



**General Certificate of Secondary Education  
June 2011**

**Statistics**

**43101F**

**(Specification 4310)**

**Unit 1: Written Paper (Foundation)**

***Report on the Examination***

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## General

This is the first written paper in the new specification and candidates found the paper accessible and seemed to attempt the paper right through to the end.

The greater number of shorter questions seemed to be well received but the discursive parts of questions proved to offer the greatest challenges to candidates at this level.

Although probability questions were amongst the best done, some candidates still use words or ratios when values are required and these candidates lose marks.

Two topics, new to this specification, were tested in this paper. The question on dot plots was answered very well but the one on observational experiments was answered less successfully.

Centres are reminded that black is the recommended ink colour for the written parts of the paper and HB pencil for diagrams.

Topics that were well done included:

- Dot plots
- Simple probability
- Drawing a stem-and-leaf diagram
- Drawing a choropleth map
- Finding advantages and problems of data collection methods

Topics which candidates found difficult included:

- Naming an appropriate alternative diagram for discrete data
- Naming a data collection method
- Identifying an incorrect scale on a diagram
- Justifying the choice of a stratification category
- Inter-observer bias

## Question 1

Though this topic was new on this specification this provided a really good start for the vast majority of candidates.

Most had little difficulty with parts (a), (b) and (c), although in (c) some were doing the range of the heights of the dots and getting 6 rather than  $6 - 1 = 5$ .

In (d)(i), it was expected that a comment on the mode and a comment on the range would be made and some good answers were seen. However, candidates were making statements which could not be obtained from the diagram and data eg, more people lived in the houses in 1959.

Part (d)(ii) was done well. Many excellent full mark answers seen, but occasionally the initial data was considered rather than the 1959 distribution. The most common error was to forget to get the total of the heights to be 22.

In (d)(iii) few candidates were able to name a suitable diagram. Pie charts and line graphs were common wrong answers. Pictogram was probably the most common correct answer with vertical line diagram and dot plot also seen.

## Question 2

This question was very well answered by a large majority of candidates. It is unfortunate that some candidates are still using words which are not accepted unless asked for and ratios which are never accepted.

Parts (b) and (c) had more correct answers than part (a).

### Question 3

Part (a) was very well done and this type of diagram seemed very well known. Most of the lost marks were through carelessness, such as missing one of the zeros out on the '3' row. Candidates should be encouraged to check their total number of leaves so that this type of mistake can be eliminated.

Part (b) was not well done with many using incorrect methods to obtain 30, such as saying it was the mode or that it was  $\frac{3}{4}$  of 40. A few made good use of the diagram to show the required result.

The last part was slightly better with more focussing on a few breaking the speed limit rather than most being under it, although either response was accepted.

### Question 4

This question was answered more successfully than similar questions assessed in the old specification.

In part (c), many worked out a 10% increase instead of a 20% one.

### Question 5

All parts of this question were well answered, even the less familiar first part, with candidates explaining this more clearly than other similar discursive questions. Some did incorrectly refer to the 12 in the centre of the square.

The quality of responses in part (b) was very high with very few instances where candidates left the examiner in doubt about the nature of the shading they had used in any given square. Most correctly identified the '2' square in part (c).

### Question 6

In part (a) most made some reference to the 3D nature of the pie chart or that the angles could not be measured accurately and hence picked up one mark but few went on to discuss the implications of this eg, that, for example, the 'roasts' section looked much bigger than it was.

Part (b) was very well answered with most getting 4 marks and those who struggled with the 'mashed' and 'other' still able to get marks for 'chips' and 'roasts' and their labelling or key. However, it was common to see comments about numbers of adults and children (eg, more) when the pie chart is about proportions from different sized populations. Some also gave a similarity when the question asked for a difference.

### Question 7

Candidates had some success finding issues with the three frequency tables - table A was the one with least success. Some candidates however did not understand the double inequalities and so were convinced that there were overlaps in each table.

There were some excellent responses using cumulative frequency, although some plotted at midpoints (or even lower class bounds on occasions); but many candidates did not attempt cumulative frequency at all and so could not score on this question.

### **Question 8**

In part (a) many knew which way around to divide the two numbers having correctly changed the units from days to minutes but then failed to note the request for two decimal places or truncated to 4.42

Part (b) saw lots of good attempts probably due to, on this occasion, the use of midpoints being signposted. Some candidates made errors and so could not achieve the published result – however, there was rarely evidence of any attempt to find the error(s) and correct them.

Part (c) was quite demanding though some did identify the role of midpoints in the difference between the two results; fewer using the fact that the 6.7 days would be rounded.

### **Question 9**

This question was very poorly done.

Very few identified any form of experiment in part (a) and even fewer saw the incorrect scaling in (b) despite being invited to look carefully at the graph.

### **Question 10**

Interestingly the performances in the parts of this question improved as the parts went on with (d) very well done.

In part (a) there was much referencing of the National Census which was not relevant in this question – some good answers seen but quicker and easier were not seen as two different reasons.

Part (b) saw some imaginative correct responses, such as number of tenants in the house as well as the usual ones of gender and age. Few candidates could then relate why they thought this was a good category to stratify by, or provide a general statement about why stratifying is a good idea.

The vast majority of candidates gained some credit on part(c) with some very good answers seen. Most marks were lost by those failing to offer a response section (even a dotted line for a response was fine for an open question here) or by those who did not ask for the number of complaints in a given time scale.

Part (d) was really well done, as candidates could choose their own collection method and offer an advantage and a problem for that. Door-to-door seemed the most popular choice to discuss.

### **Question 11**

A well answered question especially in the earlier parts with no issues of understanding a Venn diagram. Again unsuitable probability notation proved costly for some students.

### **Question 12**

This short question on a topic new to this specification was not well done, even though parts (a) and (b) were down to recall. Most candidates thought the bias was something deliberate by the interviewers and offered reducing them to one observer as their solution, which was not acceptable.

In (c) there were some imaginative extraneous variables awarded credit, such as a lighting and lightning.

### Question 13

As is often the case with questions based on real data, candidates were careless with the way they described their answers, sometimes inadvertently giving incorrect facts about the data. For example, in (b), stating that Eastbourne has an older population than North Lincolnshire is not an assertion that can be made from the given data (a possible answer to (d) ).

However, there were many good attempts at all parts of this question. Weaker candidates did think the data was collected over the days of one week in June.

### Mark Ranges and Award of Grades

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