National Qualifications 2022

# X833/77/11 Geography

## Marking Instructions

WEDNESDAY, 27 APRIL

**Strictly Confidential**
These instructions are strictly confidential and, in common with the scripts you will view and mark, they must never form the subject of remark of any kind, except to Scottish Qualifications Authority staff.

**General marking principles for Advanced Higher Geography**

*Always use these general principles. Use them in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.*

**(a)** Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.

**(b)** If a candidate response does not seem to be covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.

**(c)** Use the full range of marks available for each question.

**(d)** The detailed marking instructions are not an exhaustive list. Award marks for other relevant points.

**(e)** Award marks only where points relate to the question asked. Where candidates give points of knowledge without specifying the context, award marks unless it is clear that they do not refer to the context of the question.

**Marking principles for each question type**
There is a range of question types in this question paper. For each question type, the following provides an overview of marking principles.

***Explain* questions**
Candidates gain marks for explaining or suggesting reasons for the cause or impact of something, or for referring to causal connections and relationships. Candidates must do more than describe to gain marks here.

For source-based questions, candidates should make use of these and refer to them within their answer for full marks.

Where candidates provide a purely descriptive answer, or one where development is limited, award no more than half the available marks for the question.

***Analyse* questions**
Candidates gain marks for identifying parts, the relationship between them, and their relationships with the whole; and for drawing out and relating implications.

Award an analysis mark where candidates use their knowledge and understanding or a source to identify relevant components (for example of an idea, theory, argument) and clearly show at least one of the following:

- links between different components
- links between component(s) and the whole
- links between component(s) and related concepts
- similarities and contradictions
- consistencies and inconsistencies
- different views or interpretations
- possible consequences or implications
- the relative importance of components
- understanding of underlying order or structure.

Where candidates are asked to analyse they should identify parts of a topic or issue and refer to the interrelationships between, or impacts of, various factors. For example, where a question asks candidates to analyse the different impacts of flooding on land use, they should consider the effects of the immediate area and also, where appropriate, other areas. Candidates should support analysis with evidence where relevant.



 

***Evaluate* questions**

Candidates gain marks for making a judgement of the success, failure, or impact of something based on criteria. They should give a brief description of the technique or methodology being evaluated, before offering an evidenced conclusion.

***Discuss* or *comment on* questions**
Candidates gain marks for exploring ideas about a project, or the impact of a change. They should consider different views on an issue or argument. They should give a range of impacts or ideas within their answer.

***Draw to scale* questions**
Candidates gain marks for drawing a shape or route to the correct size using the given scale of the map.



 

**Marking instructions for each question**

| Question | | | General marking instructions for this type of question | Max mark | Marking instructions for this question |
|---|---|---|---|---|---|
| **1.** | (a) | | **Candidates draw accurately to scale a suitable site for the solar farm.**<br>Award **1 mark** for size.<br>Award **2 marks** for appropriate site for suitable access, relief and/or aspect with **a maximum of 1 mark** if the area chosen is outwith the grid of the tracing overlay. | **3** | The site should be 1.6cm x 1cm. **(1)**<br>The site, for example 426771 has good accessibility by B1123 **(1)** and is on a gentle slope which ranges from 10m — 20m **(1)** and a general southerly aspect. **(1)** |
| | (b) | (i) | **Candidates discuss in detail the reasons for their choice of location.**<br>Candidates should discuss and/or include annotations with detailed information, indicating good use of map reading skills.<br>Award **a maximum of 5 marks** for either part (i) or part (ii). | **8** | **Possible answers may include:**<br>• the site has a south to south-westerly aspect which will maximise sunlight throughout the day to generate electricity **(1)**<br>• the site is well drained with little chance of flooding as it is on a gentle slope **(1)**<br>• it has good access for construction and maintenance vehicles via the B1123 **(1)**<br>• in an open rural location that is not close to large buildings or woodland which could shade the solar panels **(1)**<br>• sited well away from conflicting land use such as local scenic areas such as Hen Reedbeds National Nature Reserve (4677) — 4km away **(1)**<br>• there will be little objection to the site of the solar farm as it is far enough away from the largest settlement of Halesworth (3877) (4km) **(1)**<br>• current land use is farmland (Church Farm at 427767), therefore potentially easier to gain planning consent from the local authority **(1)**<br>• this part of the UK receives some of the largest amounts of sunshine (1500-1600 hours on average a year). **(1)**<br>**Any other valid point.** |

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| | | (ii) | **Candidates should analyse the social and economic impacts of the development.**<br><br>Award marks for any valid **social** or **economic** impact.<br><br>Award **0 marks** for a reverse point. | | • jobs during the construction phase could benefit local people, for example, from Halesworth (3877) **(1)**<br>• local businesses may benefit, for example from construction contracts, such as, the security fencing. **(1)** This will in turn boost the local economy as people will have more disposable income **(1)**<br>• the local landowner — Church Farm, will benefit economically from compensation and revenue for use of their land **(1)**<br>• after construction a solar farm generates little noise or moving parts (unlike wind turbines) so will minimise conflict with local people **(1)**<br>• as the panels are close to the ground so the visual impact will be minimal **(1)**<br>• the corridors in between the panels could be used for farming, for example, grazing small livestock like pigs or poultry **(1)**<br>• local schools in the area, for example 403776, could visit the site and be educated about renewable energy **(1)**<br>• local settlements may benefit from a community pay back scheme to fund local community projects, for example in Wenhaston (4275) **(1)**<br>• there will be few local jobs available after construction as the solar farm requires 'minimal maintenance' **(1)**<br>• increased traffic on B1123 /A12/A145 roads during the construction phase could disrupt local traffic **(1)**<br>• rows of metal and glass panels is out of keeping with a predominantly green rural landscape **(1)**<br>• residents in the village of Wenhaston (4275) on the opposite side of the valley may be unhappy with the 'glint and glare' from the panels in fine weather **(1)**<br>• residents may be concerned about the health and safety aspect of the building becoming derelict at the end of the solar farm's life **(1)**<br>• the building could be re-purposed by a farmer to bring in extra income eg as a B&B. **(1)**<br><br>**Any other valid point.** |

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| | (c) | | **Candidates should explain ways in which the solar farm could enhance biodiversity.**<br>Award **1 mark** for each valid point. | 4 | **Possible answers may include:**<br>• as there are gaps between the rows of panels and they are raised above the ground, much of the land could be used for promoting wildlife **(1)**<br>• wildflowers could be grown between the rows of panels to encourage insects such as butterflies and bees **(1)**<br>• bird boxes could be put up around the perimeter fencing to encourage nesting birds **(1)**<br>• beehives could be sited around the perimeter as bees are important pollinators and help plants grow **(1)**<br>• climbing plants, hedgerows or small trees along the security fencing could provide additional habitats **(1)**<br>• small gaps at the base of the fencing could allow the movement of small mammals to and from the site **(1)**<br>• the solar panels could provide shade and shelter for small mammals **(1)**<br>• an area of land on the edge of the site could be set aside for the creation of different habitats, for example, ponds to promote aquatic species **(1)**<br>• the site could work alongside local nature reserves, for example, Hen Reedbeds National Nature Reserve (4677) to ensure it the site complements local habitats**. (1)**<br>**Any other valid point.** |

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| | (d) | | **Candidates should analyse the factors that may have influenced farming in the area.**<br>Award **1 mark** for each valid point. | **5** | **Possible answers may include:**<br>• the area on the map extract is low lying with gentle slopes which are ideal for the use of large machinery required for arable farming. **(1)** These gentle slopes will also help create deep, well-drained soil which is essential for crops such as wheat and barley **(1)**<br>• Hill Farm (415816) has large fields meaning fewer hedges/field boundaries which enables more space for crop growing to maximises yields **(1)**<br>• this area has some of the lowest annual rainfall (600mm approximately) **(1)** and warmest temperatures in the UK (for example 14—16$^{c}$ in July) which is ideal for growing crops **(1)**<br>• the 1,600 hours of sunshine annually is ideal for crops to ripen before harvesting **(1)**<br>• Halesworth is a local town where businesses which supply and service machinery may be found **(1)**<br>• the area is very accessible by road — the A12 connecting to Lowestoft to the North, and Ipswich and Colchester to the south to supply factories and supermarkets with perishable products quickly, **(1)** and to London via the M25, the largest market for produce. **(1)**<br>**Any other valid point.** |

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| **2.** | (a) | (i) and (ii) | **For Part (i), candidates should explain how land use mapping would be carried out by the students.**<br><br>**For Part (ii), candidates should discuss the limitations of this technique.**<br><br>Award **a maximum of 3 marks** for either part (i) or (ii). | **5** | **Possible answers for Part (i):**<br>• an appropriate sampling strategy must be adopted, for example, using a transect **(1)**<br>• using a large-scale map (for example, 1:10.000 OS map or Goad map) as a base map **(1)** with a land use classification key (for example, RICEPOTS) in order to make data collection easier **(1)**<br>• the students should then follow the transect route recording information on the base map by adding colours/codes from the classification key. **(1)**<br><br>**Any other valid point.**<br><br>**Possible answers for Part (ii):**<br>• mapping the areas being researched will be time consuming and very labour intensive if working alone or in smaller groups **(1)**<br>• a degree of subjectivity is inevitable when determining land use **(1)**<br>• this technique only covers the ground floor meaning more specific data about upper floors is missed out reducing the reliability of the data **(1)**<br>• the selection of data gathering locations along a transect could create unintentional bias **(1)**<br>• Some maps may be too expensive to obtain. **(1)**<br><br>**Any other valid point.** |

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| | (b) | | **Candidates should discuss TWO appropriate gathering techniques.**<br>Award a **maximum of 3 marks** for one technique.<br>Award **0 marks** for naming the techniques.<br>Award **0 marks** for repeat points. | **5** | Pedestrian counts/traffic counts/noise counts/environmental quality surveys are some examples of appropriate techniques.<br>• these techniques involve using a sampling technique, such as regular/random/stratified sampling along a transect **(1)**<br>• an EQS involves students assessing the environmental quality of a site against a range of indicators on a sliding scale of quality (for example, 1 to 5) to represent less good to very good **(1)**, or a bi-polar scale (for example -5 to +5) to represent a negative assessment through to a positive assessment **(1)**<br>• a pedestrian/traffic/noise count involves points and timings, at pre-determined sites and times, being decided along the transect. **(1)** A variety of sample sites, as well as recording the counts at different times of the day/week should be considered to provide as accurate and representative data as possible **(1)** Counts should be recorded/tallied using pre-prepared recording sheets to improve accuracy and efficiency in recording. **(1)**<br>**Any other valid point.** |

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| **3.** | (a) | (i) and (ii) | **For part (i), candidates should evaluate the effectiveness of the Sphere of Influence map.**<br>Award **1 mark** for each valid point.<br>**For Part (ii), candidates should discuss the factors that could account for the school catchment pattern.**<br>Award **1 mark** for each valid point.<br>Award **a maximum of 5 marks** for part (i) or part (ii). | **7** | **For Part (i):**<br>• there is a clear visual overview of the size and shape of the catchment area for each school **(1)** allowing comparisons to be made between schools **(1)**<br>• the area of the sphere of influence could be calculated if the map is drawn to scale **(1)** but this would be difficult to measure accurately **(1)**<br>• the distances between the primary schools can be measured using the scale. **(1)**<br>**Any other valid point.**<br>**For Part (ii):**<br>• relief is not shown on the map which could influence the size and shape of the catchment **(1)**<br>• the population density may affect the catchment areas. **(1)** The smaller catchment areas tend to be found closer to Central Sydney, for example 34 is smaller and 10 is larger **(1)**<br>• the shape of some of the catchment areas are determined by the highways and the River Parramatta. **(1)**<br>**Any other valid point.** |

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| | (b) | (i) and (ii) | **For Part (i), candidates should comment on the significance of the Nearest Neighbour result.**<br>Candidates should use the significant values diagram to interpret the result.<br>Award **1 mark** for each valid point.<br>**For Part (ii), candidates should discuss the suitability of using Nearest Neighbour Analysis to discuss the distribution of primary schools.**<br>Award **1 mark** for each valid point.<br>Award **a maximum of 5 marks** for part (ii). | **7** | **For Part (i), possible answers may include:**<br>• an answer of 1.53 with 36 points indicates that the primary schools have an element of regularity **(1)**<br>• an answer of 1.53 (for sample of 36) lies outside the shaded area, indicating a significant result **(1)** — 95% probability that the result did not occur by chance. **(1)**<br>**Any other valid point.**<br>**For Part (ii), possible answers may include:**<br>• allows patterns that have been visually observed or mapped to be objectively measured **(1)**<br>• allows one council area to be quantitively compared to another **(1)**<br>• calculating one overall index for an area may hide patterns within the area **(1)**<br>• the size of the area can affect the result, for example, what may appear clustered in a small area may become random if a larger area is considered **(1)**<br>• nearest neighbour can be used to compare distribution patterns and their change over time. **(1)**<br>**Any other valid point.** |

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| | (c) | (i) | **Candidates should describe the trends shown in both diagrams.**<br>Award **1 mark** for each valid point.<br>Award **a maximum of 2 marks** if only one diagram is referred to. | **3** | • all states show a growth rate between 2019 and 2020. **(1)** Queensland & ACT reported the highest annual growth rates of student enrolments from 2019 – 2020, **(1)** with rates of 2.8% and 2.5% respectively, **(1)** whilst Northern Territory showed the lowest rate of 0.3% **(1)**<br>• total student enrolments have increased in the five years, from 2016 – 2020, by 5.5%. **(1)** Independent schools had the largest increase with 9.5% **(1)** whereas Catholic schools had the smallest increase of 1.5%. **(1)**<br>**Any other valid point.** |
| | | (ii) | **Candidates should discuss an alternative technique, graphical or statistical, that could be used to present the data.**<br>Award **0 marks** for naming the technique.<br>Award **1 mark** for each valid point. | **3** | • an appropriate graphical technique would be a compound/comparative line graph. This involves drawing a series of lines on the same graph to represent the different categories of school types. **(1)** Rates of change over time can be clearly identified by the lines. **(1)** The use of different coloured lines would allow the enrolment at different school types to be compared **(1)** and also compared with the Australian total **(1)**<br>• an appropriate statistical technique could be the application of a chi squared test to compare the observed differences in school enrolment between the different types of schools and the expected differences **(1)** and to calculate whether there was a statistically significant difference between the observed and the expected enrolment in different types of schools. **(1)** Chi squared is suitable as the data is categorical **(1)** and the expected number of sample observations in each category meets the minimum requirement of 5. **(1)**<br>**Any other valid point.** |

**[END OF MARKING INSTRUCTIONS]**