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**GEOGRAPHY**

**9696/12**

Paper 1 Core Physical Geography

**October/November 2019**

**1 hour 30 minutes**

No Additional Materials are required.

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**READ THESE INSTRUCTIONS FIRST**

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

**Section A**

Answer **all** questions.

**Section B**

Answer **one** question.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

All the resources referred to in the questions are contained in the Insert.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 60.

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This document consists of **3** printed pages, **1** blank page and **2** Inserts.

## Section A

Answer **all** questions in this section.

### Hydrology and fluvial geomorphology

- 1 Table 1.1 shows total rainfall and average river discharge by month for the Kita River, Japan, in 2013.
- (a) Calculate the range in rainfall shown in Table 1.1. Show your working. [2]
- (b) Compare the trends in rainfall and river discharge shown in Table 1.1. [4]
- (c) Explain **two** reasons why some extreme rainfall events do not result in river flooding. [4]
- [Total: 10]

### Atmosphere and weather

- 2 Fig. 2.1 shows solar radiation absorbed and reflected by the Earth's surface and reflected by clouds.
- (a) State the maximum amount of solar radiation reflected by the Earth's surface shown in Fig. 2.1. [1]
- (b) Compare the trend in solar radiation absorbed by the Earth's surface with the trend in solar radiation reflected by clouds shown in Fig. 2.1. [4]
- (c) Explain the latitudinal variation in solar radiation reflected by clouds as shown in Fig. 2.1. [5]
- [Total: 10]

### Rocks and weathering

- 3 Fig. 3.1 shows relationships between precipitation, temperature and weathering.
- (a) Describe the depth and location of intensely weathered material shown in Fig. 3.1. [3]
- (b) Describe the relationships between precipitation and weathering shown in Fig. 3.1. [3]
- (c) Explain the relationships you described in (b). [4]
- [Total: 10]

**Section B**

Answer **one** question from this section.

**Hydrology and fluvial geomorphology**

- 4 (a) (i) Define the fluvial terms *thalweg* and *bluff*. [4]
- (ii) Briefly explain how turbulent flow occurs in rivers. [3]
- (b) Explain how river erosion can lead to the formation of waterfalls. [8]
- (c) With the aid of a case study of a recent river flood event, evaluate the impacts on both people and the environment. [15]

[Total: 30]

**Atmosphere and weather**

- 5 (a) (i) Describe how atmospheric pressure affects the direction and strength of winds. [3]
- (ii) Explain how frontal uplift of air can cause precipitation. [4]
- (b) Explain the development of an urban heat island. [8]
- (c) 'Ocean currents are as important as winds in transferring global heat energy.'
- With the aid of examples, how far do you agree? [15]

[Total: 30]

**Rocks and weathering**

- 6 (a) (i) Define the terms *heave* and *slide* as they apply to mass movement on slopes. [4]
- (ii) Briefly explain how rills form on slopes. [3]
- (b) Explain how fold mountains are formed at convergent tectonic plate boundaries. [8]
- (c) With the aid of examples, discuss the view that human activity is the main factor affecting the stability of slopes. [15]

[Total: 30]

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