GEOGRAPHY   **0460/13**

Paper 1   **October/November 2016**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **16** printed pages.

CAMBRIDGE
International Examinations   **[Turn over**

1 (a) (i) The average number of people who live in a unit of area

1 mark [1]

(ii) 17 363 894 divided by 756 102 (1 mark)

22.9/ 22.965/22.97/23/23.0

2 marks [2]

(iii) Ideas such as:
- lack of water/low rainfall/dry/arid/no reliable water supply;
- people cannot survive without water/suffer dehydration;
- cannot grow crops/irrigate land/produce food/cannot graze animals easily;
- too hot during the day and cold at night/intense heat/high temperatures makes it uncomfortable to live there;
- remote/inaccessible/hard to get to;
- lack of jobs/raw materials;
- poor soils/only sand/infertile soil;
- sand storms;
  etc.

3 @ 1 mark [3]

(iv) such as:
- port development on coast;
- provides trade links/coastlines allow imports/exports of goods;
- industry develops at port/harbour/or example, e.g. fishing/power stations;
- landlocked countries are not as easily accessible/ferries/transport routes to other countries;
- climate may be moderated by ocean/more extreme inland/it is cooler/wetter on the coast;
- tourism/beaches for tourists;
- need for landlocked countries to travel through neighbouring countries to get to coast/if on coast do not have to pass through other countries;
  etc.

  No need for comparison. Answers can relate to coastal countries or landlocked (assume coastal if not stated). No double credit.

4 @ 1 mark [4]

(b) (i) Ideas such as:
- uneven distribution;
- located on coast;
- around estuaries/bays/Fjords;
- major area in South West;
- in North and West;
  etc.

3 @ 1 mark [3]

© UCLES 2016

https://xtremepape.rs/

    (ii) Ideas such as:
- close to Arctic Circle;
- long winters/short summers;
- cold weather/snow/ice;
- hard to grow crops;
- bare rock/thin soils/large boulders;
- mountains/hills/high/steep/rugged/not flat land/ravine/steep valleys;
- isolation/remoteness;
- difficult to build good roads/difficult to travel/lack of transportation/poor communications;
- volcanic activity/volcano/geysers;
- forested;
  etc.

    5 @ 1 mark or development   [5]

(c) Levels marking

Level 1   (1–3 marks)
Statements including limited detail which explain why people are migrating to urban area.

Level 2   (4–6 marks)
Uses named example.
More developed statements which explain why people are migrating to urban area.

(Note: Max 5 if no named or inappropriate example)

Level 3   (7 marks)
Uses named example.
Comprehensive and accurate statements including some place specific reference.

Content Guide:
Answers are likely to refer to:
- employment
- health care
- education
- 'bright lights'/entertainment
- sanitation
- water supplies
- utilities/electricity;
- food supplies, etc.

Whilst the focus is on the urban areas candidates could explain by references to what is driving them there – i.e. rural pushes – but no double credit.

Place specific reference is likely to consist of:
Named parts of the chosen urban area/locational detail,
Population data, etc.

Can be LEDC or MEDC

                                                [7]

[Total : 25 marks]

2 (a) (i) Kreuzburg…..Charlottenburg….Hellersdorf
           All 3 needed

           1 mark   [1]

       (ii) On map
             • Marzahn = dots
             • Tempelhof = horizontal lines

             2 @ 1 mark   [2]

       (iii) Ideas such as:
             • Uneven distribution;
             • Great<u>er</u> percentage close to centre;
             • E.g. Kreuzberg/Prenzlauerberg 21–25% (highest) **whereas**
               Spandau/Kopenick/Tempelhof/Hellersdorf/Hohenschonhausen/
               Reinickendorf/Lichtenberg/ Wedding/Marzahn less than 10% (lowest);
               OR any statistic comparing the central area with the outer area not using names of
               areas, e.g. mainly 20% and above in the centre and 6–10% on the edges; etc.
             • Low<u>er</u> percentage in outer areas/edge of city/suburbs;
             • Especially NW/SE;

             Note: Reserve 1 mark for comparative statistics.

             3 @ 1 mark   [3]

       (iv) Advantages such as:
             • reduces amount of vehicles being used/reduces traffic jams;
             • no need to use large parking areas;
             • no/less emissions/air pollution/smog/haze/fumes;
             • not using fossil fuels;
             • low cost method of transport/cheaper;
             • healthy/exercise/breathing problems reduced;
             • no noise pollution;
             • can fit more on roads;
             • get to places quicker;
               etc.

             4 @ 1 mark   [4]

    (b) (i) Ideas such as:
             • increase in use of cars;
             • decrease in use of buses;
             • use of statistics to back up one of above points (max 1) cars were 19/20 in 1990 and
               26/27 in 2010/buses were 35/36 in 1990 and 24/25 in 2010/ (can accept increased
               or decreased by cars is 6, 7 or 8% buses is –10 or –11% or 12% depending on
               statistics used);
             • in 1990 they used more buses than cars but in 2010 they used more cars than
               buses;
             • in 1990 35/36 buses compared with 19/20 cars but in 2010 26/27 cars compared
               with 24/25 buses;

             3 @ 1 mark   [3]

(ii) Ideas such as;
- more bus routes can be created; so each part of the city has a route going out of it (dev);
- more frequent services bus/rail;
- more railways built;
- development of metro/tram network/underground/monorail;
- creation of park and ride;
- bus only lanes/taxi lanes;
- ferries;
- electronic ticketing, e.g. Oyster card idea;
- bigger buses/longer/more carriages on trains;

etc.

Note: Ideas must be ways of developing public transport rather than encouraging people to use it. Development must be a description of how it is developed.

5 @ 1 mark or development [5]

(c) Levels marking

Level 1   (1–3 marks)
Statements including limited detail which describe the impacts of urban sprawl.

Level 2   (4–6 marks)
Uses named example.

More developed statements which describe the impacts of urban sprawl.
(Note: Max 5 if no named or inappropriate example)

Level 3   (7 marks)
Uses named example.
Comprehensive and accurate statements, with some place specific reference.

Content Guide:
- Answers are likely to refer to:
- Deforestation/loss of vegetation/loss of farmland;
- Impacts on ecosystems/food chains;
- Traffic congestion;
- Atmospheric pollution;
- Water pollution;
- Noise pollution;
- Visual pollution;
- House prices increasing/land values;
- Growth of shanty towns;
     etc.

Place specific reference is likely to consist of:
Locational details,
Specific details of transport/communication network,
Named businesses, etc.

Note: Can be LEDC or MEDC. Impacts must be about urban sprawl not just urban areas in general, e.g. unemployment/crime. Ideas can be positive or negative.

[7]

[Total : 25 marks]

3 (a) (i) Volcanic eruption/Volcano

1 mark [1]

(ii) Droughts cause <u>more</u> deaths than floods;
Floods have <u>greater</u> financial cost than drought

Note: Must be comparative.

2 @ 1 mark [2]

(iii) Ideas such as:
- destruction of or damage to buildings/settlements/need to rebuild homes;
- damage to/need to repair roads/railways/bridges;
- businesses/factories/shops damaged/destroyed;
- loss of production from industry/people lose their jobs;
- damage to possessions/cars/property;
- damage/loss of water/electricity/gas supplies;
- damage to named specific building, e.g. schools/hospitals
- cost of medical care;
- harbour/airport destroyed or damaged/cannot export or import goods;
- cost of providing emergency food/shelter/water;
- cost of clean-up operation (e.g. removing rubble);
  etc.

3 @ 1 mark [3]

(b) (i) Ideas such as:
- in South East Asia;
- in Indonesia;
- on Sumatra;
- North/north west part of Sumatra;
- North west of Jakarta;
- 800 – 1000 km from Jakarta;
- Distance or direction from Kalimantan or Java; (Max 1)
  etc.

3 @ 1 mark [3]

(ii) Ideas such as:
- warning usually given before eruption/can be predicted/they are monitored;
- lava moves slowly/lava doesn't flow in all directions;
- people have time to evacuate/evacuation centres/evacuation routes; etc.
- examples of precautions, e.g. artificial channels to take lava away/wear gas masks;
- education about what to do;
- mainly ash that erupts high in the sky so less likely to cause many deaths at ground level;
  etc.

4 @ 1 mark [4]

(iii) Ideas such as:
- Tourism/scenic beauty/examples of jobs in the tourist industry (dev);
- mining/mineral exploitation;
- building materials;
- fertile soils/agriculture; so they get high yields of crops (dev);
- geothermal power; so they get cheap/free power (dev);
- cannot afford to move;
- don't want to leave work/school;
- friends/family in area;
- willing to take the risk/they erupt infrequently;
- confidence in prediction/protection;
- hot springs;
- religious/cultural significance;
  etc.;

5 @ 1 mark or development (one development point per line). [5]

(c) Levels marking

<u>Level 1</u>   (1–3 marks)
Statements including limited detail which describe causes of volcanic eruption.

<u>Level 2</u>   (4–6 marks)
Uses named example.

More developed statements which describe causes of volcanic eruption.

 (Note: Max 5 if no named or inappropriate example)

<u>Level 3</u>   (7 marks)
Uses named example.
 Comprehensive and accurate statements including some place specific reference.

<u>Content Guide:</u>
Answers are likely to refer to:
Plate movement,
Subduction,
Creation of magma,
Build up of pressure,
Lines of weakness, etc.

<u>Place specific reference is likely to consist of:</u>
Locational details,
named plates,
date/Richter scale reading, etc.

[7]

[TOTAL 25 marks]

4 (a) (i) 5300–5600 kms

1 mark [1]

(ii) close to/on and around Tropic of Cancer/23.5 °N
North Africa;
Any 3 of Mauritania/Mali/Algeria/Niger/Libya/Egypt/Sudan/Chad

2 @ 1 mark [2]

(iii) Describe:
- Hot in summer/July or Jan (Nth or Sth hemisphere);
- cooler in winter/Jan or July (Nth or Sth hemisphere); ;
- summer average around 30 °C–40 °C/temperature up to 50 °C;
- winter average around 15–20 °C/temperature can go as low as 0 °C or below;
- 250 mm of rain or less; etc.
- High diurnal temperature range/hot during the day and cold at night;

- Hot and dry/low rainfall/arid conditions = 1 mark

3 @ 1 mark [3]

Explain:
- Overhead sun/high angle of sun in summer/direct sunlight;
- Clear skies/lack of cloud cover;
- High atmospheric pressure;
- Descending air;
- Little evaporation of moisture/little transpiration;
- no condensation;
- winds blow over large areas of land/they are mainly inland so winds are dry;
- rain shadow effect (or description);
- cold ocean current;
  etc.

4 @ 1 mark [4]

(b) (i) Ideas such as:
- steep/vertical slopes/cliffs;
- mainly bare rock;
- jointed rock/cracks;
- small rocks/scree/loose deposits at base of steep slope;
- forms 45 degree angle;
- scattered/sparse vegetation/barren;
- short/small/low plants/little trees;
- shrubs/ bushes;
- orange/red/brown/rust coloured rock;
- layers/sedimentary;
  etc.

3 @ 1 mark [3]

   (ii) Ideas such as:
   - Seeds/plants remain <u>dormant</u> during long dry spells/when it doesn't rain;
   - Only flowering for a short period of time after rain;
   - Waxy leaves;
   - Narrow/spiky leaves/small leaves;
   - Tap roots/long roots;
   - Wide spreading roots;
   - Some plants/cacti store water;
   - Light colour; to reflect sunlight (dev)
   etc.

   5 @ 1 mark or development   [5]

(c) Levels marking

Level 1   (1–3 marks)
Statements including limited detail which describe the characteristics of mangrove swamps and/or explain why they form in some areas.

Level 2   (4–6 marks)
More developed statements which describe the characteristics of mangrove swamps and/or explain why they form in some areas.

Level 3   (7 marks)
Comprehensive and accurate statements which describe the characteristics of mangrove swamps and explain why they form in some areas.

Content Guide/for information:
Mangroves swamps are areas of vegetation found along sheltered tropical coastlines and estuaries between 32 °N and 38 °S where there is a large area between high and low water mark. They are made up of different species of evergreen mangrove trees and other plants. Mangroves need to live in salty water as they are halophytes. They only grow in areas where the temperature remains above 20 °C and the seasonal temperature range should not exceed 5 °C. The areas where they grow should be calm with no strong waves or tidal currents.
Mangrove trees are able to withstand being covered twice a day by saltwater. They have specially adapted aerial and salt filtering roots and salt excreting leaves that enable them to occupy the wetlands where other plants cannot survive. They prop the tree up with their prop roots and take in oxygen at low tide with their aerial roots.
Mangroves are the home to a diverse number of species including fish, birds, frogs, snakes, insects and crocodiles. Mammals also live in these areas, ranging from small animals like swamp rats and monkeys to large carnivores like tigers. (Mangroves protect coastlines from erosion by acting as a natural barrier and flood defence).

Characteristics:
- Muddy;
- Tidal;
- Trees/bushes;
- Tropical
- Shallow
- Many different species of trees/prop roots/aerial roots;
- Prefer a large tidal range
- Prefer little undercurrent tidal action
No: Place specific reference is not needed as this is not a case study.

[7]

[Total : 25 marks]

5 (a) (i) Hotel and camping

Both needed for 1 mark

1 mark [1]

(ii) • work in hotel (or example of job);
• taxi driver;
• tour guide;
• worker in Tourist Information Centre;
• worker in souvenir shop;
   etc.

2 @ 1 mark [2]

(iii) Attractions such as:
• Lake/<u>inlet</u> of sea/fjord/river;
• Steep slopes/cliffs/mountains/hills/valley;
• waterfalls;
• forests/woodland;
• Green/blue water;
• Snow;
   etc.

3 @ 1 mark [3]

(iv) Ideas such as:
• seasonal employment;
• <u>traffic</u> congestion;
• noise;
• litter/large amount of waste produced;
• loss of culture;
• loss of farmland;
• disruption to fishing;
• streets get crowded/overcrowded/congested;
• increased prices of products/locals pay more for products;
• people disturb farm animals/walk across farmland/leave gates open;
   etc.

4 @ 1 mark [4]

(b) (i)
- Increased overall/between appropriate years, e.g. 97/98/2001–2007;
- Decreased between appropriate years, e.g. 95–97/98–2001;
- Statistic mark must give 2 stats, e.g. from 2.9 m in 1995 to 5 m in 2012 or overall change, e.g. 2.1 m;

Reserve 1 mark for paired statistics to illustrate changes to MAX 1 allow tolerance of 0.1 each way on stats. Must include unit of 'millions/m' at least once in answer, etc.

3 @ 1 mark [3]

(ii) Ideas such as:
- attracts foreign exchange;
- provides employment/people can earn money; such as (dev);
- money spent in local businesses; e.g. souvenir shops (dev);
- money earned by hotels;
- creates multiplier effect;
- building of roads/railways;
- improved access within the country;
- improvement of airports;
- enables better links with other countries;
- attracting further investment;
- improvement of utilities;
- water/electricity/gas supplies extended;
- tax to government;
- more goods and services are produced; therefore increasing GDP (dev);
  etc.

5 @ 1 mark or development [5]

(c) Levels marking
Level 1   (1–3 marks)
Statements including limited detail which describe an economic activity and/or explain how it is threatening the local natural environment.

Level 2   (4–6 marks)
Uses named example.

More developed statements which explain how the chosen economic activity is threatening the local natural environment.

(Note: Max 5 if no named or inappropriate example)

Level 3   (7 marks)
Uses named example.
Comprehensive and accurate statements, which explain how it is threatening the local natural environment, including some place specific reference.

Content Guide:
Answers could refer to any economic activity but are likely to refer to;
• Manufacturing industry
• Tourism,
• Mining or quarrying,
• Agriculture,
• Generation of electricity,
• transport
        etc.

Answers are likely to refer to impacts on;
• Flora/vegetation;
• Fauna/wildlife,
• Ecosystems/Food chains;
• rivers/streams;
• atmosphere
• acid rain
        etc.

Place specific reference is likely to consist of:
Specific details of economic activity,
Locational details/named settlements, etc.

[7]

[Total : 25 marks]

6 (a) (i) Market gardening/dairy farming

1 mark [1]

(ii) Subsistence – produce used by farmer/family/tribe
Commercial – produce is sold

2 @ 1 mark [2]

(iii) Nomadic herding

Dairy farming

(Commercial) Mixed farming

3 @ 1 mark [3]

(iv) Ideas such as:
- they can make more profit/income/money;
- they produce higher yields/more per hectare;
- (they only have) small areas of land/don't need much land;
- they can afford to buy fertilisers/machines/equipment;
- they have access to many workers;
  etc.

4 @ 1 mark [4]

(b) (i) Processes such as:
- feeding of animals/pigs/ducks;
- digging/ploughing land;
- planting seeds/planting trees/orange trees/sugar cane;
- harvesting crops;
- spreading manure/fertiliser/fertilising the land;
  etc.

3 @ 1 mark [3]

(ii) Ideas such factors such as:
- Adequate temperatures for growth of crops;
- Sunshine for ripening crops;
- Sufficient rainfall for growth;
- Soils fertile enough to grow crops;
- Gentle slopes for cultivation/grazing
- Availability of local markets for products;
- Wealth of farmer/availability of capital for inputs;
- Availability of labour supplies;
- Tradition/culture;
- Level of education of farmers;
- Government policy/subsidies/quotas;
- Source of water for irrigation/source of water for ducks/fish;
- Land fragmentation;
  etc.

5 @ 1 mark or development [5]

(c) Levels marking

Level 1   (1–3 marks)
Statements including limited detail which describe the causes of food shortages.

Level 2   (4–6 marks)
Uses named example.

More developed statements describe the causes of food shortages.

(Note: Max 5 if no named or inappropriate example)

Level 3   (7 marks)
Uses named example.
Comprehensive and accurate statements, including some place specific reference.

Content Guide:
Answers are likely to refer to:
- Drought
- War
- Poverty
- Poor distribution network
- Production of cash crops
  etc.

Place specific reference is likely to consist of:
Locational details;
Specific details of area affected,

Could be a country or region, e.g. Sahel/Darfur.

[7]

[Total : 25 marks]