



**2007 Geography**

**Higher – Physical and Human Environments**

**Paper 1**

**Finalised Marking Instructions**

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## Instructions to Markers: General Notes

### Procedure before Markers' Meeting

You are asked to make yourself familiar with the question paper and the marking instructions. Marking of scripts at this stage should be only tentative and none should be finalised or returned. Please note any point of difficulty for discussion at the meeting.

### Marking

- 1 The maximum mark for Paper I is 50. Markers are encouraged to use the whole range of marks and to give a high assessment for an answer of high quality.
- 2 The total marks assigned by you for each complete question should be entered in the outer right-hand margin of the answer book. When a question consists of more than one part, the marks assigned to each part **MUST BE SHOWN SEPARATELY** in the column provided on the inner right-hand side of the book.

It is of great importance that the utmost care should be exercised in adding up the marks. Where appropriate, all summations for totals and grand totals must be carefully checked. Where a candidate has scored zero marks for any question attempted "0" should be shown against the answer.

The TOTAL mark for any paper as recorded in the box at the top right-hand corner on the front cover of the script, and as entered on Form Ex6, must be given as a WHOLE NUMBER. Where a fractional mark has been given in a total mark, you must round up the total mark to the next whole number. Thus if the candidate gains, say, 29  $\frac{1}{2}$ , the mark 30 should be entered in the box on the front of the script AND ON FORM EX6.

- 3 It is helpful in later procedures if points receiving marks are clearly indicated. In general a  $\frac{1}{2}$  mark should be awarded for a short correct statement with a full mark being awarded for a developed point.
- 4 All mistakes **MUST** be underlined in red pen. A wavy line (~~~~~) should be used for something that is not quite right, a single line (-----) for mistakes which, though not very serious, are undoubtedly wrong, and a double line (=====) for gross blunders. These corrections are valuable when borderline cases and appeals are being considered. Where a page shows neither a correction nor a mark, a red tick **MUST** be placed at the bottom right-hand corner.
- 5 The marker should take the candidate's answers strictly as they are written; no attempt should be made to read into answers ideas which the candidate may have intended to convey but which have not been successfully conveyed. A caret ( $\lambda$ ) should be used to indicate an important omission. A question mark (?) should be used to indicate that the marker cannot understand the meaning intended. The letter "R" should be used to indicate that the candidate is repeating something already stated in the answer.
- 6 Care should be taken that no credit whatsoever is given to irrelevant parts of answers, however accurate the irrelevant passages may be. Irrelevant passages should be square-bracketed [ ].

It should be noted, however, that a fact or argument which is irrelevant in one candidate's answer may be made quite relevant by another candidate who has the ability to connect it to the question.

## Atmosphere

### Question 1

- (a) Air Mass A: Tropical Continental or cT  
Origin: Over the Sahara Desert (ie large land mass in tropical latitudes)  
Nature: Warm, dry, stable air
- Air Mass B: Tropical Maritime OR mT  
Origin: Over Atlantic Ocean (Gulf of Guinea) in tropical latitudes  
Nature: Warm, moist, unstable air

Allow half a mark for each correctly named air mass, origin and nature. Candidates who incorrectly name (or omit the name) of the air mass can still gain credit for the correct origin and/or nature of the air mass.  $2 \times 1\frac{1}{2}$

**3 marks**

- (b) Description should be able to focus on the marked contrasts in rainfall amounts between a very dry north (with only 250 mm per annum) and a much wetter south (where some coastal areas receive over 2000 mm per annum) as shown on the map provided. Candidates could also refer to the graphs and note the variations between the three stations with Tombouctou in the north and Jos “in the middle” experiencing obvious wet and dry seasons whilst coastal Lagos in the south has a vastly greater annual rainfall total, no dry months and a “twin peak” regime.

Explanation ought to concentrate on the role of the I.T.C.Z and its associated Tropical Maritime air mass (warm, moist and unstable) and Tropical Continental air mass (warm, dry and stable). For example, Lagos – on the coast of the Gulf of Guinea – is influenced by warm moist T<sub>m</sub> air for most of the year. This accounts for its much higher annual rainfall total. The twin rainfall peaks can be attributed to the I.T.C.Z migrating northwards and then southwards again later in the year, following the overhead sun or thermal equator. Tombouctou, in contrast, lies well to the north of the I.T.C.Z in January and is under the influence of the hot, dry T<sub>c</sub> air from the Sahara Desert. In May/June the I.T.C.Z. moves north bringing moist T<sub>m</sub> air and rainfall to Jos and, to a much lesser extent, Tombouctou which lies closer to its point of maximum extent.

**Assess out of 6 allowing up to 4 marks for either description or explanation. Take care not to credit description already credited in part (a).**

**6 marks**

## Hydrosphere

### Question 2

(a) Descriptions may include the following points:

- meanders, ox-bow lakes, tributaries, cut offs, small pools
- broad flat floodplain, alluvium, gently sloping valley sides
- height of land and easterly flow of river could also be credited
- braiding
- islands or eyots (806533)
- river terraces.

**5 marks**

**Up to 1 mark for specific map evidence ie grid references or names.**

(Maximum 1 mark for repeated references to same feature (eg Meander/ tributaries/confluences/direction of flow etc)

(b) For the selected feature the explanation should include 4 well developed points, all of which could be included in a well annotated diagram.

For example for a meander:

- development of pools and riffles (differences in speed and depth)
- erosion on the outside (concave bank) of bends due to faster flow
- helicoidal flow removes material
- deposition on the inside (convex bank) of bends due to slower flow and formation of point bars
- migration of meanders downstream.

**Answers without diagrams should be marked out of 3.  
(max 2 for erosion processes eg hydraulic/abrasion etc)**

**4 marks**

## Population Geography

### Question 3

- (a) Candidates ought to be able to mention such ways as census taking and compulsory registration of births and deaths. Some may include a mini or sample census (eg Britain carried out a 10% sample census in 1966) or government sponsored sample surveys (eg General Household Survey or Population Trends and Social Trends).

A reasonably detailed description of a census or census taking without reference to Civil Registration could score 3 marks, eg:

- a regular count (every 10 years in U.K.) of the population which allows comparisons to be made over time
- responsibility of each household to complete census form given out by enumerator who collects them and checks that all individuals are recorded
- a range of questions are asked designed to elicit information on individuals (age, occupation, qualifications, ethnic origins etc) and on living conditions and lifestyle (housing type, tenure, car ownership etc)
- government agencies process the data collected and make it available for interested parties
- electoral roll can update between one census and another.

**3 marks**

**Assess out of 3.**

- (b) (i) Difficulties affecting data collection in **ELDC's** might include:
- large numbers of migrants (eg nomadic peoples such as the Tauregs or Fulani in West Africa or shifting cultivators in the rainforests of the Amazon; rural-urban migration; refugees from civil war or natural disasters) are difficult to keep track of
  - significant proportions of homeless people – eg shanty or street dwellers who have no official or permanent address
  - the variety of languages spoken in many countries (eg Nigeria, China, India – over 1 billion people, 15 official languages and 1650 dialects!!)
  - poor communication links; difficult terrain; scattered or isolated villages
  - the sheer size of many countries (eg China, India, Brazil; Indonesia with its 13,677 Islands spread over 5,100 kilometers!)
  - the considerable costs involved (eg training enumerators, printing and distributing forms) impose a huge financial burden on many debt-ridden ELDC's.

(b) (ii) The reliability of data obtained may be affected by such factors as:

- higher levels of illiteracy will mean that forms are not filled in or will be completed incorrectly
- suspicion and distrust of officials in authority might lead to false answers being given as might resentment at particularly sensitive questions or those open to misrepresentation
- ethnic tensions and internal political rivalries have affected census accuracy in some countries – eg states in northern Nigeria have been known to inflate their population figures to secure increased political representation
- under-registration may occur for social and religious reasons. Reliable sources have quoted Jordanian males as stating on being asked their family size “two children and three girls”!
- China’s One Child Policy must have encouraged many families to be economical with the truth! In China many female births are not registered and female infanticide has been widely reported.

**Assess out of 6 ensuring that both aspects of the question have been covered for full marks. Note that some candidates will provide a ‘composite’ response. Credit should be given for appropriate illustration of points made such as named examples – up to a max of 1.**

**Avoid double credit of the same point in both (b) (i) and (ii).**

**6 marks**

## Industrial Geography

### Question 4

- (a) Answers will vary and will be determined by the industrial concentration chosen. For South Wales answers might include:

- iron ore provided the raw material for early ironworks
- coal mining saw South Wales emerge as a major industrial centre of the Industrial Revolution
- limestone was also found locally for the iron and steel works in the valleys
- large seams of coal were easily mined from the valley sides and from below the valley floors
- routeways could follow the valleys leading down to coastal ports like Cardiff
- Cardiff and Swansea developed ports around their natural bays for export of coal and manufactured goods around the world
- the British Empire provided a huge and protected market for coal and steel products from British industrial areas such as South Wales
- labour supply was provided by people migrating from rural Wales and surrounding areas of rural England.

**Up to 1 mark for named examples which are made relevant.**

**Assess out of 4 marks with maximum 3 marks for either physical or human factors.**

**4 marks**

- (b) Answers will vary and will be determined by the industrial concentration chosen. For South Wales, steps taken to attract new industries and inward investment might include:

- creation of Enterprise Zones (Swansea, Milford Haven) and their associated benefits
- designation of Development Area status for old coal mining areas
- setting up of Welsh Development Agency (WDA) in 1976, to attract high quality investment into Wales
- Urban Development Corporation (UDC) in Cardiff and its associated benefits
- construction of New Town, Cwmbran (1949)
- relocation of specific government offices, eg DVLA in Swansea
- encouraging inward investment from abroad, eg Sony, Bosch, Lucky Goldstar
- EU (creation of EU itself provides huge European market for goods)
- joining EC (EU) opened up a huge source of funds available to outlying areas – ERDF (European Regional Development Fund), EIB (European Investment Bank), ESF (European Social Fund) etc and their associated benefits
- improved infrastructure – the Heads of the Valleys Road.

**Assess out of 5 marks, allowing up to one mark for appropriate named examples – made relevant.**

**5 marks**

## Lithosphere

### Question 5

(a) Evidence might include references to:

- deep U-shaped valley
- truncated Spurs
- corries with Corrie Lochs
- flat plateau surfaces
- misfit stream
- arêtes
- pyramidal peak
- hanging valley.

**References might also be made to general characteristics of the landscape – bare rock surfaces and steep slopes.**

**List of features no elaboration – max 2**

**Assess out of 3.**

**3 marks**

(b) Glacial erosion features which could be chosen would include:  
U-shaped valley, arête, hanging valley, truncated spur, corrie.

Answers which fail to make use of diagrams should score a maximum of 3.  
Sufficiently well annotated diagrams should be able to score full marks.

In explaining the formation of a U-shaped valley, for example, candidates could refer to such points as:

- the build up of snow and ice during the Ice Age(s) caused valley glaciers to move downhill under gravity from their source in the mountains (corrie glacier) following existing (V-shaped) river valleys
- the huge weight/volume of ice combined with processes such as plucking, abrasion and rotational sliding widened and deepened these valleys
- as the valley glacier advanced it abraded the former interlocking spurs leaving truncated spurs and steepened the sides of the valley/glacial trough
- the resulting U-shape of the valley left behind when the ice melted and disappeared may vary according to rock hardness and the intensity of erosion
- the U-shape of the valleys shown in this photograph have been masked in cross-section by later deposition of moraine, scree and alluvial material on their lower slopes.

**Assess out of 4.**

**Maximum of 3 for erosion processes.**

**4 marks**

## Biosphere

### Question 6

(i) For one soil, candidates should describe at least 3 out of the 4 characteristics. For example for a podzol candidates could mention:

- clearly defined horizons and iron pan
- raw acid humus layer, A – ash-grey layer, B – red/brown layer
- A – a sandy texture, B – a denser texture
- A – leached
- Iron pan in B – impedes drainage and causes waterlogging.

**3 marks**

(ii) The following features could be included for a podzol.

- Climate – precipitation exceeds evaporation leading to leaching and cool temperatures hinder the breakdown of plant litter.
- Natural Vegetation – coniferous forest provides a plant litter of needles and cones and develops a mor/acidic humus.
- Soil Organisms – limited soil biota and slow activity due to cool climate restricts mixing of soil and creates distinctive horizons.
- Relief and drainage – higher ground reduces temperatures, and the downward movement of water leads to leaching, and the formation of an iron pan.
- Parent material – may be fluvioglacial sands or till or acidic parent rock which determines the nature of the C horizon.

**At least 3 of the factors should be mentioned for full marks.**

**If a composite answer given – assess out of 6 with a max of 3 for description and a max of 4 for explanation.**

**4 marks**

## Rural Geography

### Question 7

(a) Main characteristics of shifting cultivation might include:

- clearings are made in the rainforest by cutting down and burning trees
- largest trees and some fruit-bearing trees may be left for protection/food. Some are too difficult to remove
- the 'cultivation' part refers to the practice of growing crops in the clearing, using ash from the tree-burning as fertiliser
- nutrient levels drop quickly due to heavy rains and lack of further fertiliser
- the 'shifting' part refers to the practice of moving to another clearing as the soil becomes exhausted
- system is labour intensive and only supports low densities of population
- subsistence way of life
- hunting and gathering.

**A mere list should score a maximum of 2.**

**Assess out of 3 marks.**

**3 marks**

(b) Impacts might include:

- area of rainforest for shifting cultivators is reducing due to cattle ranching, mineral extraction, logging etc
- indigenous population is being forced into inaccessible areas which are often less fertile and on to reservations
- some shifting cultivators move away, (causing rural depopulation) to shanty towns surrounding large urban areas
- contact with Western cultures can bring disease
- population density increases in remaining areas, putting more strain on limited land, leading to
- fallow period decreasing with time. If fallow period too short, abandoned clearing will revert to unproductive grassland, not secondary forest
- soil fertility decreases with time and so
- output per hectare decreases with time
- soil erosion can take place – soil washed into rivers choking rivers reducing wildlife for shifting cultivators
- therefore system cannot support increasing population
- loss of wildlife habitat/biodiversity
- fewer trees/less O<sub>2</sub> – more CO<sub>2</sub> → Global Warming.

**Assess out of 4 marks, giving credit up to 1 mark for using named examples.**

**Max 3 for global environmental factors.**

**4 marks**

## Urban Geography

### Question 8

- (a) The following characteristics may be noted:

Area A

- Grid iron street pattern.
- Transport centres eg bus station, railway station.
- Bridging point.
- Important buildings eg cathedral, museum, churches, information centres.
- Congested urban landscape with many small streets and higher buildings.

Explanations may refer to accessible location, crossing point on river and early ecclesiastical function.

Accept defensive function if linked to The Commandery

**4 marks**

**Assess out of 4 marks with up to 3 for description.**

- (b) The advantages of the residential environment may include:

Area B (suburban housing area)

- Access to motorway/A class roads for commuting eg M5 and A4538.
- Well designed road system with roundabouts for free flow and cul-de-sacs for safety and privacy.
- Pleasant environment with woodland and open spaces.
- Services available including churches and nearby schools.
- Leisure facilities including a golf course.
- Less densely populated compared to centre.
- Probably detached or semi-detached housing.

Area C (Callow End)

- Quiet commuter village.
- 5 kilometres from CBD.
- Village services including post office, pub, 2 churches.
- Surrounded by countryside including farmland and orchards.
- B4424 goes through village and connects with A449 into Worcester.
- Probably a variety of old and new rural housing.

**Assess the explanations out of 3 marks.**

**3 marks**

[END OF MARKING INSTRUCTIONS]