



GEO.SK10 Photographic, Sketch Map and GIS Skills

AQA 8035 • Calculators not allowed • about 30 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer the shorter questions with short phrases or labelled points. The final 4-mark question requires full sentences and a short paragraph. Time guidance: 30 minutes. At least one question requires a short paragraph answer in full sentences.

- 1** Figure 1 is a photograph taken by a student standing on a hill, looking downwards at a village and river. Identify the type of photograph shown in Figure 1: ground-level, oblique or vertical/aerial.

(Total for Question 1 is 1 mark)

- 2** Figure 2 is a ground-level photograph of a riverside street. Arrows A, B and C point to features visible in the photo: A points to a line of trees on the riverbank, B points to terraced houses beside the road, C points to a low stone wall protecting the bank. Label each arrow with the correct feature name.

(Total for Question 2 is 3 marks)

- 3** Figure 3 is a vertical aerial photograph showing a small coastal town. Arrow D points to a light-coloured, curved feature on the coastline formed by wave action. Describe this physical feature indicated by arrow D.

(Total for Question 3 is 2 marks)

- 4 Sketch map exercise: a student draws a simplified sketch map of a village beside a river. The printed sketch (below) shows the river flowing from north to south and a road crossing the river via a bridge. Add the following labels in the correct locations on the sketch: 'bridge', 'floodplain', 'primary school'. The sketch is described in the prompt and your labels should match those locations.

(Total for Question 4 is 3 marks)

- 5 Using the sketch map from Question 4, the student wrote two labels by the river: 'river' and 'large grassy area'. Which of these is a descriptive label and which is an explanatory annotation? State which is descriptive and which is explanatory and give one sentence to explain the difference in this context.

(Total for Question 5 is 2 marks)

- 6 Add one annotation to the sketch map from Question 4 that explains why the floodplain has formed beside the river. Write the annotation as one short sentence that explains the process.

(Total for Question 6 is 2 marks)

- 7 Figure 4 is an oblique photograph of a town with a prominent hill on the skyline. Three arrows E, F and G point to features: E points to a circular green park, F points to a railway line running along the valley, G points to an industrial estate with large rectangular roofs. For each arrow give the correct feature name and one brief descriptive detail for each feature (one detail per feature).

(Total for Question 7 is 3 marks)

- 8** Complete this map annotation task. A student draws a simple sketch of a coastal headland and bay seen in Figure 3. Add labels in the correct places for the following features on the sketch: 'headland', 'bay', 'cliff'. Each label is worth 1 mark. Place 'cliff' where the steep drop meets the sea, 'headland' on the projecting land, and 'bay' in the curved inlet.

(Total for Question 8 is 3 marks)

- 9** Figure 5 is a vertical aerial image of an urban area. Arrow H points to a dense grid of small rectangular plots with tightly packed buildings; Arrow I points to a large green rectangular area with sports pitches. Give the correct land-use term for H and I.

(Total for Question 9 is 2 marks)

- 10** A student annotates the urban aerial image to show accessibility. They draw an arrow and label 'main road' pointing to the wider, straighter road. State two pieces of evidence visible in an aerial photograph that would support labelling a road as a 'main road'.

(Total for Question 10 is 2 marks)

- 11** State two advantages of using GIS rather than a single paper map to present the following information for a town: flood risk zones, land use, transport routes and population density.

(Total for Question 11 is 2 marks)

- 12** Give one limitation of using a single aerial photograph as the only source of information for planning a new school site in the town shown in Figure 5.

(Total for Question 12 is 2 marks)

- 13** A GIS analyst overlays flood risk zones and population density layers for the town in Figure 5. Suggest two ways this combined information could be used to prioritise emergency evacuation planning.

(Total for Question 13 is 2 marks)

- 14** A student must convert features visible in an oblique photograph into a simple field sketch. State two rules the student should follow when drawing a useful and accurate sketch from a photograph.

(Total for Question 14 is 2 marks)

- 15** Use your knowledge of GIS and the photographic and sketch-map skills in this pack to answer the following question.

'Explain how GIS could be used to investigate a geographical question such as Where is the safest location for a new primary school in this town?'

(Total for Question 15 is 4 marks)

Mark scheme · GEO.SK10 Photographic, Sketch Map and GIS Skills

Question 1

- **B1** oblique
- **Answer: Oblique.**

Question 2

- **B1** A labelled 'trees' or 'riverbank trees' or 'riparian trees'
- **B1** B labelled 'terraced houses' or 'row of houses' or 'residential housing'
- **B1** C labelled 'stone wall' or 'river bank wall' or 'revetment'
- **Answer: A: trees (riverbank trees). B: terraced houses. C: stone wall (bank protection/revetment).**

Question 3

- **B1** identification of the feature, e.g. a beach or bay
- **B1** brief descriptive detail, e.g. curved area of sand or shingle between headlands, formed by wave deposition
- **Answer: A beach or small bay, a curved area of sand or shingle between headlands formed by wave deposition.**

Question 4

- **B1** bridge labelled at the road where it crosses the river
- **B1** floodplain labelled on the flat area adjacent to the river, shown on the sketch
- **B1** primary school labelled within the cluster of village buildings, not on the river channel
- **Answer: Bridge labelled where the road crosses the river; floodplain labelled on the flat areas beside the river channel; primary school labelled among the village buildings away from the river channel.**

Question 5

- **B1** 'river' identified as a descriptive label and 'large grassy area' identified as an explanatory annotation
- **B1** brief explanation, e.g. descriptive label names a feature, whereas explanatory annotation adds information about its appearance or origin, such as noting it is grassy because it floods seasonally
- **Answer: 'River' is a descriptive label; 'large grassy area' is an explanatory annotation because it gives additional description about the land beside the river rather than just naming the feature.**

Question 6

- **B1** reference to river depositing material or flooding, e.g. 'Annual floods deposit silt, creating a flat, fertile floodplain'
- **B1** explanatory linkage showing cause, e.g. mentions flooding, deposition or slowing of river flow causing sediment to settle
- **Answer: Annotation example: 'Annual flooding slows the river, so it deposits silt and builds up a flat, grassy floodplain.'**

Question 7

- **B1** E labelled 'park' or 'public park' with a correct detail, e.g. 'circular green area with trees or paths'
- **B1** F labelled 'railway' or 'railway line' with a correct detail, e.g. 'tracks running along the valley or next to river'
- **B1** G labelled 'industrial estate' or 'factory units' with a correct detail, e.g. 'large rectangular warehouse roofs and few windows'
- **Answer: E: park, a circular green area with trees and paths. F: railway line, tracks running along the valley beside the river. G: industrial estate, large rectangular warehouse roofs and delivery yards.**

Question 8

- **B1** headland labelled on the projecting piece of land that sticks out into the sea
- **B1** bay labelled in the curved inlet between two headlands
- **B1** cliff labelled at the steep shoreline where land drops to the sea
- **Answer: Headland labelled on the projecting land; bay labelled in the curved inlet; cliff labelled at the steep shoreline where land meets the sea.**

Question 9

- **B1** H labelled 'residential' or 'terraced housing' or 'high density housing'
- **B1** I labelled 'recreation' or 'open space' or 'sports fields' or 'park'
- **Answer: H: residential (high density/terraced housing). I: recreation/open space (sports pitches/park).**

Question 10

- **B1** wider than other roads, or has multiple lanes visible
- **B1** links major features, e.g. runs through town centre, connects to bridge or roundabout, or has more vehicles or bus stops visible
- **Answer: Evidence examples: the road is noticeably wider than surrounding streets and appears straighter with fewer bends; it links major features such as the town centre and the bridge and shows more vehicles or bus stops.**

Question 11

- **B1** layers can be switched on and off to view different datasets individually or together
- **B1** data can be updated and analysed digitally, enabling queries, measurements and comparisons that a static paper map cannot do easily
- **Answer: Layers can be switched on and off to view flood risk, land use, transport or population separately or in combination; and the digital data can be updated and analysed to measure areas, query attributes and compare datasets quickly, unlike a static paper map.**

Question 12

- **B1** photograph is a snapshot in time and may not show seasonal issues, recent development, or traffic patterns
- **B1** photograph lacks attribute data such as ownership, ground conditions or flood depth, so planners need more information
- **Answer: An aerial photograph is a snapshot and may not show recent development, seasonal flooding or traffic patterns; it also lacks attribute data like ownership and ground conditions needed for choosing a school site.**

Question 13

- **B1** identify areas where high population coincides with high flood risk to target evacuation routes and shelters first
- **B1** plan resource allocation and prioritise vulnerable populations (e.g. care homes, schools) in high-risk, high-density zones
- **Answer: Use the overlay to find zones where high population and high flood risk coincide and target evacuation routes and shelters there first; and to prioritise resources for vulnerable groups and facilities located in those high-risk, high-density areas.**

Question 14

- **B1** keep the sketch simple and clear, using labels rather than detailed drawing for small features
- **B1** include scale or relative sizes and orientation (e.g. indicate north) and label key features accurately
- **Answer: Keep the sketch simple and clear, using labels rather than detailed drawing for small features; include relative sizes or scale, indicate orientation (north), and label key features accurately.**

Question 15

- **Level 2** (3-4): A clear, developed explanation that describes specific GIS layers that would be used (e.g. flood risk, land ownership, transport routes, population distribution), explains how layers are combined and analysed to identify safe sites, and gives reasoned examples of how the outputs inform the decision, reaching a supported conclusion.
- **Level 1** (1-2): Simple or partially developed points about GIS use, naming one or two relevant layers or benefits (e.g. layering or updatable data) without fully explaining how they would be combined to answer the question.
- **Level 0** (0): No relevant content.
- **Indicative content:**
 - Relevant GIS layers: flood risk zones, existing school locations and capacities, population density and age structure, land ownership and planning constraints, transport routes and pedestrian accessibility, ground conditions or contamination data.
 - Explain that layers can be switched on and off and overlaid to see where low flood risk, available land and good access coincide, for example identifying candidate parcels that are outside high-risk flood zones and within walking distance of dense populations of young children.
 - Explain digital analysis tools: buffer zones to map 800 m walking distance from population centres, overlay analysis to exclude high flood risk or protected land, and attribute queries to find land parcels with suitable ownership or size.
 - Explain benefits for decision making: GIS produces maps and tables showing ranked candidate sites, allows sensitivity testing by changing parameters (e.g. acceptable flood risk), and provides easily updated evidence for planners and stakeholders.
 - Conclude by stating that GIS enables an evidence-based, spatially precise way to identify the safest location, while noting any need for ground surveys or legal checks as follow-up to digital results.