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| Centre Number       |  |  |  |  |  | Candidate Number |  |  |  |  |
| Surname             |  |  |  |  |  |                  |  |  |  |  |
| Other Names         |  |  |  |  |  |                  |  |  |  |  |
| Candidate Signature |  |  |  |  |  |                  |  |  |  |  |



General Certificate of Education  
Advanced Level Examination  
June 2011

## Geography

## GEO4A

### Unit 4A Geography Fieldwork Investigation

Friday 17 June 2011 9.00 am to 10.30 am

You will need no other materials.  
You may use a calculator.

#### Time allowed

- 1 hour 30 minutes

#### Instructions

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

#### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You will be marked on your ability to:
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.

#### Advice

- You are advised to spend about 60 minutes on **Section A** and about 30 minutes on **Section B**.

|                     |      |
|---------------------|------|
| For Examiner's Use  |      |
| Examiner's Initials |      |
| Question            | Mark |
| 1                   |      |
| 2                   |      |
| 3                   |      |
| 4                   |      |
| 5 (a)               |      |
| 5 (b)               |      |
| TOTAL               |      |



J U N 1 1 G E O 4 A 0 1

**SECTION A**

Answer **all** questions in the spaces provided.

**All** your answers must relate to the geography fieldwork investigation that you undertook in preparation for this examination.

State the aim(s) of your fieldwork investigation.

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**1** Explain how the location of your fieldwork was relevant to the theory / concept / issue being investigated.

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(8 marks)



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**2** Describe and justify how you made sure that the data collected were as accurate and reliable as possible.

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**Question 2 continues on the next page**

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4 In the light of your results, suggest how your investigation could be further developed and/or extended.

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## SECTION B

Answer **all** questions in the spaces provided.

- 5 **Figure 1** is a map of wards in Leicester. Four of the wards have been shaded. **Figure 2a** shows the population of the four shaded wards in 2001 by ethnic group. For the purpose of conducting a Chi-squared test, these data become the observed frequencies (O). **Figure 2b** shows the calculated expected frequencies (E) for these wards in a contingency table.

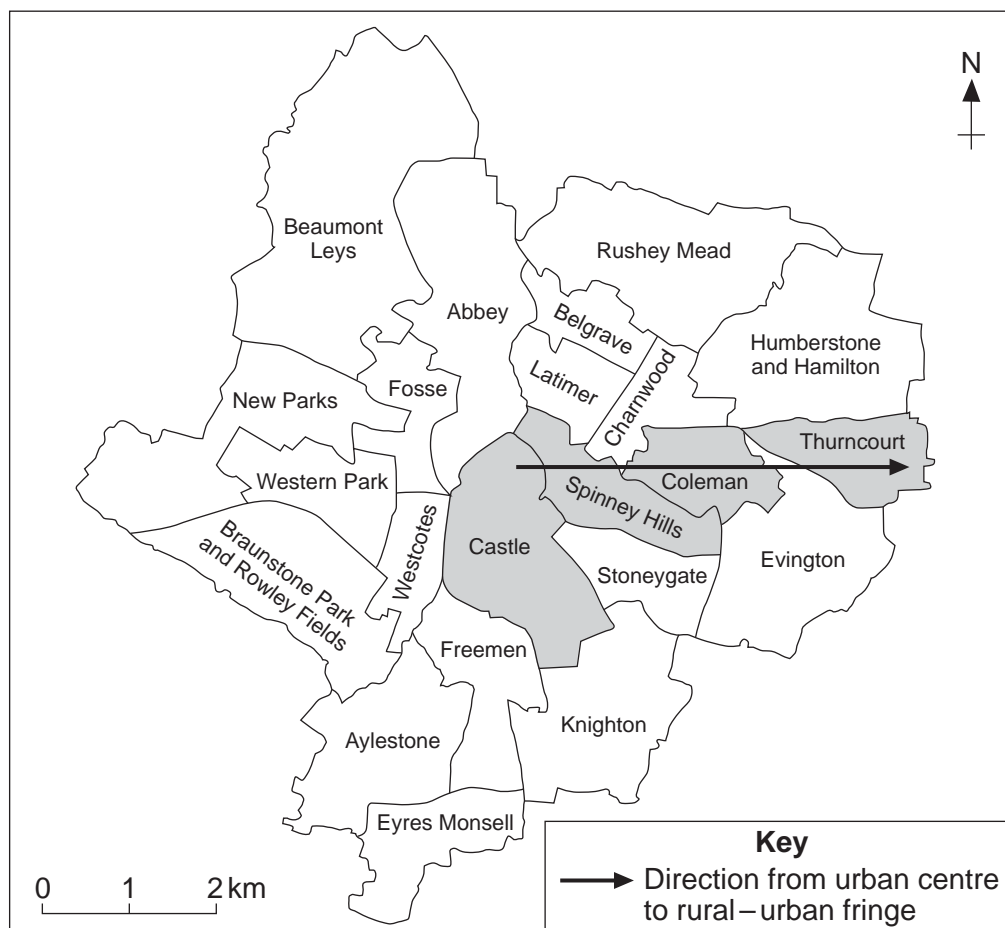
For this Chi-squared test, the hypothesis ( $H_1$ ) is:

'There is a difference in the distribution of population in different ethnic groups within selected wards in Leicester.'

The null hypothesis ( $H_0$ ) to be tested is:

'There is no significant difference in the distribution of population in different ethnic groups within selected wards in Leicester.'

**Figure 1**





**Figure 2a – Observed frequencies (O)**

| Ethnic group | Ward          |               |               |              | Total         |
|--------------|---------------|---------------|---------------|--------------|---------------|
|              | Castle        | Spinney Hills | Coleman       | Thurncourt   |               |
| White        | 10 221        | 3 739         | 4 653         | 8 258        | 26 871        |
| Asian        | 1 786         | 15 402        | 6 488         | 1 266        | 24 942        |
| Black        | 731           | 1 461         | 582           | 174          | 2 948         |
| Other        | 727           | 647           | 376           | 238          | 1 988         |
| <b>Total</b> | <b>13 465</b> | <b>21 249</b> | <b>12 099</b> | <b>9 936</b> | <b>56 749</b> |

Source: Census data (2001)

**Figure 2b – Expected frequencies (E)**

These are calculated for each cell using the formula  $\frac{\text{row total} \times \text{column total}}{\text{grand total}}$ .

| Ethnic group | Ward   |               |         |            |
|--------------|--------|---------------|---------|------------|
|              | Castle | Spinney Hills | Coleman | Thurncourt |
| White        | 6 376  | 10 062        | 5 729   | 4 705      |
| Asian        | 5 918  | 9 339         | 5 318   | 4 367      |
| Black        | 699    | 1 104         | 629     | 516        |
| Other        | 472    | 744           | 424     | 348        |

A Chi-squared test was applied to these data, using the formula  $\chi^2 = \sum \frac{(O-E)^2}{E}$ .

Chi-squared was calculated as 18 995 and was significant at both the 95% and 99% significance levels.

- 5 (a) With reference to the **outcome of the Chi-squared test** and **Figures 1, 2a** and **2b**, comment on the distribution of ethnic groups in the selected wards in Leicester.

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**Question 5 continues on the next page**

**Turn over ►**







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**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

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Figure 2a: [www.leicester.gov.uk](http://www.leicester.gov.uk) Reproduced under the terms of the Click-Use Licence.

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