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.
1 (a) (i) South Korea….China….Italy  
Correct order needed  [1 mark]  [1]

(ii) Decrease = Japan/Germany/Poland/Russia  
Highest rate of growth = India  [2 @ 1 mark]  [2]

(iii) Ideas such as:
- No abortion available;
- little availability of/people don’t use contraception/family planning;
- not educated re. contraception/impact of population growth/family planning;
- not likely to be able to afford contraception;
- want children to work/earn money (or example);
- want children to look after parents in old age;
- want children to look after younger siblings/do domestic chores;
- no government policy to reduce family size;
- have large families due to tradition/status;
- have large families due to religious influences;
- high infant mortality rate/have greater number of children in the
  hope some will survive;
- polygamy;
- women marry at young age;
- women do not have careers;
- keep having children until boys is born to carry on family name;
- desire for girl children to obtain dowry money  
  etc.  [3 @ 1 mark]  [3]

(iv) Ideas such as:
- people do not have enough resources/raw materials;
- lack of fuel/power (or example such as electricity);
- lack of work;
- poverty/people cannot afford (specified items, e.g. education, houses, etc.);
- inadequate food supplies/starvation/famine/lack of space for agriculture;
- poor access to education;
- poor access to health care/lack of hospitals;
- high levels of disease/high death rates/low life expectancy/high IMR;
- lack of/overcrowded housing/not enough space for housing/people live
  in/growth of squatter settlements;
- atmospheric/water pollution;
- inadequate water supply;
- lack of sanitation,
- overcultivation;
- overgrazing;
- disputes over agricultural land/places to live;
- traffic congestion;  
  etc.  [4 @ 1 mark]  [4]
(b) (i) Increasing proportion of 65+/old dependents/old people/people living longer; Decreasing proportion of 0–19/children/young people/young dependents; Increasing proportion of 20–64/economically active/adults; Supporting statistics, e.g. 5% over 65 in 1950 likely to be 16% in 2050 /3X greater percentage, etc.
(1 mark MAX – Reserved)
(NB 1% tolerance on statistics) [3 @ 1 mark] [3]

(ii) Ideas such as:
- lowering of death rates/increase of life expectancy;
- improvements in health (medical) care/more doctors/more hospitals/better equipment (technology) used in hospitals;
- reduction of diseases/inoculation/medicines/cures for illnesses;
- improved sanitation;
- better water supplies;
- better diet/food supplies;
- healthy lifestyle/exercise;
- education about health/hygiene/diet;
- support for elderly/old people’s homes;
- availability of pensions;
- lowering of birth rates/people have less children;

reasons for lower birth rate to MAX 1, etc.
(5 @ 1 mark) or development [5]

(c) Levels marking

**Level 1**
Statements including limited detail which evaluate the population policy. [1–3 marks]

**Level 2**
Uses named example. More developed statements which evaluate the population policy. (NB Max 5 if no named or inappropriate example) [4–6 marks]

**Level 3**
Uses named example. Comprehensive and accurate statements including some place specific reference. [7 marks]

Content Guide:
Answers are likely to refer to:
- changes in birth rates
- consequences of falling/rising birth rates
- imbalance in proportions of male/female
- migration, etc.

Place specific reference is likely to consist of:
Named parts of the chosen country/locational detail,
Specific details of the policy
Population data, etc.

NB The population policy could relate to natural population change or migration. [7]

[Total: 25 marks]
2 (a) (i) Area close to the CBD/close to the centre of the city [1 mark] [1]

(ii) long and straight; right angles to each other; parallel grid pattern/rectangular/square, etc. [2 @ 1 mark] [2]

(iii) Ideas such as:
- to improve living conditions/quality of life/standard of living;
- areas are old/to modernise housing/build new houses/we need more houses/are derelict;
- properties lack amenities;
- factories/industries have closed down/are unoccupied;
- to attract/develop new business opportunities/industrial estates/retail parks/factories;
- to create employment (jobs)/people need jobs;
- new road building/inner ring roads being built/to improve traffic flow/building an urban expressway;
- some land is currently not being used/wasted, etc. [3 @ 1 mark] [3]

(b) (i) A = Suburbs  
B = CBD  
C = Inner city [3 @ 1 mark] [3]

(ii) One mark per appropriate description of *land use* based on photograph selected with credit for development;

*Photograph A:*
- housing/apartments;
- High rise buildings;
- Open space/sports field;
- Modern buildings, etc.

*Photograph B:*
- High rise buildings;
- High density land use/crowded;
- Offices;
- Especially on upper floors;
- Shops/retail;
- High order services;
- Roads;
- Restaurants;
- Apartments;
- Hotels;
- banks, etc.

*Photograph C:*
- High density;
- Old buildings;
- Housing/apartments;
- Offices;
- 3 storeys, etc. [4 @ 1 mark] [4]
(iii) Ideas such as:
- variation in the cost of land;
- land will be higher cost in CBD;
- variation in accessibility;
- CBD will be most accessible/focus of roads;
- Relief of land;
- Historical development of urban area
  etc.

(5 @ 1 mark) or development

(c) Levels marking

Level 1  [1–3 marks]
Statements including limited detail describe the effects of urban sprawl.

Level 2  [4–6 marks]
Uses named example.

More developed statements which describe the effects of urban sprawl.

(NB 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/land values increase,
Growth of squatter settlements, etc.

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

[Total: 25 marks]
3  (a) (i)  \( A = \text{Strato-volcano} \quad B = \text{Shield volcano} \)

NB Both needed for 1 mark

(ii) Ideas such as:

- B is higher/A is lower (or statistics);
- B is wider/A is narrower (or statistics);
- A has different layers but B does not;
- A has 2 vents B has one;
- B is more gently sloping/A is steeper, etc.

NB Points need to be comparative.

(iii) \( X = \text{Vent} \)

\( Y = \text{Magma Chamber} \)

\( Z = \text{Crater} \)

(iv) Ideas such as:

- scenic beauty/views;
- tourist industry (examples of jobs in tourist industry);
- fertile soils/high yields of crops;
- geothermal power/'free' hot water;
- minerals/mining or example;
- building materials;
- hot springs;
- religious/cultural significance, etc.;

(b) (i) Ideas such as:

- circle/ring;
- around Pacific Ocean;
- linear/in lines;
- along west of Americas;
- east of Asia;
- north of Australasia;
- isolated volcanoes (2 volcanoes) in center of Pacific Ocean, etc.

(ii) Ideas such as:

- along plate boundaries/between plates/edge of plates/where plates meet;
- which are lines of weakness;
- convergence of plates/plates move towards each other;
- subduction/one plate sinks;
- as oceanic crust is more dense (dev);
- destruction of crust/magma created;
- build up of magma;
- creating pressure (dev);
- release of magma;
- through cracks in crust (dev);
- hot spots (accept if related to Hawaii or similar, etc.)

(5 @ 1 mark) or development
(c) Levels marking

**Level 1**
Statements including limited detail which describe the impacts of an earthquake. [1–3 marks]

**Level 2**
Uses named example.
More developed statements which describe the impacts of an earthquake. [4–6 marks]

(NB Max 5 if no named or inappropriate example)

**Level 3**
Uses named example.
Comprehensive and accurate statements including some place specific reference. [7 marks]

**Content Guide:**
Answers are likely to refer to:
deaths,
injuries,
destruction of property,
fires,
damage to infrastructure,
ecological impacts, etc.

**Place specific reference is likely to consist of:**
Locational details,
Date/Richter scale measurement,
Details of named parts of the area,
Statistical information, etc. [7]

[Total: 25 marks]
4 (a) (i) Meander

(ii) Ideas such as:
- gentle slope;
- rocks/pebbles/deposits;
- inside bend, etc.

(iii) Ideas such as:
- speed of flow is slow/reduced/less energy;
- deposition of materials
- insufficient energy to move them;
- accumulation over time, etc.

(iv) e.g. flooding:
reservoirs/dams upstream;
increase height of banks/raise levees/build artificial levees;
afforestation/reduce deforestation;
overflow channels/spillway;
straighten channel;
dredging;
widening river;
warning systems/monitoring;
land zoning, etc.

erosion:
strengthen banks/add hard rocks to banks/place rock barriers in front of banks;
use gabions;
concrete river channel, etc.

(4 @ 1 mark) with 1 reserve on each section

(b) (i) Ideas such as:
- lower course is wider/upper is narrower;
- lower course has gentler slopes/upper steeper slopes;
- upper course is deeper;
- upper course is more V shaped;
- lower course has flood plain but upper does not, etc.

NB Points made need to be comparative

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(ii) Explanation of formation of waterfall:
horizontal hard rock layer/hard rock on top of soft;
erosion of soft rock;
named erosional process (MAX 1)
formation of plunge pool;
dercutting/hard rock not supported;
collapse of hard rock;
retreat of waterfall;
gorge formation, etc.

NB Credit marks on diagram labels or in written text but no
double credit.

(5 @ 1 mark) or development [5]

(c) Levels marking

Level 1 [1–3 marks]
Statements including limited detail which describe opportunities provided for people by a river.

Level 2 [4–6 marks]
Uses named example.
More developed statements which describe opportunities provided for people by a river.

(NB 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:
agriculture,
fishing,
transportation,
water supply,
power supplies,
tourism, etc.

Place specific reference is likely to consist of:
Locational details;
Specific locations along the river, etc. [7]

[Total: 25 marks]
5 (a) (i) Human Development Index

(ii) Higher generally in North America/high North America but low/medium in Africa; more varied in Africa

(iii) Ideas such as:
- It takes into account a variety of factors/it is a composite index/uses more than one indicator/provides a general/overall indication of development/it is better than just using income;
- Takes into account life expectancy/education/mean years of schooling;
- Produces an index of 0 to 1/easy to carry out comparisons between countries/change over time

(iv) Ideas such as:
- specific references to variation in climate or example;
- variations in relief;
- variations in soil fertility;
- presence/absence of rivers/water supplies/drought;
- communications/accessibility/transport links;
- impacts of historical development/length of time development has been occurring,
- impacts of colonisation;
- presence/absence of raw materials/resources (or example);
- accessibility/presence of ports/landlocked;
- government policies/political system;
- corruption;
- varying levels of education/skills;
- trading policy/free trade;
- AIDs;
- investment/aid from abroad/charities;
- presence of TNCs;
- war/unrest;
- degree of reliance on primary production;
- development of a specific industry (e.g. tourism, mining,
- commercial agriculture, etc.)
(b) (i) Ideas such as:
- positive relationship/life expectancy increases with GNP/low/high life expectancy = low/high GNP;
- statistics to illustrate relationship – 2 pairs required;
- relationship is not exact/anomaly;
- e.g. over 10,000 there is little if any relationship, etc.

*NB Reserve 1 marks for statistics* [3 @ 1 mark] [3]

(ii) Ideas such as:
- high GNP will result in more investment in health care;
- and people will be able to afford medicines (dev);
- in countries with high GNP people will be able to afford enough food/good diet;
- so less likely to suffer malnutrition (dev)
- in low GNP countries many people have poor sanitation;
- in low GNP countries many people have water supply;
- so many die from water borne diseases (dev);
- high GNP countries are able to pay pensions to elderly;
- in high GNP countries education is provided about health care/diet, etc.

(5 @ 1 mark) or development [5]

(c) Levels marking

**Level 1**

[1–3 marks]

Statements including limited detail which describe organisation and/or links in a transnational corporation.

**Level 2**

[4–6 marks]

Uses named example.

More developed statements which describe organisation and/or links in a transnational corporation.

(NB Max 5 if no named or inappropriate example)

**Level 3**

[7 marks]

Uses named example.

Comprehensive and accurate statements, which describe organisation and links in a transnational corporation, including some place specific reference.

**Content Guide:**
Answers could refer to:
- Inputs,
- Processes,
- Outputs,
- Manufacturing and assembly locations,
- Transport network, etc.

**Place specific reference is likely to consist of:**
- Locational details;
- Specific details of transnational,
- Named settlements, etc.

[Total: 25 marks]
6  (a)  (i)  A condition that results from eating a diet in which nutrients are not enough (or are too much) such that it causes health problems/lack of balanced diet/lack of essential nutrients in the diet, etc.  [1 mark]  

(ii)  More malnutrition in Niger/Niger has more areas with large numbers of cases [accept comparative statistics if totals worked out – 49 000 – 170 000 (BF) 271 000 – 370 000+ (N)] ; in regions of Niger 40 000–60 000/over 60 000 but only up to 20 000 in regions of Burkino Faso; every region in both countries has some malnutrition; Burkina Faso has a more even spread of malnutrition across the country  [2 @ 1 mark]  

(iii)  Ideas such as:  
- drought/desertification-deserts/no nearby rivers to use;  
- infertile soils;  
- population pressure/growth/large population/overpopulation;  
- crop diseases;  
- pests/locusts;  
- lack of money/poverty/unemployment/can’t afford to buy (import) food;  
- war;  
- cannot afford fertilisers/pesticides;  
- lack of cultivable land;  
- flooding/tsunami;  
- volcanic eruption;  
- tropical storms;  
- overdependence on cash crops/export market;  
- trade sanctions;  
- lack of transportation to rural areas, etc.  [3 @ 1 mark]  

(iv)  Ideas such as:  
- death/starvation/low life expectancy/malnutrition/famine;  
- conditions such as marasmus/scurvy/kwashiorkor/rickets, etc.  
- people are too weak/cannot work properly;  
- vicious circle/cannot escape poverty;  
- people cannot resist disease/infection/people easily get disease;  
- requirement of international aid;  
- appropriate specified crime;  
- increased food prices, etc.  [4 @ 1 mark]  

(b)  (i)  Ideas such as:  
- produces soy milk;  
- protein rich;  
- products made from left over solids/tofu/yogurt/bread;  
- less students will go hungry/lack protein/_have poor nutrition/provides food for children/reduces cases of malnutrition;  
- they will perform/concentrate better in school, etc.  [3 @ 1 mark]
(ii) Ideas such factors such as:
- irrigation;
- use of fertilisers/manure;
- pesticides;
- herbicides/weedkillers;
- land reform;
- use of high quality seeds or example, e.g. IR8 rice/GM crops/HYV seeds;
- improve food distribution network;
- improve food storage/refrigeration/grain silos;
- greenhouses/glasshouses;
- aerponics;
- hydroponics;
- terracing;
- selective breeding;
- international aid;
- trading of goods (or example) in exchange for food;
- mechanisation, etc.

(5 @ 1 mark) or development [5]

(c) Levels marking

Level 1 [1–3 marks]
Statements including limited detail which describe the farming system.

Level 2 [4–6 marks]
Uses named example.
More developed statements which describe the farming system.

(NB Max 5 if no named or inappropriate example)

Level 3 [7 marks]
Uses named example.
Comprehensive and accurate statements, referring to inputs, processes and outputs, including some place specific reference.

Content Guide:
Answers are likely to refer to:
Natural inputs,
Human inputs,
Economic inputs,
Processes,
Outputs,
By-products, etc.

Place specific reference is likely to consist of:
Locational details;
Named settlements, e.g. markets
Specific details about the farm/area,
Statistical information, etc.