seasonal rainfall *[1 mark]*. There is an east-west belt of dense bush to the south-east of Victoria Falls which continues in a south-west/north-west direction to the east of the Falls. This vegetation is found on a ridge of undissected elevated land which attracts slightly more (orographic) rainfall *[1 mark]*. There is a small area of rain forest on the escarpment immediately south (or opposite) the Falls; this is caused by the constant humidity and wetting by the spray from the Falls (which can be seen in both photographs) *[1 mark]*.

(e) Quoting evidence from the map, suggest whether the town of Victoria Falls or the town of Livingstone would have greater appeal to tourists. ***[3 marks]***

It is expected that candidates will quote evidence from the map listing the tourist-related facilities in each town before making a comparative judgement on their relative appeal to tourists. Facilities in Victoria Falls (for which better candidates will probably quote specific grid references) include the proximity of the Falls, golf course, caravan park, several hotels, crocodile farm, chalets, Sprayview Airstrip, motel, casino, game park entrance and perhaps the pistol range *[1 mark]*. Facilities in Livingstone (for which it is also expected that candidates will quote specific grid references) include a golf course, boat club and perhaps the sports fields *[1 mark]*. On balance, it is expected that most candidates will conclude that Victoria Falls has more appeal to tourists than Livingstone because of the greater range of services, although if a candidate makes a strong case to the contrary based on a valid but alternative view of what might appeal to tourists, this should be considered on its merits *[1 mark]*.

(f) Describe the changes in the landforms and land use you would see on a journey from the main intersection in Livingstone (791269) to the bridge over the Zambezi River (790176). ***[5 marks]***

To receive full marks, a candidate must show evidence of having accurately interpreted the information in the area of the map in the question, and must have described both physical and human aspects of the area adequately. It is not expected that a candidate will mention every feature visible on the drive (which covers some 11 kilometres), but candidates receiving *[4 or 5 marks]* will have highlighted the most significant features of the progression from the town of Livingstone to the Falls given the constraints of time and examination conditions. To be awarded *[5 marks]*, a candidate will describe the journey in some detail, mentioning changes such as density of urban settlement, changes in landforms, changing proximity to the river and railway, direction travelled and some significant landmarks such as road junctions, river crossings, *etc*. Candidates awarded *[3 or 4 marks]* will have provided somewhat vague and generalised reponses which, although broadly accurate, lack real depth, detail and specific information. Candidates awarded *[1 or 2 marks]* will have made inadequate or very superficial attempts to describe the area, or have made several significant factual errors.

2. Explain why the behaviour of the atmosphere differs according to latitude. ***[20 marks]***

Candidates are permitted to approach this somewhat open-ended question in a variety of ways. However, it is expected that most will focus on the earth's heat budget and the distribution of incoming solar energy (insolation) from the equatorial region to the poles. Accurate and relevant diagrams which explain or amplify this concept should be especially rewarded. Better candidates will discuss the impact of factors such as the angle of the sun's rays and different rates of absorption of insolation by the atmosphere at different latitudes. Candidates should then relate these factors to the broad world pattern of air pressure belts and wind movement, and the consequent impact on climates at various latitudes.

3. Photographs C, D and E show areas of glaciation, coast and hot desert respectively. Identify and name *one* landform in *each* of the three photographs, and explain the relative importance of erosion and deposition in the formation of each landform. ***[20 marks]***

Candidates' responses will vary according to the particular landform examples selected from the photographs. Possible landforms that could be used include arêtes, cirques, glaciers, truncated spurs and pyramidal peaks in Photograph C, stacks, cliffs, beaches, wave-cut platforms, a welded bar and cusps in Photograph D, and a mesa (or butte), reg (or stony or gibber desert), ephemeral streams (or wadis), scree (or talus slopes) and pediment in Photograph E. The landforms selected must appear in the photographs, and the discussion on each must focus on the relative importance of erosion and deposition in their formation. Responses which omit discussion of erosion and deposition may not be awarded more than *[10 marks]*, while responses which discuss landforms from only two terrains may not be awarded more than *[14 marks]*. Responses which discuss landforms from only one terrain may not be awarded more than *[8 marks]*, and then only if several landforms from a photo are discussed to a high standard with reference to erosion and deposition.

4. Refer to the map extract on page 3 of the examination paper. Compare the landforms of the Zambezi River to the north of the Main Falls with the landforms to the south of the Main Falls, and describe the fluvial processes which would be operating in the two sections of the river. ***[20 marks]***

There are two parts to this question, although no formal marks allocation is assumed in order to give candidates the flexibility to balance their responses as they feel is appropriate. It is expected that candidates will note that most landforms north of the Falls are depositional in nature, quoting examples such as mid-channel bars, braids, backswamps and meander scrolls. Landforms south of the Falls, on the other hand, are erosional in nature, the prime example being the gorge. It should be noted that meandering is not evident in the main channel of the Zambezi south of the Falls (at least in this area) because the river's course is governed by joints and faults in the underlying rock. The processes described by candidates must emphasise erosion south of the Falls and deposition north of the Falls. Accurate and relevant diagrams should be especially rewarded. As an aside, the area south of the Falls has **not** been subject to rejuvenation, although the map makes it appear superficially as though this may be so. If rejuvenation had occurred, the Zambezi would not appear as it does north of the Falls without other major topographic differences along the line of the Falls. For candidates lacking local knowledge of this area (presumably almost all!), and who are distracted into describing processes of rejuvenation in detail, there should be a penalty but only a moderate one – such candidates should be limited to a maximum *[16 marks]* (for an excellent response which under other circumstances would have been awarded *[20 marks]*).

5. With reference to an ecosystem (or a plant community) you have studied, identify the forces causing change, and discuss how sensitive the ecosystem (or plant community) is to disturbance. ***[20 marks]***

The focus of this question is change within a particular ecosystem or vegetation community. It is important that candidates' answers focus on a particular case study they have examined; responses which do not focus on a specific example may not be awarded more than *[14 marks]*, and then only for an outstanding response which fully analyses the complex and interrelated processes of change in ecosystems or plant communities. 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 elements are interdependent or interrelated. The forces of change discussed by the candidate may be natural or human in origin, or a combination of both. A candidate may not be awarded more than *[17 marks]* without forming a conclusion on the sensitivity of the ecosystem or plant community to change (*i.e.* its fragility or resilience based on factual and reasoned argument.

6. Approaches to resource management range from preservation of natural environments to exploitation of natural resources. Evaluate the case for each of these extreme management positions. ***[20 marks]***

The focus of this open-ended question is resource management strategies. The question focuses on the two most extreme positions of resource management *i.e.* preservation of natural environments and exploitation of natural resources. Candidates must present arguments for and against each of these strategies, though not necessarily in equal depth. Candidates who argue only for **and** against **one** of the strategies may not be awarded more than *[16 marks]*; candidates who argue only for **or** against **both** strategies may not be awarded more than *[12 marks]*. It is expected that having presented both sides of the arguments for the two extreme positions of resource management, candidates will present a reasoned view on the most appropriate approach to resource management, although other approaches to evaluating the two extreme management positions are also possible. Where candidates fail to provide any evaluation, they may not be awarded more than *[15 marks]*.

7. Explain how the concepts of conservation, recycling and resource substitution can help address one or more of the following environmental issues:

- **acid rain;**
- **possible global warning;**
- **air pollution;**
- **water pollution;**
- **sedimentation;**
- **waste disposal;**
- **another environmental issue you have studied.** ***[20 marks]***

Candidates are free to respond to this question in depth (focusing on one environmental issue) or breadth (discussing several environmental issues). Whichever approach is taken, candidates must use the concepts of conservation, recycling and resource substitution as organising concepts, though not necessarily in equal detail (as these will be more or less relevant depending on the environmental issue(s) selected). Essays which are repeatedly factually incorrect or which are very superficial and generalised may not be awarded more than *[7 marks]*. Essays which are descriptive but generalised, yet factually correct though lacking in detail, may not be awarded more than *[13 marks]*. Essays which answer the question asked, which show evidence of a variety of data sources, which are generally well organised and logical, which are factually correct, which are reasoned and explanatory, and which refer to relevant illustrative examples, should not normally be awarded fewer than *[18 marks]*.