



**X833/77/11**

**Geography**

Duration — 2 hours 30 minutes

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**Total marks — 50**

**Attempt ALL questions.**

You will receive credit for appropriately labelled sketch maps and diagrams.

You must use the supplementary items and tracing overlays provided for annotation or as a base for diagrams. These resources should be placed inside the front cover of your answer booklet.

You should use the atlas provided.

Write your answers clearly in the answer booklet provided. In the answer booklet you must clearly identify the question number you are attempting.

Use **blue** or **black** ink. You may use pencil for the completion of Supplementary item B — tracing overlay.

Before leaving the examination room you must give your answer booklet to the Invigilator; if you do not, you may lose all the marks for this paper.



Total marks — 50  
Attempt ALL questions

**Question 1 — Map interpretation**  
**Gathering and processing techniques**

To answer this question you need to use

- Supplementary item A — Ordnance Survey (OS) Map Extract Carlisle
- Supplementary item B — tracing overlay
- Supplementary item C
- the atlas provided.

You should make detailed use of the whole map extract as well as using your atlas appropriately. You should also carefully read the information in the text boxes.

For over 175 years the Cumberland Agricultural Society has promoted local agriculture and rural life with its main annual event being the Cumberland Show, held in June.

This year the Society plans to introduce a ‘family day out’ event, to be held during the August holiday period as part of its annual programme. This new event will have a fresh and modern focus aiming to celebrate local food, arts and crafts, farming and the Cumbrian countryside. Local schools, specialist food producers, businesses and organisations are expected to participate in this event.

The proposed site for the event will require an open area, possibly adjacent to a farm, and with room for parking for trades and visitor vehicles. A shuttle bus service will run from the centre of Carlisle.

- (a) (i) On the tracing overlay (Supplementary item B) draw accurately to scale a suitable location for the event. The size of the site, including parking, is to be 400 m x 600 m. 3
- (ii) Add detailed annotations to the tracing overlay to explain the **physical** and **human** factors for your choice of location. 6

**‘The environment influences the agricultural potential of an area.’**

To explore the above hypothesis it has been decided to investigate the physical factors that account for dairy farming being the predominant type of agriculture in Cumbria. A soil analysis of farms to the west of Carlisle is to be carried out to gather data relating to the characteristics of the soil.

- (b) (i) Explain how you would gather relevant data for this soil analysis. You should explain two gathering techniques and a sampling methodology in your answer. 5
- (ii) Comment on the problems that may be encountered in gathering valid and reliable data. 2

## Question 1 (b) (continued)

- (iii) To further investigate the factors influencing the type of farming in Cumbria, an interview has been arranged with the owner of Hoskethill Farm (GR 347574).

Evaluate this choice of data gathering technique.

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The flooding experienced in Carlisle on 5 and 6 December 2015 was unprecedented, and the result of the effects of Storm Desmond. This storm caused a period of prolonged, intense rainfall which fell on an already saturated catchment area. It led to high river levels and flooding throughout Cumbria. The flow in the River Eden in Carlisle on 6 December was the highest ever recorded, resulting in flood levels in some locations that were approximately 0.6 m higher than those experienced during the previous record set in January 2005.

Due to the numerous watercourses and drainage systems within Carlisle, there are several areas at risk of flooding. Flood data indicated that flooding reached areas up to 20 m in height.

- (c) On Diagram 1 (Supplementary item C), the 20 m contour line has been drawn on either side of the River Eden, between GR 410565 and GR 460578.

Identify **four** examples of different land uses that could have been affected by flooding. For each land use give a 6 figure grid reference.

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Study Diagrams 2 and 3 (Supplementary item C).

- (d) (i) Discuss the likely **environmental** impacts of 2015 flooding in the Carlisle urban area. You may wish to include map evidence in your answer.
- (ii) Suggest ways in which the impact of flooding could be reduced in Carlisle and the surrounding area in the future.

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[Turn over for next question

## Question 2 — Geographical data handling

To answer this question you need to use

- Supplementary item D
- the atlas provided.

Students on a field trip are investigating the **physical** factors which influence the formation and distribution of landforms in a glaciated landscape.

They have decided to carry out a survey to explore the orientation and distribution of 20 randomly selected corries in each of two areas (areas 1 and 2) in Scotland.

Corrie orientation is the direction of an imaginary line from the centre of the corrie back wall to the corrie lip.

Study Diagrams 4, 5 and 6 (Supplementary item D).

- (a) (i) Analyse the information in Diagram 6 to compare the distribution of corrie orientation in the two areas.
- (ii) Comment on the usefulness of a dispersion diagram as a data presentation technique to show this information.

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Chi squared is a statistical test that can be used to determine a difference between observed data and expected data.

To investigate further the orientation of corries in the two areas, a chi squared statistical test has been carried out.

- (b) (i) State an appropriate null hypothesis for the corrie orientation chi squared test.
- (ii) The calculated result of the chi squared test is 13.11.
- With reference to critical values of chi squared shown below, evaluate the significance of the calculated result in relation to your null hypothesis.

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Significance level	
0.05	0.01
5.99	9.21

- (iii) Discuss the suitability of using the chi squared statistic to investigate corrie orientation in the two areas.
- (c) Explain factors that may have influenced corrie orientation in Scotland.

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[END OF QUESTION PAPER]