



GEO.PH11 UK Physical Landscapes: Relief and Geology Overview

AQA 8035 • Calculators not allowed • about 50 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Define the terms 'upland' and 'lowland' as used when describing UK physical landscapes, giving one distinguishing feature for each.

(Total for Question 1 is 2 marks)

- 2** Name three major upland areas in the UK and give the country or region where each is located, for example usable on a simple map of the UK.

(Total for Question 2 is 2 marks)

- 3** Name two major lowland areas in the UK and state the county or region for each, suitable for labelling on a UK outline map.

(Total for Question 3 is 2 marks)

- 4** List the three main rock types studied in GCSE physical geography and give one brief example rock name for each type relevant to the UK.

(Total for Question 4 is 3 marks)

- 5** Give one specific example of an igneous rock, one example of a sedimentary rock and one example of a metamorphic rock that are found or studied in the UK, naming the rock in each case.

(Total for Question 5 is 3 marks)

- 6** Explain how differences in rock resistance to weathering and erosion can lead to variation in relief across the UK. Give two linked explanatory points that show cause and effect.

(Total for Question 6 is 4 marks)

- 7** On an outline map of the UK, students are asked to label six named areas. Label the following on a UK outline map: Scottish Highlands, Lake District, Pennines, East Anglia, The Fens, and the Thames Basin. This question tests map labelling and location knowledge.

(Total for Question 7 is 6 marks)

- 8** Figure 1 is an OS-style contour extract showing a small area of upland country with contour lines at 50 m intervals. Contours shown include 150 m, 200 m, 250 m and a summit at 320 m indicated by a closed contour. Using Figure 1, describe the relief shown in the extract, referring to the steepest and gentlest slopes and the highest point. This is a map-reading AO3 task.

(Total for Question 8 is 4 marks)

- 9** Explain how the presence of extensive chalk beds in south-east England influences the relief of that part of the UK. Give two linked points.

(Total for Question 9 is 4 marks)

- 10** Which one of the following rock types is generally the most resistant to erosion and is commonly associated with high, rugged upland scenery in the UK? A. Chalk B. Slate C. Granite D. Clay

- ☐ A. Chalk
☐ B. Slate
☐ C. Granite
☐ D. Clay

(Total for Question 10 is 1 mark)

- 11** State two reasons why areas underlain by clay tend to form lowland, flatter landscapes in parts of the UK such as the Vale of York.

(Total for Question 11 is 2 marks)

- 12** A small upland study area has recorded summit elevations of 220 m, 305 m, 305 m, 180 m and 260 m. Calculate the mean elevation of these five summits. Give your answer to the nearest whole metre.

(Total for Question 12 is 2 marks)

- 13** Give two differences between how metamorphic rocks and sedimentary rocks are formed, naming one example of each (UK example acceptable).

(Total for Question 13 is 2 marks)

- 14** Explain two ways in which the relief of an area influences the types of agriculture practised there in the UK, using upland and lowland examples.

(Total for Question 14 is 4 marks)

- 15** Use your knowledge of UK relief and the three rock types to answer the question below.
'The spatial distribution of upland and lowland areas in the UK is mainly controlled by the type of bedrock.' To what extent do you agree with this statement? You should give a balanced answer and a clear judgement.

(Total for Question 15 is 8 marks)

Mark scheme · GEO.PH11 UK Physical Landscapes: Relief and Geology

Overview

Question 1

- **B1** upland: an area of higher ground with generally greater elevation and steeper relief than surrounding land, oe
- **B1** lowland: an area of lower elevation with gentler relief and often flatter terrain, oe
- **Answer: Upland: an area of higher ground with greater elevation and steeper relief. Lowland: an area of lower elevation with gentler relief and often flatter terrain.**

Question 2

- **B1** one correct upland name with its location, e.g. Scottish Highlands, Scotland, oe
- **B1** a second correct upland name with its location, e.g. Pennines, northern England, oe
- **Answer: Examples: Scottish Highlands, Scotland; Pennines, northern England; Lake District, Cumbria.**

Question 3

- **B1** one correct lowland area with location, e.g. East Anglia, eastern England, oe
- **B1** a second correct lowland area with location, e.g. The Fens, eastern England, oe
- **Answer: Examples: East Anglia, eastern England; The Fens, eastern England.**

Question 4

- **B1** igneous rock type and example, e.g. igneous: granite, oe
- **B1** sedimentary rock type and example, e.g. sedimentary: limestone or chalk, oe
- **B1** metamorphic rock type and example, e.g. metamorphic: slate, oe
- **Answer: Igneous: granite. Sedimentary: limestone or chalk. Metamorphic: slate.**

Question 5

- **B1** igneous example, e.g. granite, oe
- **B1** sedimentary example, e.g. chalk or limestone or sandstone, oe
- **B1** metamorphic example, e.g. slate, oe
- **Answer: Igneous: granite. Sedimentary: chalk or limestone or sandstone. Metamorphic: slate.**

Question 6

- **B1** more resistant rocks, such as granite, erode more slowly and therefore tend to remain as higher ground, oe
- **B1** linked detail to first point, e.g. as surrounding softer rocks wear away, the resistant rock stands out as upland, creating steeper relief, oe
- **B1** less resistant rocks, such as some clays or weak sandstones, erode more quickly and are worn down to lower elevations, oe
- **B1** linked detail to second point, e.g. softer rocks form gentler, lower-lying landscapes because they are reduced relative to adjacent harder rock, oe
- **Answer: More resistant rocks like granite erode more slowly so remain as higher ground, while surrounding softer rocks wear away leaving the hard rock as uplands; less resistant rocks such as clay erode faster and are lowered to form gentler lowlands.**

Question 7

- **B1** correct location and label for Scottish Highlands, oe
- **B1** correct location and label for Lake District, oe
- **B1** correct location and label for Pennines, oe
- **B1** correct location and label for East Anglia, oe
- **B1** correct location and label for The Fens, oe
- **B1** correct location and label for the Thames Basin, oe
- **Answer: Labels should locate Scottish Highlands in northern Scotland, Lake District in Cumbria NW England, Pennines running down northern England spine, East Anglia in eastern England, The Fens in eastern England around Lincolnshire/Cambridgeshire, Thames Basin in south eastern England around the River Thames.**

Question 8

- **B1** statement identifying highest point, e.g. summit at 320 m, oe
- **B1** description of steepest slope, e.g. steep slope on the northern side where contours are close together between 250 m and 320 m, oe
- **B1** description of gentlest slope, e.g. gentler slope on the southern side where contours are further apart between 150 m and 200 m, oe
- **B1** overall character, e.g. area is upland and hilly with a single clear summit and varying slope steepness, oe
- **Answer: The extract shows upland, hilly relief with a summit at 320 m. The steepest slopes are where contours are close together, for example on the northern flank between 250 m and 320 m. The gentlest slopes are where contours are widely spaced, for example on the southern side between 150 m and 200 m. Overall the area is a small upland hill with variable slope steepness.**

Question 9

- **B1** point 1, e.g. chalk is a relatively soft, porous sedimentary rock that weathers and erodes more easily than harder rocks, oe
- **B1** linked detail to point 1, e.g. this leads to the formation of gentle rolling hills and wide, low-lying areas rather than steep upland, oe
- **B1** point 2, e.g. chalk often forms an elevated escarpment where it is more resistant than underlying layers but overall produces smooth rounded hills such as the North and South Downs, oe
- **B1** linked detail to point 2, e.g. the combination of porous chalk and sub-surface weathering gives gentle slopes and a landscape of rolling downs rather than jagged relief, oe
- **Answer: Chalk is relatively soft and porous so it weathers and erodes more easily producing gentle, rolling lowland hills rather than steep upland. Where chalk is more resistant relative to surrounding rocks it can form elevated escarpments, creating smooth rounded hills such as the North and South Downs, giving overall gently undulating relief in south-east England.**

Question 10

- **B1** C
- **Answer: C. Granite**

Question 11

- **B1** reason 1, e.g. clay is less resistant and weathers and erodes easily, oe
- **B1** reason 2, e.g. clay becomes plastic and waterlogged so drainage is poor and soils are flattened, contributing to gentle, low-lying land, oe
- **Answer: Because clay is less resistant and weathers and erodes more easily, and because clay soils become waterlogged and poorly drained leading to flat, low-lying land.**

Question 12

- **M1** correct method seen, e.g. $(220 + 305 + 305 + 180 + 260) / 5$, oe
- **A1** 254 m cao
- **Answer: 254 m.**

Question 13

- **B1** difference 1: sedimentary rocks form from layers of sediment compacted and cemented, e.g. limestone or chalk; metamorphic rocks form when existing rocks are changed by heat and/or pressure, e.g. slate, oe
- **B1** difference 2: sedimentary rocks often show bedding and fossils, whereas metamorphic rocks show foliation or recrystallisation and lack original fossils, oe
- **Answer: Sedimentary rocks form from compacted and cemented sediments and may contain fossils, for example limestone or chalk; metamorphic rocks form when existing rocks are changed by heat and pressure, for example slate, and they show foliation or recrystallisation rather than bedding and fossils.**

Question 14

- **B1** point 1, e.g. upland areas with steep slopes and poorer soils tend to support pastoral farming such as sheep grazing, oe
- **B1** linked detail to point 1, e.g. steep slopes restrict machinery use and limit arable crops, so livestock farming is more practical, oe
- **B1** point 2, e.g. lowland areas with gentler relief and deeper soils support arable farming and more intensive mixed agriculture, oe
- **B1** linked detail to point 2, e.g. flat land allows use of large machinery and easier field division, encouraging cereal and vegetable production, oe
- **Answer: Upland steep areas with poorer soils tend to support pastoral farming such as sheep grazing because steep slopes limit machinery and arable crops. Lowland gentle areas with deeper soils support arable and mixed farming since flat land allows large machinery and easier field division for cereals and vegetables.**

Question 15

- **Level 3** (7-8): A detailed, balanced assessment that evaluates the control of bedrock type on UK upland and lowland distribution, considers other important factors such as structural geology and past geological history, uses accurate examples of UK areas and rock types, and reaches a clear, justified judgement.
- **Level 2** (4-6): A clear assessment that discusses bedrock type with some supporting examples, acknowledges other factors but with limited development, and gives a conclusion that is supported though not fully developed.
- **Level 1** (1-3): One or two relevant points about bedrock and relief are made with little development or example, and any conclusion is simple or unsupported.
- **Level 0** (0): No relevant content.
- **Indicative content:**
 - Support: Different rock types have different resistance to weathering and erosion, for example granite and other hard igneous rocks often form uplands such as parts of the Scottish Highlands, while softer sedimentary rocks like clay and some sandstones form lowlands.
 - Support: Where sedimentary rocks such as chalk form, the landscape tends to be gently rolling downs rather than steep mountains, linking rock type to relief.
 - Qualification: Structural geology and tectonic history also control relief, for example areas of uplift or folding and faulting create high ground independently of rock type in some places.
 - Qualification: Past geological processes and the distribution of rocks laid down in different periods, and later uplift or subsidence, affect where rock types are found and therefore influence relief patterns.
 - Other factors: Human activity and surface processes can modify relief locally, and superficial deposits such as glacial deposits may mask bedrock influence in some lowland areas.
 - A balanced conclusion should weigh the strong influence of bedrock type against the important modifying roles of structure, tectonic and geological history, and superficial deposits, and then reach a judgement about the extent to which bedrock is the main control.