

Section A

Answer **five** questions from this section. All questions carry 10 marks.

Hydrology and fluvial geomorphology

- 1 Fig. 1 shows the annual hydrograph of the Columbia River in Canada.
- (a) (i) State the mean monthly discharge of the Columbia River in October. [1]
(ii) State the highest mean monthly discharge and the month in which it occurs. [2]
- (b) Briefly describe the pattern of the annual discharge of the Columbia River. [2]
- (c) Explain **two** factors that might cause variations in river discharge throughout a year. [5]

Atmosphere and weather

- 2 Fig. 2 shows the night time temperatures across a large urban area.
- (a) Give the term that is used to describe the pattern of temperatures shown in Fig. 2. [1]
- (b) Describe the pattern of temperatures along a transect from A to B. [4]
- (c) Explain how buildings and roads can affect the climate in urban areas. [5]

Rocks and weathering

- 3 Photograph A shows a rock cliff (free face) marked X and a debris slope (scree) marked Y.
- (a) Briefly describe the nature of:
- (i) the rock cliff, [2]
and
- (ii) the debris slope. [2]
- (b) Explain how rock type and structure may influence mass movement. [6]

Population

- 4 Fig. 3 shows births and deaths for Sweden, an MEDC, from 1970 to 2010, and predicted for 2011 to 2060.
- (a) (i) Using Fig. 3, describe the pattern of births between 1970 and 2010. [3]
- (ii) Suggest reasons for the pattern you described in (i). [3]
- (b) Explain why population predictions, such as those in Fig. 3, are useful to a country. [4]

Migration

- 5 Table 1 shows some information about emigrants from El Salvador, an LEDC in Central America, living in the Americas in 2000.
- (a) Describe and suggest reasons for the age and sex of the emigrants to the USA in Table 1. [5]
- (b) Outline the benefits to LEDCs of high rates of emigration. [5]

Settlement dynamics

- 6 Fig. 4 shows population change in selected cities in the USA, an MEDC, between 2000 and 2010.
- (a) Using Fig. 4, compare the data for Chicago and Detroit. [4]
- (b) Suggest reasons why MEDC cities, such as those in Fig. 4, have seen a decline in their population. [6]

Section B: The Physical Core

Answer **one** question from this section. All questions carry 25 marks.

Hydrology and fluvial geomorphology

- 7 (a) (i) Define the fluvial terms *traction* and *saltation*. [4]
(ii) Briefly describe how abrasion occurs in a river channel. [3]
- (b) Explain the formation of alluvial fans and deltas. [8]
- (c) Using a diagram or diagrams, explain how erosion, transport and deposition of sediment are related to variations in river flow. [10]

Atmosphere and weather

- 8 (a) (i) Define the terms *convection* and *orographic uplift*. [4]
(ii) Briefly describe the conditions which may lead to the formation of fog. [3]
- (b) Explain how ocean currents influence the global distribution of temperature. [8]
- (c) Describe how human activities have affected the nature and concentration of greenhouse gases in the atmosphere. Examine the likely effects on global climate. [10]

Rocks and weathering

- 9 (a) (i) Define the terms *flows* and *slides* as they apply to mass movement. [4]
(ii) Briefly describe how slides can affect the shape of slopes. [3]
- (b) Explain how the development of slopes is affected by climate and vegetation. [8]
- (c) Using a diagram or diagrams, show how ocean trenches and mountains may develop at a convergent plate boundary. [10]

Section C: The Human Core

Answer **one** question from this section. All questions carry 25 marks.

Population

- 10 (a) Describe and explain the relationship between the infant mortality rate and the level of economic development. [7]
- (b) With the help of examples, suggest reasons why countries may find it difficult to reduce their infant mortality rate. [8]
- (c) 'The role of women is the most important influence on population change.'
How far do you agree? [10]

Population/Migration

- 11 (a) (i) Give the meaning of the term *refugee*. [3]
- (ii) Describe the impacts a refugee flow may have on a receiving area. [4]
- (b) Outline the factors that influence the **pattern** of voluntary international migration. [8]
- (c) To what extent is immigration a solution to the problem of declining population in MEDCs? [10]

Settlement dynamics

- 12 (a) With reference to **one** named rural settlement or rural area:
- (i) describe the character of the rural settlement or rural area; [7]
- (ii) outline the main issues in the development and growth (or decline) of the rural settlement or rural area described in (i). [8]
- (b) Assess the extent to which attempts to manage rural settlements or rural areas have been successful. [10]

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- Question 1 Fig. 1 © *Columbia River Hydrograph by Tributary (1973 – 2002)*; [http://www.docstoc.com/docs/38931364/Figure-3-1-COLUMBIA-RIVER-HYDROGRAPH-by-tributary-\(1973-2002\)](http://www.docstoc.com/docs/38931364/Figure-3-1-COLUMBIA-RIVER-HYDROGRAPH-by-tributary-(1973-2002)). 28 March 2012.
- Question 2 Fig. 2 © <http://cimss.ssec.wisc.edu/climatechange/globalCC/lesson7/UH12.html>.
- Question 3 Photograph A © *Weathering 417.jpg*; <http://www.edupic.net/Images/Biomes/weathering417.JPG>; 28 March 2012.
- Question 4 Fig. 3 © *Swedish Census Bureau*; Sveriges officiella sta is ic.
- Question 5 Table 1 © adapted: *MPI central am*; <http://www.migrationinformation.org/datahub/usimmigration.cfm>.
- Question 6 Fig. 4 © Wall Street Journal; <http://online.wsj.com>; March 2011.

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