AS
GEOGRAPHY
7036/2

Paper 2 Human geography and geography fieldwork investigation

Mark scheme

June 2024

Version: 1.0 Final

246A7036/2/MS

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.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the typical performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

The notes for answers provide indicative content. Students' responses may take a different approach in relation to that which is typical or expected. It is important to stress that examiners must consider all a student's work and the extent to which this answered the question, irrespective of whether a response follows an expected structure. If in doubt the examiner should contact their team leader for advice and guidance.

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 descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets 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 descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

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, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which 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 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.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the indicative content to reach the highest level of the mark scheme.

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

Section A

Qu	Part	Marking guidance	Total marks
01	1	**Which one of the following groups will have an 'outsider' perspective on a place in which they live?** **A** Refugees who have been re-located to a medium-sized town in the UK.	**1** **AO1 = 1**
01	2	**Which of the following are <u>both</u> examples of the impacts of external forces on a place?** **B** The town is part of the government's agenda to regenerate small towns in the north of England In 2010, a multinational company closed a factory in this town, leading to considerable local job losses.	**1** **AO1 = 1**
01	3	**Suggest why place is important in human experience.** <u>Point marked</u> Award one mark for each relevant point with extra mark(s) for developed points (d). For example: <u>Notes for answers</u> • People may define themselves through a sense of place (1). • Place is something to which humans can become emotionally attached (1) and this may make a locale unique to them (1d) or a person-place relationship can develop (1d). • Places may hold special meaning to people (1) and give positive feelings of eg, comfort, safety, security, or well-being (1d) • Other places may be seen as places to avoid (1) or give negative feelings of eg, fear, insecurity or placelessness (1d). • If you have more experience in a place, you may become more attached to this place (1). • Place may impact on a person's identity and/or sense of belonging (1). • Places carry memories for people (1) and can be associated with community/culture/traditions/social norms (1d) The notes for answers are not exhaustive. Credit any valid points and named examples used to support a point.	**3** **AO1 = 3**

01	**4**	**Analyse the data in Figure 1a and Figure 1b.** **AO3** – Analysis of data. Mark scheme **Level 2** (4–6 marks) **AO3** – Clear analysis of the data provided, which makes appropriate use of data in support. Clear connection(s) between different aspects of the data. **Level 1** (1–3 marks) **AO3** – Basic analysis of the data provided, which makes appropriate use of data in support. Basic connection(s) between different aspects of the data. Notes for answers The question requires analysis of the data shown in the figures. Ideally, the analysis should identify contrasts, changes, or anomalies in the composition and be supported by data interpretation and/or manipulation. **AO3** • Overall, 'white' is the majority ethnic group in both rural and urban areas but urban areas are more ethnically diverse than rural areas. • In 2020, the 'white ethnic' group accounted for approximately 97 per cent of the rural population, compared with approximately 81 percent in urban areas, a difference of approximately 16%. • There has been little change in the proportion of groups in both rural and urban areas between 2016 and 2020. • Diversity of 'minority ethnic' groups differs between rural and urban areas. In rural areas the second largest group is the 'Mixed / Multiple ethnic group' while in urban areas it is the 'Asian ethnic' group. The smallest group proportionally in rural areas is the 'black / African / Caribbean or black British' group, while in urban areas it is the 'Mixed / Multiple ethnic group'. • In rural areas, Asian/Asian British group makes up 30% in rural areas in 2016 compared to 50% in urban areas. • Black/ African/Caribbean/Black British make up a higher percentage of the population in urban areas than the same group in rural areas and there has been a slight reduction in the percentage population for this group in rural areas in 2020. Credit any other valid approach.	**6** **AO3 = 6**

01	**5**	**'Attempts by external agencies to influence place-meanings often create media places.'** **To what extent do you agree with this view?** **AO1** – Knowledge and understanding of how external agencies may attempt to influence place meaning. Knowledge and understanding of media places. **AO2** – Applies knowledge to assess the extent to which attempts by external agencies to influence place-meaning lead to the creation of media places. Mark scheme **Level 3 (7–9 marks)** **AO1** – Demonstrates detailed knowledge and understanding of how external agencies may attempt to influence place meaning and the concept of media places. **AO2** – Demonstrates detailed application of knowledge and understanding to assess the extent to which attempts by external agencies to influence place meaning may lead to the creation of media places. Analysis and evaluation are detailed and well supported with appropriate evidence. Synthesises information to fully support a conclusion about the extent to which attempts by external agencies to influence place-meaning may lead to the creation of media places. **Level 2 (4–6 marks)** **AO1** – Demonstrates clear knowledge and understanding of how external agencies may attempt to influence place meaning and the concept of media places. **AO2** – Demonstrates clear application of knowledge and understanding to assess the extent to which attempts by external agencies to influence place meaning may lead to the creation of media places. Analysis and evaluation are clear and well supported with appropriate evidence. Synthesises information to support a partial conclusion about the extent to which attempts by external agencies to influence place meaning may lead to the creation of media places. **Level 1 (1–3 marks)** **AO1** – Demonstrates basic knowledge and understanding of how external agencies may attempt to influence place meaning and the concept of media places. **AO2** – Demonstrates basic application of knowledge and understanding to assess the extent to which attempts by external agencies to influence place meaning may lead to the creation of media places. Analysis and evaluation are basic and supported with limited evidence. Notes for answers The question requires an assessment of whether attempts by external agencies lead to the creation of media places.	**9** **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of how external agencies, including government, corporate bodies and community or local groups make attempts to influence or create specific place-meanings and thereby shape the actions and behaviours of individuals, groups, businesses and institutions. • Knowledge and understanding of categories of place – experienced places and media places. • Knowledge and understanding of the use of qualitative and quantitative sources to represent place. • Knowledge and understanding of the concept of place and importance of place in human experience. • Knowledge and understanding of local and / or distant place studied. **AO2** • Local governments may wish to manage and manipulate perceptions of a place in order to attract people and investment. Such rebranding or re-imaging initiatives often use marketing companies to improve or create positive perceptions of a place. This may, in turn, involve the creation of websites, advertising campaigns, logos etc. which only focus on the attractive sides of a place. This could be viewed as the creation of a 'media place' which may not be closely aligned to the experience of people living in this place. • Many corporate bodies will want to manipulate the perceptions of a place eg, tourist agencies aim to 'sell' a place to potential visitors and they will use promotional material such as brochures, videos, websites and slogans. Whilst this may to some extent create a 'media place', it will also likely attract more people who will 'experience' this place. • External agencies often promote an idealised or specific view of a place and reinforce positive images by media or advertising campaigns. This 'media place' may not be the experience of many people living in this place, but in the longer-term a successful change of image may help to kick-start regeneration and improve the lived experience of people living in this place. • Some external agencies may attempt to create place meaning by involving local residents with 'insider' experiences. Social media can be used to involve people in place-making schemes as well as community groups. This approach is less likely to lead to the creation of a 'media place'. • Media places may be created in other ways, through literature, art and film and external agencies may have limited influence on this. • A conclusion should make a judgement about the extent to which external agencies create media places in their attempts to influence place-meaning. Credit any other valid evaluation.	

01	**6**	'**Past and present processes of development both contribute to the social and economic character of a place.'** **Using an example of a distant place you have studied, to what extent do you agree?** **AO1** – Knowledge and understanding of how past and present processes of development contribute to place character. Knowledge and understanding of a distant place studied. **AO2** – Assessment of to what extent past and present processes of development contribute to the character of a place. <u>Notes for answers</u> Responses should focus on evaluating how far past and present processes of development contribute equally to the character of the place. The content, discussion and conclusion will depend on the character and development history of the example distant place. A range of processes of development might be included in the content. For example, those generated by endogenous factors (eg, availability of resources, political decisions, employment opportunities etc.) or by exogenous factors (eg migration, globalisation, investment, de-industrialisation etc.) This list is not exhaustive. **AO1** Knowledge and understanding of: • How both past and present processes of development can be seen to influence the social and economic characteristics of places and so be implicit in present meanings. • The concept of place. • The ways in which relationships, connections, meaning, and representation affect continuity and change. • Continuity and change in the nature of places and our understanding of place. • Factors contributing to the character of place in a local or distant place studied. **AO2** • The character of a place may have been influenced by the transformation from an industrial to a post-industrial economy. This may be due to a combination of deindustrialisation, globalisation, regeneration, development of the service sector and improved transport links. Other places may still be experiencing the impacts of deindustrialisation and present processes of development may be seen as having less impact on place character. • In a rural place, out-migration, lack of investment, changes to the rural economy and counter-urbanisation may be processes of development impacting on place character.	**20** **AO1 = 10** **AO2 = 10**

		• A place may have been regenerated in order to improve the image, attract economic investment and improve the quality of life of residents and the physical landscape. These present processes of development may not benefit everyone or the whole area and the legacy of these processes of development may lead to greater social and economic inequalities in a place. Some heritage from past processes of development may be retained in the built environment or derelict buildings removed. • Gentrification may have changed the social and economic character of a place and led to the displacement of original residents as house prices rise, and communities and shops change. • Past or present development of transport links may have influenced the built environment, the urban form and the economic development of a place. • Historical and recent waves of migration may contribute to the social and economic character of a place. • The conclusion should make a judgement about the extent to which past and present processes of development contribute to the character of a place. Some may suggest that other factors may be more important in determining the character of a place. Any view is acceptable, as long as it is supported with reasoned argument and may also include illustrative examples and evidence. Credit any other valid assessment.	

Marking grid for Question 01.6

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1). • Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

Section B

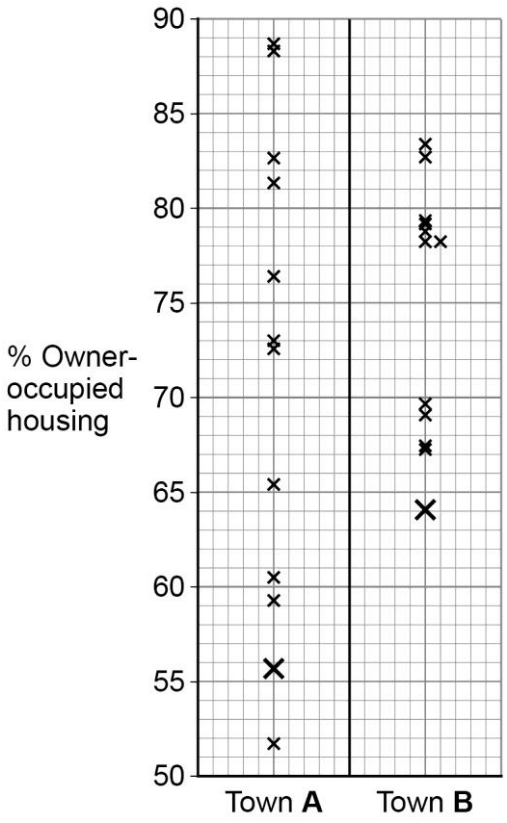
Qu	Part	Marking guidance	Total marks
02	1	**Outline <u>one</u> ethical issue that must be considered when collecting data from an interview.** <u>Point marked</u> Award one mark for each relevant point with extra mark for developed point (d). For example: <u>Notes for answers</u> • The interviewee may be concerned about the anonymity/confidentiality of the interview (1) and may need reassurance about how the data will be stored and shared (1d). • The interviewee may have certain opinions/views (1) and this potential 'bias' should be acknowledged (1d). • Interviewer behaviour/neutrality is an issue (1); the interviewer should respect people's opinions and not try to influence their responses (1d) • The interviewee may be concerned about how the interview will be recorded (1) and the interviewer should be transparent about how any notes will be scribed or voice-recorded (1d). • Informed consent is important (1); the interviewee should consent to be interviewed and understands the aims/purpose of the interview (1d) • The nature of the questions being asked may be an issue (1); only questions that are relevant to the enquiry should be asked (1d) and not questions that might offend/be too personal (1d) The notes for answers are not exhaustive. Credit any valid points.	**2** **AO1 = 2**
02	2	**Using Figure 2, suggest how <u>one</u> type of map could be used to prepare for a geographical investigation in this place.** <u>Point Marked</u> Award one mark for any reasonable suggestion and/or its development. • OS map to identify a suitable site for fieldwork (1) and then used to plan a sampling strategy (1d). • Old and new OS maps could be used to identify land use changes (1) which could be useful for formulating a specific hypothesis (1d). • GIS maps of census data, IMD or demographic data could be used to present secondary data (1) and assist in the development of aims and objectives of the investigation (1d). • Choropleth maps showing variations in census or other demographic data (1) can be used to identify areas to study (1d) • Goad maps showing details of changes in building use over time (1) could be used as secondary data (1d) Credit other relevant suggestions.	**2** **AO3 = 2**

02	**3**	**With reference to Figure 2, suggest <u>one</u> aim for a geographical fieldwork investigation and outline <u>one</u> method of primary data collection.** <u>Point Marked</u> Award **one** mark **maximum** for a valid aim and **up to three** for method. • Aim: To investigate if the regeneration of this location has been a success (1). • Primary data could be collected by carrying out environmental quality surveys (1). These would include a variety of indicators of environmental quality such as green space and housing quality (1). At each sampling point a score would be given for each of the indicators using a bi-polar scale (1). • Inclusion of a sampling strategy (random, systematic etc.) can be credited (1) as part of the outline of method; elaboration or explanation of the sampling strategy is also creditworthy as a development (1d). Credit any other reasonable suggestions – expect reference to land use surveys; questionnaires; interviews; on-line surveys; clone town surveys and credit any valid elaboration of these methods.	**4** **AO3 = 4**

02	**4**	**Evaluate the usefulness of secondary data sources in meeting the aim of your enquiry.** **AO1** – Knowledge and understanding of the aims of the fieldwork investigation. Knowledge of secondary data used in the fieldwork investigation. **AO2** – Application of knowledge and understanding to evaluate the usefulness of secondary data sources for meeting the aims of the enquiry. Makes a direct link between secondary data sources and the aims of the enquiry. <u>Mark scheme</u> **Level 3 (7–9 marks)** **AO1** – Detailed knowledge and understanding of the secondary data sources. Detailed knowledge of the aims of the enquiry. **AO2** – Detailed application of knowledge and understanding of the secondary data sources and evaluates how far this has led to the aims of the enquiry being met. Makes a direct link between secondary data sources and the aims of the enquiry. **Level 2 (4–6 marks)** **AO1** – Clear knowledge and understanding of the secondary data sources. Clear knowledge of the aims of the enquiry. **AO2** – Clear application of knowledge and understanding of the secondary data sources and evaluates how far this has led to the aims of the enquiry being met. Makes a clear link between secondary data sources and the aims of the enquiry.	**9** **A01 4** **A02 5**

		Level 1 (1–3 marks) **AO1** – Basic application of knowledge and understanding of the secondary data sources and evaluates how far this has led to the aims of the enquiry being met. Makes a basic link between secondary data sources and the aims of the enquiry. **AO2** – Basic application of knowledge and understanding to evaluate the usefulness of secondary data sources for meeting the aims of a fieldwork enquiry. Makes basic links between the data and the aims of the enquiry. <u>Notes for answers</u> The question requires an evaluation of the usefulness of secondary data in meeting the aim of their enquiry. Evaluating the relative merits of their primary data compared with their secondary data in meeting the aim is a valid approach. **AO1** • Knowledge and understanding of the aims of the fieldwork investigation. • Knowledge and understanding of using secondary data sources. **AO2** • Secondary data may be most useful for helping to draw up clear and achievable aims of a fieldwork investigation. OS and other maps may give locational context and secondary data can help to identify a geographical issue to investigate eg, proposed housing developments. It may also be helpful as background research and may not contribute directly to meeting aims and objectives. • Secondary data can be used to test hypotheses as part of the wider investigation and support primary data collection. This may be particularly useful for data which would be difficult to collect as primary data eg, house price data, crime maps, CDRC maps, Environment Agency gauging station data, climate data. • Secondary data may be used to support analysis and provide geographical context for findings from primary data collection eg, Environment Agency flood risk maps, GIS maps of census data or IMD etc. • Secondary sources may help to identify an area for study or help to devise a sampling strategy eg, OS maps, demographic groups for a stratified sample. • Secondary data may help to support or contest conclusions and enable areas for further investigation to be identified. • Secondary data may have full coverage of the population eg, census and 'big data' sets may have much wider coverage of the area and/or population under study. • Secondary data may be more useful where there are circumstances making primary data collection less accessible. • Secondary data may not be as useful as primary data collection for meeting the specific aims and objectives of the enquiry. • Overall, a conclusion should be reached about the usefulness of secondary data sources for meeting the aims and objectives of the student's enquiry. Credit any other valid approach.	

02	**5**	**Assess how useful the data presentation method(s) you used in your investigation were for data analysis.** **AO1** – Knowledge of the fieldwork enquiry that was carried out. Knowledge and understanding of data presentation. **AO2** – Application of knowledge and understanding to assess the extent to which data presentation was useful for data analysis**.** Mark scheme **Level 2 (4–6 marks)** **AO1** – Clear knowledge and understanding of how fieldwork data was presented. **AO2** – Clear assessment of data presentation, supported with evidence from the enquiry. Makes clear links between data presentation and analysis. Clear conclusions reached about the extent to which data presentation helped with data analysis. **Level 1 (1–3 marks)** **AO1** – Basic knowledge and understanding of how fieldwork data was presented. **AO2** – Basic assessment of data presentation, supported with evidence from the enquiry. Makes basic links between data presentation and analysis. Basic conclusions reached about the extent to which data presentation using graphs helped with data analysis. Notes for answers The question requires an assessment of how far presentation helped with data analysis. **AO1** • Knowledge and understanding of the fieldwork enquiry carried out. • Knowledge and understanding of how primary and/or secondary data was presented and analysed. **AO2** • Assessment of the importance of presentation for the analysis of data, for example, scatter graphs for the analysis of relationships between variable or choropleth maps to analyse spatial patterns. • Assessment of the importance of presentation may recognise this as a 'first-step' to further statistical analysis of data or used as overlays on GIS maps for more complex spatial analysis. • Assessment of how presentation may be less relevant for the analysis of some types of data, for example, qualitative data. The usefulness of data presentation for data analysis may be very limited in some types of investigation depending on the data collected and the aims of the enquiry. • Assessment may conclude that presentation was more useful for data analysis of primary or secondary data. • Overall assessment of the usefulness of presented data for analysis. This is likely to depend on the aims and objectives. In some studies data presented may be central to analysis whereas in other studies other techniques may assume more importance. • Some may argue that a variety of techniques were equally important for the successful analysis of data collected. Credit any other valid approach.	**6** **AO1 = 2** **AO2 = 4**

Qu	Part	Marking guidance	Total marks
03	1	**Calculate the median value for Town A.** Point marked 2 marks for correct median - 72.9 Max 1 mark for method – finding 6th and 7th values and/or finding middle value between 72.8 and 73.0	**2** **AO3 = 2**
03	2	**Two values are missing on the dispersion diagram in Figure 5. Plot the values from the table below onto Figure 5.** Point Marked 1 mark for each correct plot • Plots should be a cross. • Max 1 mark if plots correct but the plot is not a cross. • It is not necessary to write the value next to the plot.  	**2** **AO3=2**

03	**3**	**Complete Figure 6 and calculate the standard deviation to <u>two</u> decimal places.** **Show your working in the space provided in Figure 6.** <u>Point marked</u>	**4** **AO3 = 4**

Town A % Owner-occupied housing	$x - \bar{x}$	$(x - \bar{x})^2$
76.4	5.1	26.01
88.6	17.3	299.29
82.6	11.3	127.69
51.7	–19.6	384.16
73.0	1.7	2.89
55.7	**–15.6**	**243.36**
65.4	–5.9	34.81
72.8	1.5	2.25
59.3	–12.0	144.00
60.5	–10.8	116.64
88.2	16.9	285.61
81.4	10.1	102.01
$\sum x$ = 855.6		$\sum(x - \bar{x})^2$ = 1768.72
$\bar{x}$ = 71.3		

Key
x = individual value
$\bar{x}$ = mean
$\sum$ = sum of
σ = standard deviation
n = number in sample

Standard deviation formula

$$\sigma = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$$

Space for working

$$\frac{1768.72}{12} = 147.3933$$

$\sqrt{147.3933}$

σ = 12.14

1 mark for correct calculation $x - \bar{x}$
1 mark for correct calculation $(x - \bar{x})^2$
1 mark for correct substitution into the formula

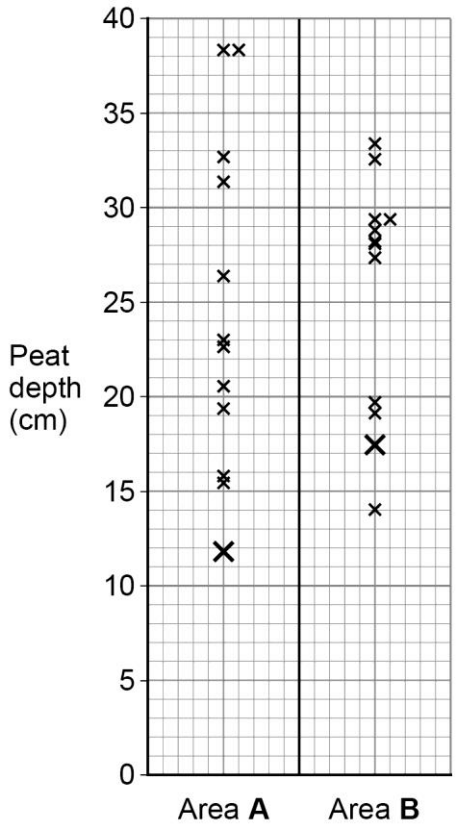
√(1768.72/12)
OR
1768.72/12 = 147.3933
√147.3933

1 mark for correct SD rounded to 2 decimal places.
SD = 12.14

If no working out shown:
- 2 marks for correct SD given to 2DP
- Max 1 mark for correct SD to 3+ DP – 12.14057

03	**4**	**Using Figures 3, 4, 5 and 6, evaluate the usefulness of these statistics for data analysis in this investigation.** **AO3** – Use a range of information and techniques to synthesise and draw aspects of the study together. Evaluation of the usefulness of statistics for data analysis. Mark scheme **Level 3 (7–9 marks)** Detailed use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Detailed evidence of drawing together different elements of the study in order to support the response. **Level 2 (4–6 marks)** Clear use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Clear evidence of drawing together different elements of the study in order to support the response. **Level 1 (1–3 marks)** Basic use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Basic evidence of drawing together different elements of the study in order to support the response. Notes for answers **AO3** • Calculations allow the application of commonly understood procedures for data analysis. • Measures of central tendency (mean, median, mode) are a useful descriptive summary of a data set by a single value that can help support or dismiss a hypothesis and allows direct comparison of these two data sets. • Mean may be affected by higher/lower values in the data set and median may be seen as more useful as it is not affected by extreme values. Both median and mean are higher in Town B so supports the rejection of the hypothesis. The mode is not useful for analysis as this is not categorial data. • Measures of dispersion indicate the spread of the values around the average and how reliable the average is representative of a whole data set. Statistics are useful for mathematically testing what can be seen on the dispersion diagram. • Standard deviation may be useful as the two data sets have similar means and it indicates (mathematically) the extent of the spread of the data around the mean. Town A has a higher standard deviation indicating that there is more spread around the mean. This adds depth to analysis as it suggests there is more variance of housing tenure across Town A and comparison of the averages alone may have led to misleading analysis. • Other measures could be useful to compare the variance in the data sets eg, range, Inter-quartile range and Mann-Whitney (although not on the specification, it compares the median value of the two data sets). • Other ways of analysing the data may be useful eg GIS mapping.	**9** **AO3 = 9**

		• A conclusion should be reached about how useful these statistics are for data analysis. Credit any other valid approach.	

Qu	Part	Marking guidance	Total marks
04	1	**Calculate the median value for Area A.** Point marked 2 marks for correct median - 22.9 Max 1 mark for method – finding 6th and 7th values and/or finding middle value between 22.8 and 23	**2** **AO3 = 2**
04	2	**Two values are missing from the dispersion diagram in Figure 9.** **Plot the values from the table below onto Figure 9.** Point Marked 1 mark for each correct plot. • Plots should be a cross. • Max 1 mark if plots correct but the plot is not a cross. • It is not necessary to write the value next to the plot.  	**2** **AO3=2**

04	**3**	**Complete Figure 10 and calculate the standard deviation to <u>two</u> decimal places.** **Show your working in the space provided in Figure 10.**	**4** **AO3 = 4**

<u>Point marked</u>

Area A peat depth (cm)	$x - \bar{x}$	$(x - \bar{x})^2$
26.4	1.8	3.24
38.2	13.6	184.96
32.6	8.0	64.00
11.7	–12.9	166.41
23.0	–1.6	2.56
15.7	**–8.9**	**79.21**
15.4	–9.2	84.64
22.8	–1.8	3.24
19.3	–5.3	28.09
20.5	–4.1	16.81
38.2	13.6	184.96
31.4	6.8	46.24
$\sum x$ = 295.2		$\sum(x - \bar{x})^2$ = 864.36
$\bar{x}$ = 24.6		

Key
x = individual value
$\bar{x}$ = mean
$\sum$ = sum of
σ = standard deviation
n = number in sample

Standard deviation formula

$$\sigma = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$$

Space for working

$$\frac{864.36}{12} = 72.03$$

$\sqrt{72.03}$

σ = 8.49

1 mark for correct calculation $x - \bar{x}$
1 mark for correct calculation $(x - \bar{x})^2$
1 mark for correct substitution into the formula

√(864.36/12)
OR
864.36/12 = 72.03
√72.03

1 mark for correct SD rounded to 2 decimal places.
SD = 8.49

If no working out shown:
- 2 marks for correct SD given to 2DP
- Max 1 mark for correct SD to 3+ DP – 8.48704

04	**4**	**Using Figures 7, 8, 9 and 10, evaluate the usefulness of these statistics for data analysis in this investigation.** **AO3 –** Use a range of information and techniques to synthesise and draw aspects of the study together. Evaluation of the usefulness of statistics for data analysis**.** Mark scheme **Level 3 (7–9 marks)** Detailed use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Detailed evidence of drawing together different elements of the study in order to support the response. **Level 2 (4–6 marks)** Clear use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Clear evidence of drawing together different elements of the study in order to support the response. **Level 1 (1–3 marks)** Basic use of information about the enquiry which is used to evaluate the use of statistics for data analysis. Basic evidence of drawing together different elements of the study in order to support the response. Notes for answers **AO3** • Calculations allow the application of commonly understood procedures for data analysis. • Measures of central tendency (mean, median, mode) are a useful descriptive summary of a data set by a single value that can help support or dismiss a hypothesis and allows direct comparison of these two data sets. • Mean may be affected by higher/lower values in the data set and median may be seen as more useful as it is not affected by extreme values. Both median and mean are higher in Area B so supports the rejection of the hypothesis. The mode is not useful for analysis as this is not categorial data. • Measures of dispersion indicate the spread of the values around the average and how reliable the average is representative of a whole data set. Statistics are useful for mathematically testing what can be seen on the dispersion diagram. • Standard deviation may be useful as the two data sets have similar means and it indicates (mathematically) the extent of the spread of the data around the mean. Area A has a higher standard deviation indicating that there is more spread around the mean. This adds depth to analysis as it suggests there is more variance of peat depth across Area A and comparison of the averages alone may have led to misleading analysis. • Other measures could be useful to compare the variance in the data sets eg, range, Inter-quartile range and Mann-Whitney (although not on the specification, it compares the median value of the two data sets). • Other ways of analysing the data may be useful eg GIS mapping.	**9** **AO3 = 9**

		• A conclusion should be reached about how useful these statistics are for data analysis. Credit any other valid approach.	