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GEOGRAPHY

Higher Level

Paper 3

10 pages

Notes on individual questions

SECTION A : TOPOGRAPHIC MAPPING

Question 1

(a) **Calculate the distance, to the nearest kilometre, between the towns
of Šilo and Vrbnik on the east coast of Krk**

      (i)   **in a straight line**   *[1 mark]*

      (ii)   **by road.**   *[1 mark]*

      (i)   8 km

      (ii)   12 km *(accept 11.5 to 13 km)*

(b) **With the aid of an annotated sketch map, discuss the advantages
and disadvantages of the location of Rijeka airport (marked as
Aerodrom Rijeka in the north of Krk near Omišalj).**   *[8 marks]*

[4 marks] should be allocated to the sketch map, provided the area the map covers
includes the port of Rijeka, the coastline, the airport, shows the road connection, gives
some indication of scale and a simple key.

The remaining *[4 marks]* should be given for each comment on any of the following,
provided they include both advantages and disadvantages.

The advantages could include:
flat site at low elevation (85 m), lack of high ground nearby (safety factor), cheap land,
no settlement on approach runs.

The disadvantages could include:
long travel time to Rijeka – large detour necessary, secondary road connection, possible
congestion on the bridge in tourist season, unidirectional runway causing crosswind
problems.

It is permissible to give three advantages and one disadvantage, two of each, or three
disadvantages and one advantage for *[4 marks]*.

Candidates who draw a map and state the advantages/disadvantages in writing below
the map should not be penalised.

(c)   Using map evidence only, discuss the factors that are responsible for attracting tourists to the island of Krk.   *[4 marks]*

[1 mark] should be given for a brief discussion of any four of the following factors:
- the sheltered anchorages along the attractive coastline
- the numerous footpaths
- the presence of campsites
- the comparatively easy access from the mainland (bridge, ferry) and from further afield (airport)
- places of cultural interest; ferry links to the mainland
- numerous towns providing services and accommodation (hotels)
- deep water offshore allowing ease of access by boat.

(d)   Compare and contrast the physical landscape of the island of Krk with that of the mainland found in the north and north-eastern part of the map.   *[6 marks]*

The following could be mentioned as factors: the mainland has an NW-SE structural trend not evident on the island (except in the far north of Krk). The island is relatively flat in the north and, though hillier in the centre south-east, no area is over 500 m. The mainland is higher with heights of over 1000 m. There are numerous inlets along the coast of Krk and fewer along the mainland coast. The island has few permanent streams whereas the mainland has the rivers Dubracina and Lepenice. The mainland is dissected by deep valleys whereas the island is not. There is evidence that both areas are made of limestone due to lack of surface drainage on the upland areas. Krk has some marsh and disappearing streams whereas neither of these is evident on the mainland. Mention of contrasts and similarities in the vegetation would also be acceptable. Four factors supported by map evidence should be sufficient to gain full marks, provided both contrasts and similarities are given. Generalised answers without map evidence should not gain more than *[3 marks]*. Candidates who only provide contrasts or only similarities should not gain more than *[4 marks]*.

SECTION B : THE NATURAL ENVIRONMENT

Question 2

Describe and explain the atmospheric conditions that cause rainfall.   *[20 marks]*

Candidates should show awareness of the processes that lead to the formation of raindrops (condensation, sublimation). The importance of condensation nuclei should be included. A maximum of *[4 marks]* should be allocated to this.

Candidates should then proceed to describe the conditions that cause cooling and lead to the formation of clouds and rain, the main ones being: orographic rainfall *[5 marks]*; frontal rainfall *[6 marks]*; and convectional rainfall *[5 marks]*. All of these should be included in a good answer. In each case the processes that lead to precipitation should be clearly outlined and it is unlikely that high scoring explanations would be possible without the use of diagrams, in fact well annotated diagrams might form the bulk of a good answer.

It is expected that the better answers would be awarded *[13 to 16 marks]* in this part of the question and would contain some reference to lapse rates and the development of atmospheric instability.

Question 3

> **With reference to *either* coastal areas *or* areas that have been glaciated:**
> **discuss both the positive and negative impacts of the processes of erosion**
> **and deposition on human use of that area.**   *[20 marks]*

The *[10 marks]* available for each set of impacts need not be allocated equally, but candidates would be required to discuss both positive and negative impacts.

In coastal areas, the positive impacts could include the availability of sand and gravel for construction purposes, the presence of beaches and lagoons for recreational purposes, and of sheltered harbours, the mitigating effect of extensive sand dunes and low-lying coastal grasslands on coastal flooding, *etc*. The negative impacts could include the loss of sand from beaches through longshore drifting, the loss of land through coastal erosion, the silting of navigable channels and the extension of sand deposits in port areas.

Similarly, in glaciated regions, the positive impacts could include the benefits derived from the U-shaped valleys in terms of tourism and communications (especially with fjords), the availability of sand and gravel for construction purposes, the large scale deposition of agriculturally important loess and boulder clay, the exposure of mineral deposits, possibilities for hydroelectricity generation/water storage and the uses of natural lakes. The negative impacts could cover the steep slopes and their impact on agriculture, transport links and the avalanche hazard, the isolation of communities, the unconsolidated deposits making construction more difficult and expensive, the thin infertile soils in lowland glaciated areas and possible drainage problems.

Not all these factors should be needed to obtain full marks but three well detailed impacts for each should be sufficient to score very high marks. Alternatively, candidates may mention a large number of less detailed impacts for very high marks. Examples are not asked for but it is expected that the better answers will include some, though not every impact would need to be illustrated with an example. It would also be difficult to obtain very high marks without the use of some diagrams. Candidates who only discuss one set of impacts should not be awarded more than *[12 marks]*. Candidates who attempt both coastlines and glaciated areas should only be marked on the first of these that appears in their answer.

Question 4

With reference to examples, explain how human activity can affect the discharge of a river.   *[20 marks]*

Candidates should show awareness that human activity can increase or decrease the discharge of a river.

The following could be included in a valid answers:

Increases in the discharge of water:

Changes caused by factors that affect runoff such as urbanisation, removal of vegetation, type/seasonality of agriculture, direction of ploughing, construction of drainage ditches, storm drains, practices leading to soil erosion and the formation of gullies.

Decreases in the discharge of water:

Factors that reduce the amount of water in the channel such as the removal of water for irrigation, dam storage schemes, industrial and domestic uses, diversion schemes (like the Snowy to the Murray), diversion of surface runoff into ground water or soil storage such as with the construction of soil bunds, tied ridges or contour ploughing, the planting of vegetation, the addition of humus to the soil, the presence of cultivation terraces.

These lists are not intended to be comprehensive and all of the points need not be included in a good answer. Do not rigidly award *[10 marks]* for each section of increases / decreases but note that responses scoring high marks would be expected to mention both factors that increase and factors that decrease the amount of water in the channel. Candidates that mention one or the other of the above should still be able to score up to *[14 marks]* for a detailed and well explained though unbalanced answer.

Question 5

**With reference to an example *or* examples, explain how the management
of an ecosystem can help to prevent its degradation *or* destruction.**   ***[20 marks]***

Ecosystems used as examples should be named and located. Up to *[2 marks]* should be available for this. The candidate's choice will determine the content but answers should show an awareness of the structure and functioning of the named ecosystem(s). Up to *[6 marks]* should be available for this. It is expected that the candidate will refer to a relatively small ecosystem such as an area of wetland or forest. Answers that refer to whole biomes such as the rainforest should only be treated as valid if small, specific, named areas of rainforest are discussed, otherwise no more than *[12 marks]* in total should be available since a whole biome cannot be managed.

The approach may vary from looking at a damaged ecosystem and the methods used to restore it, to a threatened ecosystem where intervention prevents further degradation, or an undamaged ecosystem where careful management is designed to prevent initial degradation. In any case, candidates should clearly indicate the management techniques employed and their effects on the ecosystem. *[12 marks]* should be available for management techniques.

Answers that do not refer to named ecosystems or that simply discuss management techniques in general without applying them to an actual ecosystem should not be awarded more than *[10 marks]*.

SECTION C

Question 6

Define what is meant by *sustainable resource management* and, with reference to examples, explain why this approach is so important.   *[20 marks]*

Candidates should show an awareness of the concept of sustainable use of resources. Up to *[4 marks]* should be awarded for a good definition.

The best answers will focus on a limited number of examples. Candidates who do not refer to examples but discuss resource management in general should not be awarded more than *[10 marks]*. Candidates who only choose one example should not gain more than *[14 marks]* and even then, a detailed example would be required. Answers should refer to the consequences of not managing resources in a sustainable manner (*e.g.* environmental pollution, dwindling reserves, shortages such as fuelwood, soil erosion, increased flood risk *etc*.) and the benefits of sustainable management in terms of current and future resource provision and the benefits to the environment. Candidates may achieve up to *[15 marks]* by only looking at either the consequences of poor management or the benefits of sustainable management, but to gain the highest marks, both of these should be examined in some measure.

Good answers should refer to specific named and located examples of sustainable resource management rather than just referring to, for example, solar or wind energy in general vague terms. Where nonrenewable resources are used as examples, reference to the concepts of conservation and recycling could be included.

Question 7

"Issues (matters) about future resources should not be concerned with increased demand for resources but with conservation and efficient use of supplies."

With reference to examples of resources, discuss the extent to which you agree *or* disagree with this statement. *[20 marks]*

The focus of this question could be about the apparent need for more and more resource exploitation as the world's population increases, more countries industrialise and demand grows. Some of the issues that result from the need to meet this increased demand from limited supplies should be mentioned, such as: the search for new supplies in ever more remote areas, the allocation of resources between LEDCs and MEDCs, rising prices as supplies dwindle, the effects of increased demand and use of resources on the environment, potential political/military conflicts over, for example oil and water supplies.

The focus, equally legitimately, could be about conservation and the efficient use of supplies. Such an approach would also have to recognise the growing demand, but the emphasis would be on management techniques which do not respond to the growing demand simply by increasing production.

Answers should refer to a growing awareness of the limited nature of supplies and the efforts made at local, national and international levels to use resources more efficiently and hence conserve supplies.

Resource examples should be used to illustrate this, for example, energy resources, where great strides have been made in MEDCs to improve energy efficiency in homes, industry, transport systems. Examples of how resources are being used more efficiently should be stated.

Candidates should attempt to present an argument that balances the issues resulting from increased demand with those relating to more efficient use and conservation of supplies, with detailed reference to valid resources in order to gain marks in the range *[17 to 20 marks]*.

Answers that do not address both of these should not be awarded more than *[12 marks]*.

Answers that do not refer to examples of resources should not be awarded more *[10 marks]*.

Answers that concentrate on one resource only should not be awarded more than *[15 marks]* and should only reach this level when the example is well illustrated.