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Section A

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

Hydrology and fluvial geomorphology

1 Fig. 1.1 shows a hydrograph for the River Ray, UK, March 2022.

(a) Using Fig. 1.1:

(i) state the maximum discharge shown [1]

(ii) calculate the lag time. [1]

(b) Describe the shape of the hydrograph shown in Fig. 1.1. [3]

(c) Explain **two** reasons why the shape of a hydrograph may change over time. [5]

Atmosphere and weather

2 Fig. 2.1 is a photograph which shows an area after snowfall.

(a) Describe the distribution of snow cover shown in Fig. 2.1. [3]

(b) Suggest reasons for the distribution of snow cover shown in Fig. 2.1. [4]

(c) Explain **one** cause of precipitation. [3]

Rocks and weathering

3 Fig. 3.1 shows a written extract about a mass movement event.

(a) Identify **four** factors in Fig. 3.1 that may have influenced the mass movement event. [4]

(b) Explain how **two** of the factors you identified in (a) may have resulted in the mass movement event described in Fig. 3.1. [3]

(c) Describe **one** method that can be used to reduce mass movement. [3]

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Section B

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

Hydrology and fluvial geomorphology

- 4** (a) (i) Define the fluvial terms ‘laminar flow’ and ‘thalweg’. [4]
- (ii) Describe the conditions required for braiding to occur in a river channel. [3]
- (b) With reference to the Hjulström curve, explain how rates of deposition and erosion vary in a river channel. [8]
- (c) ‘Land-use changes always result in an increase in channel flow.’
- With the aid of examples, how far do you agree with this statement? [15]

Atmosphere and weather

- 5** (a) (i) Define the atmospheric terms ‘reflected solar radiation’ and ‘latent heat transfer’. [4]
- (ii) Briefly describe how land/sea distribution affects seasonal variation in temperature. [3]
- (b) Explain how latitude influences the global energy budget. [8]
- (c) With the aid of examples, assess the extent to which global warming is a result of human activity. [15]

Rocks and weathering

- 6** (a) (i) Describe the differences between oceanic tectonic plates and continental tectonic plates. [4]
- (ii) Briefly describe the process of sea floor spreading. [3]
- (b) Explain how temperature can affect the type **and** rate of weathering. [8]
- (c) ‘The nature of tectonic plate boundaries determines the resulting tectonic landforms.’
- With the aid of examples, how far do you agree with this statement? [15]

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