OXFORD AQA
INTERNATIONAL QUALIFICATIONS

INTERNATIONAL A-LEVEL
GEOGRAPHY
GG05

Paper 5 Fieldwork and Geographical Skills

Mark scheme

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same, correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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International A-level Geography mark scheme

How to mark

Aims

When you are marking your allocation of scripts your main aims should be to:

- recognise and identify the achievements of students
- place students in the appropriate mark band and in the appropriate part of that mark band (high, low, middle) for **each** Assessment Objective
- record your judgements with brief notes, annotations and comments that are relevant to the mark scheme and make it clear to other examiners how you have arrived at the numerical mark awarded for each Assessment Objective
- ensure comparability of assessment for all students, regardless of question or examiner.

Approach

It is important to be **open-minded** and **positive** when marking scripts.

The specification recognises the variety of experiences and knowledge that students will have. It encourages them to study geography in a way that is relevant to them. The questions have been designed to give them opportunities to discuss what they have found out about geography. It is important to assess the quality of **what the student offers**.

Do not mark scripts based on the answer **you** would have written. The mark schemes have been composed to assess **quality of response** and not to identify expected items of knowledge.

Assessment Objectives

This component requires students to:

AO1	Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.
AO2	Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.
AO3	Use a variety of relevant quantitative, qualitative and fieldwork skills to: • investigate geographical questions and issues • interpret, analyse and evaluate data and evidence • construct arguments and draw conclusions.

The marking grids

Do not think of levels equaling grade boundaries.

Depending on the part of the examination, the levels will have different mark ranges assigned to them. This will reflect the different weighting of Assessment Objectives in particular tasks and across the examination as a whole.

Using the grids

Having familiarised yourself with the descriptors and indicative content, read through the answer and annotate it (as instructed below) to identify the qualities that are being looked for and that it shows. You can now check the levels and award a mark.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptors for that level. The descriptors for the level indicate the different qualities that might be seen in the student's answer for that level. If it meets all the descriptors for the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptors and the answer. With practice and familiarity you will find that for better answers you will be able to skip through the lower levels of the mark scheme quickly.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best-fit approach for defining the level and then use the variability of the response to help decide the mark within the level.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark.

It is often best to start in the middle of the level's mark range and then check and adjust. If there is a lot of indicative content fully identifiable in the work you need to give the highest mark in the level. If only some is identifiable or it is only partially fulfilled, then give the lower mark.

The exemplar materials used during standardisation will also help. There will be an answer in the standardising materials that will correspond with each level of the mark scheme. This answer will have been awarded a mark by the lead examiner. You can compare the student's answer with the example to determine if it is of the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the lead examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

In addition to the levels descriptors, question specific indicative content is provided as a guide for examiners. This is not intended to be exhaustive and you must credit other valid points.

An answer that contains nothing of relevance to the question must be awarded no marks.

Annotating scripts

You should write a summative comment at the end for each Assessment Objective and indicate the marks for each Assessment Objective being tested at the end of the answer in the margin in sequence. It is vital that the way you arrive at a mark should be recorded on the script. This will help you with making accurate judgements and it will help any subsequent markers to identify how you are thinking. Please do not write negative comments about students' work or their alleged aptitudes.

Section A **Total for this section: 45 marks**

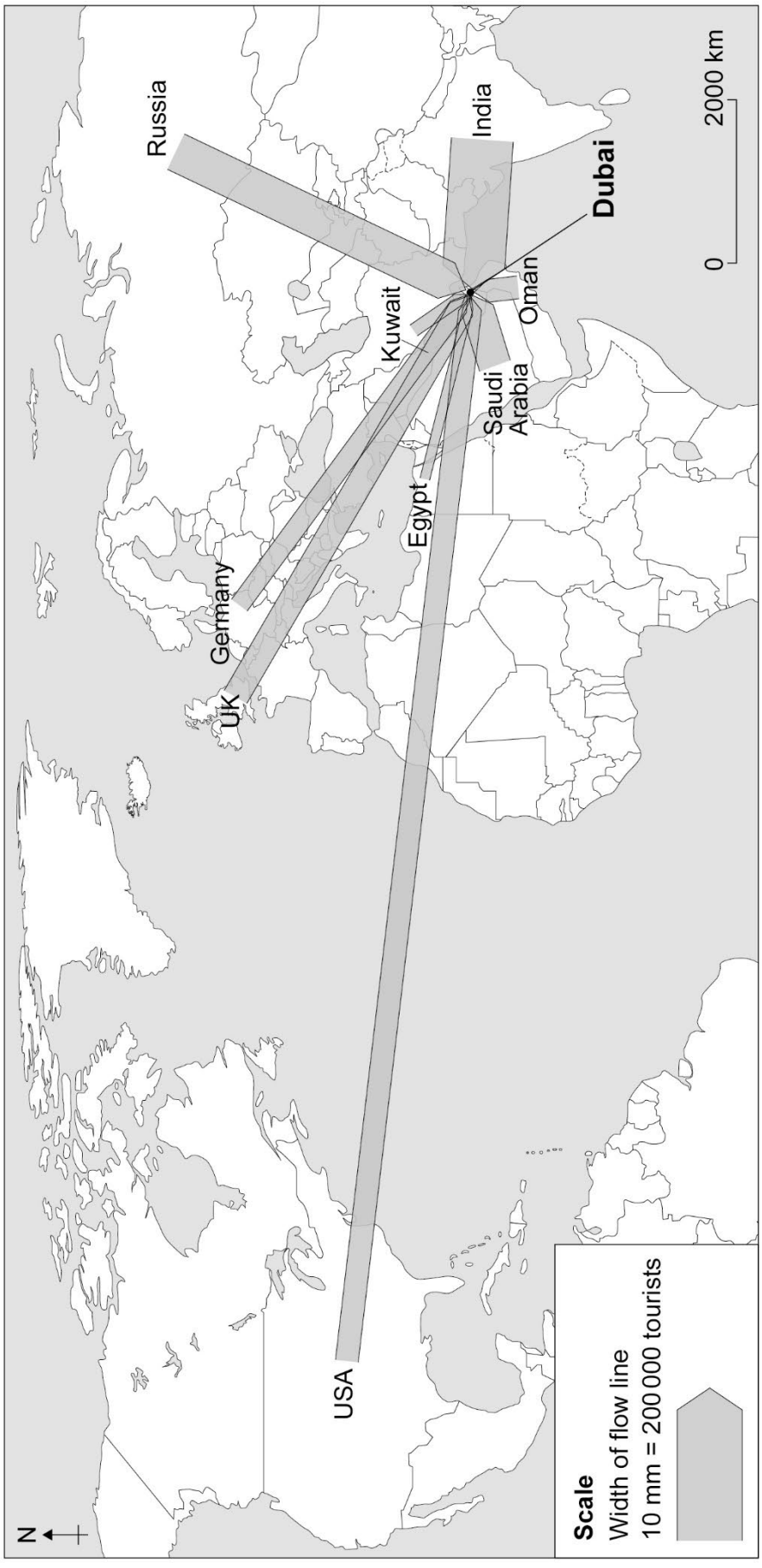
Question	Part	Marking guidance	Total marks
01		**Figure 1 is a field sketch drawn by a student investigating features of a river valley in an upland area of the United Kingdom.** **Outline reasons for using a field sketch in a geographical investigation.** **AO1** – Award up to 4 marks for knowledge and understanding of reasons for the use of a field sketch in a geographical investigation. Do not award marks for knowledge of fluvial landscapes.	**4** **AO1=4**

Indicative content

- Field sketches compel the observer/student to look closely at the features/landscape (1) and carefully record their observations (1).
- The student can select/emphasise key details (1) or choose to omit details if they wish (1). A photograph may show too much detail (1) but a good field sketch should omit the irrelevant and emphasise the relevant (d).
- A field sketch is a good base for recording data in the field (1).
- The field sketch can be labelled/annotated to indicate relevant features (1).
- Factors such as location, weather conditions, time of day can also be indicated (1).
- Symbols or shading can be used to show features (1) such as slopes, water features, woodlands and fields that can simplify the landscape in view (d).

Question	Part	Marking guidance	Total marks
02	**1**	**Complete Figure 2 by adding a proportional desire line to show the data for RUSSIA**. **AO3** – Award 2 marks for correct addition of the desire line linking Russia to Dubai. 1 mark for an arrow connecting Russia and Dubai (can come from anywhere in Russia). 1 mark for the correct use of the scale, arrow should be 6 mm wide (smaller than that for India, bigger than that for the UK). Arrow width should be consistent. Arrow does not need to be shaded for the marks.	**2** **AO3=2**

Indicative Content



Question	Part	Marking guidance	Total marks
02	2	**Describe the information shown in the completed Figure 2.** **AO3** – Award marks for valid descriptive statements regarding the information shown in the map and use of the scale for the arrows.	3 **AO3=3**

Indicative Content

- The highest number of tourist arrivals in January 2023 were from India (1), sending around 190 000 tourists (1).
- Russia was second followed by Saudi Arabia (1). (One mark for just a numerical list). Saudi Arabia sent around half the tourists that India sent (1). Credit comparative statements such as this.
- Three European countries are in the group shown (1).
- The country sending tourists from furthest away was the USA (1).
- Four countries were from relatively close proximity (North Africa, Gulf States, The Middle East) (1). Credit any valid regional group statements.
- No credit for what is not represented (ie 'no tourists from South America, Southern Africa').

Question	Part	Marking guidance	Total marks
02	3	**Explain why using innovative sources is an effective way of gathering geographical data.** **AO1** – Knowledge and understanding of innovative data sources such as crowd sourcing as a way of obtaining geographical data and its value. **AO2** – Application of knowledge and understanding of innovative data sources such as crowd sourcing to explain the value of this approach to obtaining geographical data.	**6** **AO1=2** **AO2=4**

Level	Marks	Descriptor
2	4–6	**AO1** – Clear knowledge and understanding of innovative data sources such as crowd sourcing as a means of obtaining geographical data and the value of this method of data collection. **AO2** – Clear application of the use of innovative data sources such as crowd sourcing as a means of obtaining geographical data and appreciation of the value of this approach to collecting data.
1	1–3	**AO1** – Limited knowledge and understanding of the use of innovative data sources such as crowd sourcing as a means of obtaining geographical data and the value of this method of data collection. **AO2** – Limited application of the use of innovative data sources such as crowd sourcing as a means of obtaining geographical data and limited understanding of the value of this method of data collection.
0	0	No creditable content.

Indicative Content

- Innovative data sources include non-traditional methods of data collection, such as the Internet, cell phone network operators, social media platforms and crowd sourcing.
- These are ways of gathering large volumes of data by opening applications out to large numbers of people and collating responses.
- These are often geo-located so they can be spatially referenced.
- For example, crowd sourcing is a way in which companies or institutions can obtain large amounts of data from a potential large pool of respondents.
- It can be cost-effective and data can be gathered without needing to hire/use employees.
- It is a 'hands-off' approach which means it saves time as well as money.
- Data obtained from social media sources can be obtained quickly and also from a wide range of respondents with a variety of views. Responses may refer to platforms such as Tripadvisor, Facebook or 'X' (formerly Twitter).
- The speed of data collection can be very rapid as data is sent digitally and therefore almost instantaneously.
- Large volumes of data can be obtained which can come from a wide and varied set of respondents. The views, opinions or ideas therefore can represent a wide variety of society.
- Credit other valid ideas.

Question	Part	Marking guidance	Total marks
03	1	**Evaluate the sampling strategy that the students used to collect data in this investigation.** **AO1** – Knowledge and understanding of systematic sampling as a method of obtaining data items from a bigger data set. **AO2** – Application of knowledge and understanding of systematic sampling to evaluate the strengths and weaknesses of this approach in the fieldwork context described.	**6** **AO1=2** **AO2=4**

Level	Marks	Descriptor
2	**4–6**	**AO1** – Clear knowledge and understanding of systematic sampling as a method of obtaining data items from a bigger data set. **AO2** – Clear application of the systematic sampling to evaluate the strengths and weaknesses of this approach in the fieldwork context described.
1	**1–3**	**AO1** – Limited knowledge and understanding of systematic sampling as a method of obtaining data items from a bigger data set. **AO2** – Limited application of the systematic sampling to evaluate the strengths and weaknesses of this approach in the fieldwork context described.
0	**0**	No creditable content.

Indicative Content

- Systematic sampling is used to ensure that there is even coverage across the length of the survey line.
- It is usually quicker and more straightforward to use than random sampling. Measurements are taken at regular intervals (the frequency can be predetermined as in this case where measurements have been taken every 5 m, 20 m and 50 m of gradient, pH and plant diversity respectively).
- Systematic sampling is often used because of its simplicity and to make sure that the number of samples measured/taken is appropriate to the circumstances. In this investigation, it would be sensible to measure gradient every 5 m but changes in pH and plant diversity are less likely with this frequency so it would be sensible to record these less often. The area being studied is large and so a systematic sample provides a way of obtaining data from all parts of the dune system from near the High Water Mark to the older dunes further inland.
- In this scenario, the pH readings are taken at 20 m intervals and the vegetation measurements are at 50 m intervals so they do not always coincide (only at 0, 100 and 200 m) which can affect direct analysis.
- However, systematic sampling can produce misleading sample data if there is any inherent pattern in the population. A random sample is less likely to reflect this but it could lead to clustering.
- In all approaches to sampling, selecting a strategy that takes into account the environment/population, the factors being investigated, time, practicality and human resources will be determined by the student/researcher and should be the most appropriate given these factors. There is never a perfect way to sample from a large population.

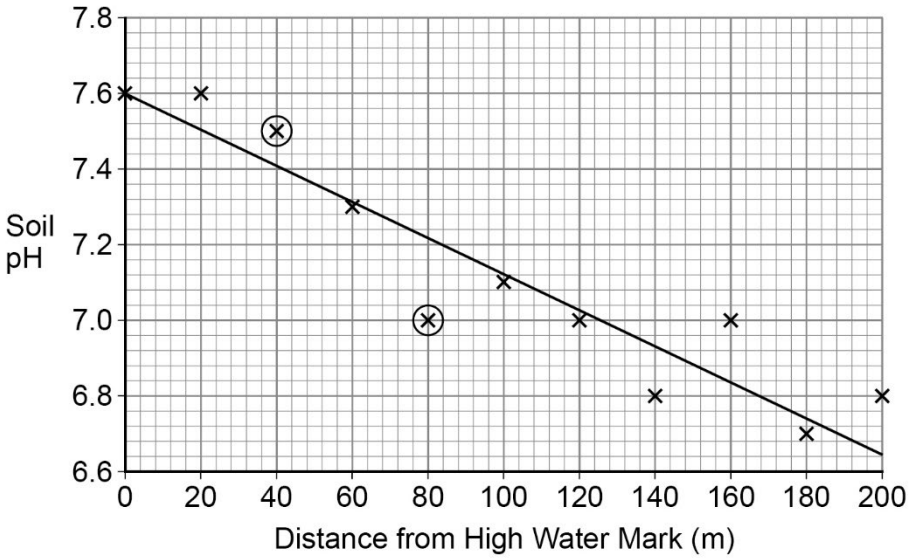
- Credit other valid responses that reference other approaches to sampling as part of the discussion of systematic sampling used here.

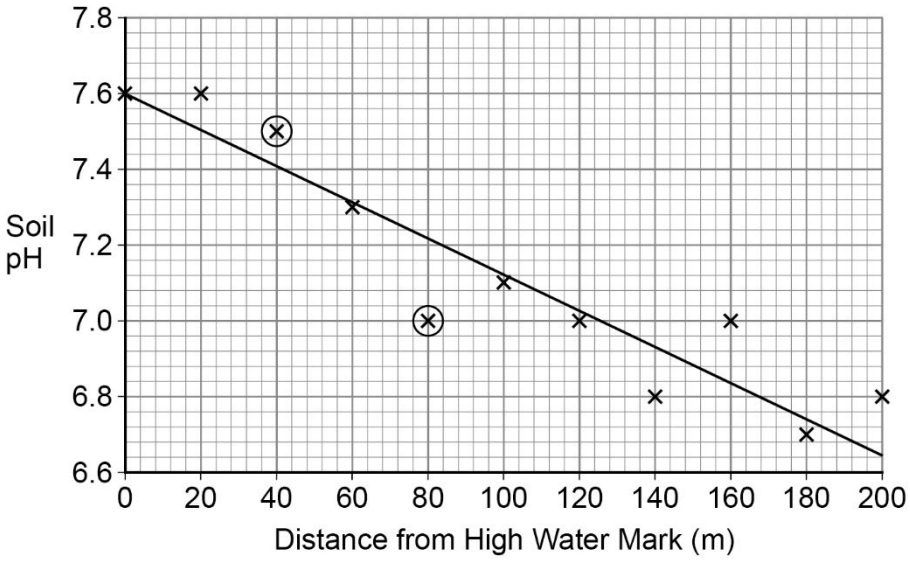
Question	Part	Marking guidance	Total marks
03	2	**With reference to Figure 3, explain why it is important to consider the ethical aspects of fieldwork in natural environments.** **AO2** – Application of knowledge and understanding of the need to consider ethical aspects of fieldwork in natural environments such as a coastal environment. **AO3** – Application of fieldwork and investigation skills to suggest ethical aspects of undertaking field work in natural environments and why they need to be considered.	**6** **AO2=3** **AO3=3**

Level	Marks	Descriptor
2	**4–6**	**AO2** – Clear application of knowledge and understanding of the importance of considering ethical aspects of working in an environment such as this. Awareness of the ethical concerns evident or which can be derived sensibly from the environment shown in Figure 3. **AO3** – Clear use of fieldwork and investigative skills to interpret the environment shown in Figure 3 and the likely ethical considerations present.
1	**1–3**	**AO2** – Basic application of knowledge and understanding regarding the consideration of ethical aspects of working in an environment such as this. Limited awareness of the ethical concerns evident or assumed in the environment shown in Figure 3. **AO3** – Basic use of fieldwork and investigative skills to interpret the environment shown in Figure 3 and the likely ethical considerations present.
0	**0**	No creditable content.

Indicative Content

- Ethical aspects of conducting fieldwork are important as students/researchers need to consider the potential impacts of their activities and attempt to mitigate against them.
- In a coastal sand dune environment such as this, there are likely to be specific plants and animals that may be harmed. Students need to be aware of trampling on any plants, disturbing animals and their habitats or having an effect on the dune development and these should all be avoided. Fieldwork should not interfere with the natural environment or with any of the legitimate users of the dune area such as tourists.
- Permission should be gained to access any private land.
- Researchers must take care not to leave litter or in any way pollute the area.
- Ethical aspects may extend to the anonymity of data collected involving people, such as avoiding the use of photographs that can identify individuals and the secure use, storage and disposal of data.
- Credit other valid responses.

Question	Part	Marking guidance	Total marks
03	3	**Use the data in Table 1 to complete Figure 4 by adding the data for 40 m and 80 m.** **AO3** – Award two marks, one for each correctly plotted point on the scatter graph. (See MS version of Figure 4 below).  	**2** **AO3=2**

Question	Part	Marking guidance	Total marks
03	4	**Draw a line of best fit onto Figure 4.** **AO3** – Award one mark for a correctly drawn line of best fit that follows a top left to bottom right direction, with an approximately even number of points either side of the line. Award the mark if the best fit line is 'correct' for the points added (even if the points from **03.3** are incorrect, to avoid a double penalty). The skill being tested is the addition of the line of best fit.  	1 **AO3=1**

Question	Part	Marking guidance	Total marks
03	**5**	**Analyse the results presented in Table 1, Table 2, Figure 4 and Figure 5.** **AO3** – There should be clear analysis of the data showing changes in soil pH, the dune gradient profile and the vegetation diversity. There should be some attempt to quantify the data/data manipulation to support the analysis and some connections made between the different results (dune profile, scatter graph and bar charts).	**6** **AO3=6**

Level	Marks	Descriptor
2	**4–6**	**AO3** – Clear analysis of the quantitative evidence provided which makes appropriate use of data in support. Clear connections between the dune profile, scatter graph of pH values and the vegetation diversity.
1	**1–3**	**AO3** – Basic analysis of the quantitative evidence provided which makes limited use of the data in the Tables and Figures. Basic changes over distance evident.
0	**0**	No creditable content.

Indicative Content

- As the dune sequence progresses inland there is a steady increase in dune height from 0 m to around 10 m above sea level. The dunes show a series of peaks (crests) and troughs (slacks).
- pH data shows a distinct negative correlation, becoming lower (more acidic) with distance inland. It is not a perfect negative correlation but the line of best fit is close to all of the plotted points on Figure 4. Over 200 m the pH falls from 7.6 to 6.7 on the pH scale.
- The distribution of plant species shows a significant change with species 1 and 2 more abundant between 0 m and 100 m inland. These gradually decline after this to be replaced by species 3 and 4. Species 5 and 6 are only found 150 m and 200 m away from the High Water Mark. There is greater species diversity at 100 m, 150 m and 200 m inland. Species diversity changes as the pH falls and the dune height increases.
- Credit other valid analysis.

Question	Part	Marking guidance	Total marks
03	6	**Outline how the Spearman's rank correlation coefficient would be used to test the null hypothesis.** **Assess how useful this method would be in a geographical investigation.** **AO1** – Knowledge and understanding of the Spearman's rank correlation coefficient and why this method is useful in a geographical investigation. **AO2** – Application of knowledge and understanding of the Spearman's rank correlation coefficient and assessment of the usefulness of the method in a geographical investigation.	**9** **AO1=4** **AO2=5**

Level	Marks	Descriptor
3	**7–9**	**AO1** – Shows a detailed knowledge and understanding of the Spearman's rank correlation coefficient, detailed knowledge of the reasons for the use of this technique **and** how it can help with hypothesis testing. **AO2** – Detailed application of knowledge and understanding regarding the Spearman's rank correlation coefficient **and** thorough understanding of the usefulness of the technique.
2	**4–6**	**AO1** – Shows clear knowledge and understanding of the Spearman's rank correlation coefficient **or** clear knowledge of the reasons for the use of this technique and how it can help with hypothesis testing. Response may be unbalanced. **AO2** – Some clear application of knowledge and understanding of the Spearman's rank correlation coefficient **or** some clear understanding of the usefulness of the technique.
1	**1–3**	**AO1** – Shows basic knowledge and understanding of the Spearman's rank correlation coefficient **or** limited knowledge of the reasons for the use of this technique and how it can help with hypothesis testing. **AO2** – Basic application of knowledge and understanding regarding the Spearman's rank correlation coefficient **or** basic or absent understanding of the usefulness of the technique.
0	**0**	No creditable content.

<u>Indicative Content</u>

- The Spearman's rank correlation coefficient is used to see if there is a statistically significant relationship between two variables.
- In this case, the relationship between distance from the High Water Mark on the dunes and the soil pH.
- Data for both variables needs to be put into rank order. Tied ranks would need to be shared.

- The difference between the rank orders is then calculated, the difference is squared and the sum of the differences is found.
- This figure is then used in the Spearman's rank formula, along with the number of sets of data to obtain a value.
- (This value will be between –1 and +1).
- A value closer to –1 would suggest a negative relationship, whilst a value nearer to +1 would indicate a positive relationship.
- The calculated coefficient is then tested for significance on a chart or table of critical values for that sample size with a range of acceptable significance levels. 95% acceptance is usually the minimal level for the result to be declared statistically significant.
- The researcher can then accept or reject the alternative hypothesis.
- Data such as distance and soil pH are valid for this test as they are numerical values collected in pairs (ie pH recorded at given distances).
- However, it is a relatively small data set and as such any correlation needs to be considered in this context.
- It is a useful technique as the next step of analysis after drawing a scatter graph and can help by providing an objective measure of the relationship between the two variables, unlike a scatter graph which is more subjective.
- However, any suggestion of correlation does not automatically mean that there is causation and students need to beware of assuming that the variables are linked even if the result is statistically significant.
- As a mathematical statistical technique there is scope for error in calculation.
- Credit other valid points about the application and usefulness of this technique.

Section B **Total for this section: 15 marks**

Question	Part	Marking guidance	Total marks
04	**1**	**Describe ONE method of data collection used in your fieldwork investigation.** **AO1** – Knowledge and understanding of one method of data collection relating to the candidate's investigation. **AO3** – Application of fieldwork and investigation skills to describe one method of data collection in the candidate's investigation. The method has a clear link to the aim stated.	**6** **AO1=3** **AO3=3**

Level	Marks	Descriptor
2	**4–6**	**AO1** – There is clear knowledge and understanding of the data collection method used in the candidate's investigation. The method is specific and described in such a way that it could be replicated. **AO3** – Clear application of fieldwork and investigation skills to describe a method appropriate to the aims of the investigation.
1	**1–3**	**AO1** – There is basic knowledge and understanding of the data collection method used in the investigation. The method described is general and it would be difficult to replicate from the description provided. **AO3** – Basic application of fieldwork and investigation skills to describe a method that is partially linked to the aims of the investigation.
0	**0**	No creditable content.

Indicative Content

- The method described should clearly relate to the candidate's investigation and the aims stated. The method should be clear, logical and sequential.
- The data collection method should be described in such a way as to be replicable with specific reference to the variables being measured/data required, any equipment or tools that are required.
- The inquiry and method could relate to any physical or human investigation. The data being collected can be quantitative or qualitative.

Example from an investigation to compare environmental quality in two parts of a town:

Aim – to see if there is a clear difference in environmental quality between area A and area B.

Method: In order to assess differences in environmental quality I asked a questionnaire to a sample of residents in both areas. The questionnaire had a series of closed questions that asked residents about their views on traffic pollution, the built environment, litter and open spaces.

Each question provided a range of answers on a scale of 1–5, for example the traffic question asked if the residents thought that traffic pollution was a problem, with '1' meaning it was a significant concern to health, and '5' meaning there was no problem at all.

Each respondent was asked the questions and they selected the number that represented their view. I asked the questionnaire to 20 people over 2 hours, making sure I selected an even number of men and women and people from across the age range.

I then tallied up the responses at each value to help me analyse the data collected.

Example from a physical inquiry investigation studying infiltration rates on a hillslope:

Aim – to see if infiltration rates decreased with distance down a hillslope.

Method: In order to find out if the infiltration rate decreased down the hill, I needed to use an open tin can, a ruler, a large canister of water and a stopwatch. At the top of the hill I put the can 2 cm into the soil and measured the depth of the can from the top. Then I filled the can with water and set my stopwatch for 2 minutes. After 2 minutes I measured the fall of water in the can with a ruler. I then quickly refilled the can and timed another 2 minutes. I repeated this until the water no longer dropped or ten refills, which ever was the sooner.

From these timings, I found the infiltration rate by dividing the total depth of fall by the total time for which I was recording.

The experiment was repeated every 10 m further down the slope for 140 m in total until I reached the bottom of the hill.

Question	Part	Marking guidance	Total marks
04	**2**	**To what extent did the results you obtained allow you to reach a valid conclusion in relation to the aim(s) of your investigation?** **AO2** – Application of knowledge and understanding of the investigation process to link results with conclusions. **AO3** – Use of fieldwork and investigation skills to evaluate the extent to which the results from the investigation could support a valid conclusion.	**9** **AO2=4** **AO3=5**

Level	Marks	Descriptor
3	**7–9**	**AO2** – Detailed application of knowledge and understanding of the investigation process with specific links of results to conclusions. Both the results and conclusions are specific and linked to the aim(s). **AO3** – Precise use of the fieldwork and investigation process that effectively evaluates the extent to which the results from the investigation support the conclusion.
2	**4–6**	**AO2** – Clear application of knowledge and understanding of the investigation process with creditable links between results and conclusions. The results and conclusions are linked to the aim(s). **AO3** – Clear use of the fieldwork and investigation process that attempts to evaluate the extent to which the results from the investigation support the conclusion.
1	**1–3**	**AO2** – Basic application of knowledge and understanding of the investigation process. Links between results and conclusions are basic or absent. Results and/or conclusions may not be clearly linked to the aim(s). **AO3** – Basic use of the fieldwork and investigation process to evaluate the extent to which the results from the investigation support the conclusion.
0	**0**	No creditable content.

<u>Indicative Content</u>

- Responses should show understanding of the candidate's investigation and an appreciation of the connection between results and conclusions. Responses will depend on the nature of the investigation and the particular aim(s) stated.
- The response should give some indication of the results obtained and the conclusions drawn and how those results have enabled the conclusion to be made or otherwise.

For example, using the infiltration rates investigation used in **Q04.1**:

The results for the changes in infiltration down the slope appeared to show that there was some validity in the idea that infiltration rates decrease with distance from the top of the hill to the bottom. At the top of the hill there was an infiltration rate of 2.5 mm per second, this then dropped to 0.02 mm per second at

the very bottom of the slope. There was not a steady or regular decrease in values every 10 m as in some places the infiltration rate seemed to increase (between 40 m and 50 m, both recorded 1.5 mm per second) and in others stay the same (from 70 m to 80 m, where it was 0.1 mm/sec). This might be due to other variables affecting infiltration rates not just distance downslope.

Therefore, the conclusion that infiltration rates decrease with distance downslope was true to some extent but the other factors need to be considered (such as soil depth, vegetation type and soil type). There should also be investigation of more than one slope transect to enable a more reliable conclusion to be stated.

Assessment Objective grid

	AO1	AO2	AO3	Total
Section A				
01	4			4
02.1			2	2
02.2			3	3
02.3	2	4		6
03.1	2	4		6
03.2		3	3	6
03.3			2	2
03.4			1	1
03.5			6	6
03.6	4	5		9
Section B				
04.1	3		3	6
04.2		4	5	9
Unit total	15	20	25	60