



9696/13

May/June 2024

1 hour 30 minutes

You will need: Answer booklet (enclosed)
Insert (enclosed)

- Answer **four** questions in total:
Section A: answer **all** questions.
Section B: answer **one** question.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [].
- The insert contains all the resources referred to in the questions.

This document has **4** pages. Any blank pages are indicated.

2**Section A**

Answer **all** questions in this section. All questions are worth 10 marks.

Hydrology and fluvial geomorphology

- 1** Fig. 1.1 is a photograph which shows a river in Wales.
- (a) Name feature A shown in Fig. 1.1. [1]
 - (b) Draw a sketch map of the area located at B in Fig. 1.1. Label the main features. [4]
 - (c) Explain the formation of feature C shown in Fig. 1.1. [5]

Atmosphere and weather

- 2** Fig. 2.1 is a satellite image of Hawaii, USA. Fig. 2.2 is a map of Hawaii, USA.
- (a) Estimate the proportion of cloud cover over Hawaii shown in Fig. 2.1. [1]
 - (b) Describe the pattern of cloud cover shown in Fig. 2.1. [4]
 - (c) Suggest reasons for the pattern of cloud cover shown in Fig. 2.1. [5]

Rocks and weathering

- 3** Fig. 3.1 is a diagram which shows a mass movement classification.
- (a) (i) Name the type of mass movement found at X in Fig. 3.1. [1]
 - (ii) Identify the type of mass movement shown in Fig. 3.1 which occurs at an intermediate rate of movement and is wet. [1]
 - (b) Using Fig. 3.1, compare the water content and rate of movement for landslide and rockfall. [2]
 - (c) Explain the differences between the mass movement processes of slide and flow. [6]

3

Section B

Answer **one** question from this section. All questions are worth 30 marks.

Hydrology and fluvial geomorphology

- 4 (a) (i) Define the hydrological terms *percolation* and *baseflow*. [4]
- (ii) Describe how drainage basin shape affects discharge within drainage basins. [3]
- (b) Explain how recurrence intervals can be used in the prediction of flood risk. [8]
- (c) With the aid of a case study, evaluate the attempts to reduce the impact of a recent river flood event. [15]

Atmosphere and weather

- 5 (a) (i) Define the atmospheric terms *incoming solar radiation* and *evaporation*. [4]
- (ii) Describe how land/sea distribution affects the seasonal variation of temperature. [3]
- (b) Explain the latitudinal pattern of radiation excesses and deficits. [8]
- (c) With the aid of a case study of an urban area, assess the extent to which human activity affects its climate. [15]

Rocks and weathering

- 6 (a) (i) Define the terms *subduction* and *conservative plate boundary*. [4]
- (ii) Briefly explain the formation of volcanic island arcs. [3]
- (b) Explain how the strategies of afforestation and grading can be used to reduce mass movements. [8]
- (c) With the aid of examples, assess the extent to which types of weathering are influenced by climate. [15]

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