

MARKSCHEME

May 2002

GEOGRAPHY

Higher Level and Standard Level

Paper 1

Notes on individual questions

Question 1: The three population pyramids below show changes in the Japanese population from 1950 through to 1988 and projected to the year 2040.

This question addresses the theme of population dynamics with specific reference to population change and population structure. By ranging also over immigration and the effect of a changing dependency ratio on the economy, however, it touches also on the sub-theme of the differential levels of development as found in the theme of economic growth and development. The question calls for the interpretation of graphs.

- (a) The number for nurses needed in Japan is expected to double by the year 2005. With reference to the population pyramids, explain why this should be the case.**

[1 mark]

The population pyramids reveal the ageing nature of Japanese society even long before the projection for the year 2040. Nurses will be required for care ranging from that for the totally infirm to assistance for seniors who are still partially mobile. A mark *[1 mark]* should be awarded for answers that demonstrate an understanding of the ageing nature of Japanese society and the implications for health care which it poses.

- (b) Name a group of migrants, other than nurses, that Japan might need by 2040. Give reasons for your choice.**

[2 marks]

One group of potential migrants would be, as in North America or Europe, those who were prepared to undertake menial jobs which the Japanese were no longer willing to do. A mark *[1 mark]* may be awarded for answers which mention such a group. A significant implication of the population pyramids, however, is that Japan will need to permit the entry of highly qualified technical staff in order to sustain its advanced economy. These latter immigrants would include computer specialists and others normally found in the quaternary and quinary areas of an economy. Students who refer to the immigration of highly qualified professionals in this manner may be awarded a second mark *[1 mark]*.

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Question 1 continued

- (c) **Explain how the changing dependency ratio will affect Japan's economy by 2040.**

[3 marks]

The projection for the year 2040 shows a declining percentage of Japanese in the wage earning years. Examiners should note that this question does not ask simply for a description but for its economic implications: declining number of lower skilled/manual workers; reduced earning/taxation capacity of workforce; massive increase in the number of elderly and their associated welfare cases. As Japan possesses a major economy, the relative loss of people in this category will have a profound effect. Students who make this basic point should receive **[1 mark]**. Candidates might also refer to the changing role of women. The current economy has been strongly directed and staffed by men, with women staying mainly in traditional home-based family roles. There is mounting evidence that Japanese women, like their counterparts in the West in earlier times, are now considering careers as possible alternatives to their traditional roles. A second mark **[1 mark]** may be awarded for answers that probe questions of this type with respect to the Japanese economy. A third mark **[1 mark]** may be awarded those answers which go beyond simply citing the basic point of economic impact to mention specific sectors of the economy or the significantly higher survival rate of women; or offer other plausible observations **additional** to those already mentioned in this markscheme.

- (d) **Name two disadvantages or problems that migrant workers might face in any host country.**

[2 marks]

The problems facing migrants to Japan will resemble those encountered elsewhere. Social acceptance in many domains will, in many instances, be the largest of these. A maximum of **[2 marks]** may be awarded for answers that cite two distinct areas of difficulty (and not simply two examples of difficulty in one area).

Question 2: The table below shows human development indicators for two unspecified countries. The Human Development Index (HDI) employs three indicators: life expectancy, educational attainment (and adult literacy), and standard of living as measured by real GDP per capita.

This question addresses the theme of economic growth and development and does so with specific reference to the Human Development Index (HDI). It also deals with differential levels of development by showing the different outcomes of two countries whose incomes per capita were approximately the same: income and human development are not necessarily one and the same.

- (a) Plot the data in the table for Country A and Country B on the columns/bars provided below.**

[4 marks]

The graph paper contains a partially completed bar or columnar graph of the type used by the United Nations to display data concerning human development. Candidates are asked to plot on the graph the data contained in the table above. **[4 marks]** are available for answers to this part of the question. Award **[1 mark]** each on the following basis: accuracy of plot, appropriate labelling, title, and overall neatness (which may be taken to include refinements, such as colour coding, intended by a student to improve interpretation of the graph).

- (b) Which country has been more successful in converting income into human development for its people, and why?**

[2 marks]

Country A has been the more successful. Candidates making this point should be awarded **[1 mark]**.

The indicator showing the greatest difference between the two countries is that of adult literacy. When an HDI is ranked higher on the scale than is the level of income, it is an indication that a country has been successful in converting its income into human development for its people. Again, the graph shows that country A has been more successful in doing this. Candidates should be awarded **[1 mark]** for indicating the significance of adult literacy in the outcome and/or of the HDI being ranked higher than income on the scale.

- (c) What has been the most important factor in converting that income into human development? Justify your answer.**

[2 marks]

Answers to this question require some careful reflection on the part of candidates. While an increased life expectancy is obvious from the graph, the scale of the improvement is not as great as that of adult literacy. To achieve its level of adult literacy (90.7 %) country A has clearly had to educate both female and male components of its population, thereby making this the most important factor in converting income into human development (and no doubt earning income in the first instance). **[2 marks]** are available for answers to this question and their award should recognize the extent to which the candidate has demonstrated sound reasoning to justify the stated answer.

Question 3: Urban flooding is a serious problem in parts of the world. The two diagrams below show a rural drainage basin in A, and how urbanization in B changes the basin, increasing its vulnerability to flooding, a natural hazard.

While ranging across the theme of human response to natural hazards, this question establishes links with economic growth and development, specifically with reference to issues such as water supply, and implicitly touches on ways in which human action (most notably urban development) can increase vulnerability to a natural hazard.

- (a) With reference to diagram A (rural) above, describe *one* effect of a rising water table in a rural drainage basin.**

[1 mark]

Candidates need name only one effect to gain **[1 mark]**. Among the effects would be: increased stream discharge; rising river level; waterlogging of soils (and salinisation in certain environments); reduced infiltration; increased run-off and flow. Marking should allow credit for everyday terms that are implicitly correct (*e.g.*, puddles, boggy soil for waterlogging).

- (b) Explain how urban development of a drainage basin, in diagram B (urban) can contribute to urban flooding.**

[2 marks]

Paving of the surface of a drainage basin reduces ground permeability and increases surface run-off. **[1 mark]** should be awarded to candidates who make this basic point. The action of storm sewers and road networks contribute to this state as does the reduction in the length of natural streams **[1 mark]**.

- (c) Using a named settlement, describe *one* measure that has been taken there to manage the hazard when it occurs.**

[1 mark]

Examiners should note the thrust of this question: it does not ask what the inhabitants did after a hazard occurred but what steps were taken to manage it during its occurrence in a specific, named settlement. Candidates recognizing this distinction in their answers should receive **[1 mark]**, provided they have named a settlement that is a valid illustration.

- (d) Using the same named settlement, describe measures that have been taken to make it less vulnerable to urban flooding.**

[2 marks]

Measures may be ones taken at an earlier time or more recently in response to a flood. In order to gain **[2 marks]**, however, candidates will be expected to describe precisely the measures that were adopted in the same settlement as the one named in (c).

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Question 3 continued

- (e) **Using the diagrams, name *two* other problems that may affect people living in a drainage basin that is being urbanised. Explain how these problems might be issues of economic growth and development.**

[2 marks]

This question draws students to consider other aspects which may be concerned with flooding but certainly with water flow and availability in a drainage basin that has undergone urban development. To answer it they will need to have studied the two diagrams carefully. Paving the surface will result in lowering the water table which, in turn, will restrict the availability of well water ***[1 mark]***. Within the last two years there is evidence of urban communities in farming areas being vulnerable to having their drinking water contaminated by deadly e-coli bacteria from animal waste after localized flooding. Sewage discharge, and the disturbance of rubbish/garbage itself in times of flood are also problems that would merit the award of ***[1 mark]*** for a total of ***[2 marks]*** in this question.

Question 4: The Green Revolution refers to the use of high-yielding varieties of crops (HYVs) in economically less developed countries (ELDCs) to increase crop output.

The table below shows some effects of the Green Revolution in South India.

This question focuses clearly on the Green Revolution, as a topic in the theme of agriculture and world food supply, and calls for candidates to provide a balanced assessment of the project.

- (a) Using the information in the table, group the seven elements shown into either positive or negative effects and justify your classification. [3 marks]**

Candidates should show an understanding that the elements of human labour, use of fertilizers, production and subsistence food, and energy efficiency are negative effects. A correct classification merits *[1 mark]*. The remaining *[2 marks]* are available for acceptable justifications.

- (b) In the above diagram showing adoption rates of the HYVs, identify and explain which stage would have seen the greatest number of farmers adopting the new techniques. [1 mark]**

Candidates should receive *[1 mark]* for any reference to the second stage of the diffusion course where a large (but not the largest) proportion of rich farmers and the greatest proportion of poor farmers adopt the new techniques.

- (c) Briefly discuss two disadvantages that the table and diagram do not reveal. [4 marks]**

The diagram shows some disadvantages as such. However, candidates are asked to show their own knowledge by commenting on two disadvantages that are not revealed by the diagram. These would include, among others, the excess use of energy-related commodities, pesticides, water-logged soils, and declining yields. *[2 marks]* may be awarded for each valid disadvantage. Fertilizers should not be accepted for credit as they are shown as a disadvantage in the table.

Question 5: Caracas is the primate and capital city of Venezuela. It is located in a narrow valley running east-west and parallel to the Caribbean Sea. The building of squatter or shanty dwellings (*ranchos*) has been a feature of its rapid growth. Groups of ranchos are known as *barrios*.

This question addresses the theme of urban environments with specific reference to urbanization, urban morphology (ELDC city models), and urban issues; but it also asks candidates to associate these with issues of economic growth and development, such as access to clean water and health services. The question also provides opportunities to test basic map and orientation skills.

(a) Mark (x), on the map on page 10, a site similar to the one shown in the photograph.

[1 mark]

Candidates are asked to identify on the map a site similar to one shown in the photograph. As the introduction to the question makes clear, Caracas is located in a narrow valley running east-west. Main roads follow the axis of the valley floor. Examiners should recognize a wide number of possible answers; but from the photograph it is clear that a correct site will feature superblocks of high-rise apartments in close proximity to the barrios of ranchos. **[1 mark]** should be awarded for any answer that meets these conditions.

(b) Orient the model of a Latin American city to the map of Caracas by stating whether the top of the model marked [?] should point in the direction of north, south, east or west.

[1 mark]

The purpose of this question is to test whether candidates can recognize in the map of Caracas the very broad pattern of morphology depicted in the model of a Latin American city. They would do this if they indicated that the top of the urban model should point to the west. **[1 mark]** should be awarded for that answer.

(c) Describe, in rank order, the factors that consolidators consider important in deciding where they will live.

[3 marks]

Before answering 5(c), candidates will have been directed to John Turner’s model of housing needs and groups in ELDC cities. They are asked to comment only on inhabitants called “consolidators” and a maximum of **[3 marks]** may be awarded for their answers: consolidators place the highest priority on permanent ownership of their dwelling **[1 mark]**, second on nearness to the city centre **[1 mark]**, and last on modern standards of amenity **[1 mark]**.

Question 5 continued

- (d) Using the photograph on page 10 name *two* things that indicate people in the squatter settlements are permanent residents. [2 marks]**

Permanent residence is suggested in the photograph by electricity poles and street lighting, the motor cycle and Range Rover vehicles (both of which are relatively expensive), the building blocks used as foundations for the building on the right of the photograph, and the substantial and multi-storey building on the left. Any of these or other valid answers merit the award of up to [2 marks].

- (e) Name *two* conditions that could present a risk to the health of people living in squatter settlements similar to the one in the photograph. [1 mark]**

By mentioning possible health conditions in the area of the photograph, the question directs candidates to consider issues related to economic growth and development. Drinking water (indeed the proximity of water in some cases), sanitation, sewerage, and the risk of infection arising from cramped living space would all be relevant responses. Others may be plausible and examiners should be alert to these in awarding [1 mark].
