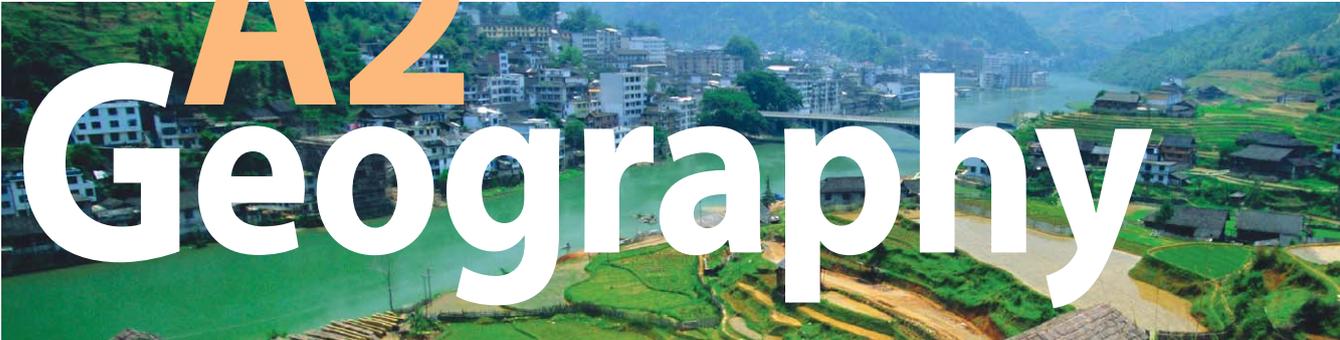


OCR



**A2**  
**Geography**

***Examination Matters***



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*Examination Matters* consists of three parts. The first part (pages 4–11) provides general examination advice on matters such as schemes of assessment, exam technique and exam practice. The second part (pages 12–39) comprises specimen exam questions and mark schemes for Unit F763 (*Global Issues*), and the final part (pages 40–55) provides specimen exam questions and mark schemes for Unit F764 (*Geographical Skills*). The mark schemes give descriptions of levels of attainment. An indication of the key content to include in your answer is given, identified by the symbol . In Section B of Unit F763 (*Global Issues*), an examiner's commentary, identified by the symbol , gives advice on what makes a good answer.

It is important to view the content of the specification and the methods of examination as a whole. Learning for the examination is best done with assessment methods firmly in mind. But before you attempt specific questions, you should consult the sections *How to answer exam questions* and *Command words and phrases* on pages 7–11.

The examination questions in this online material should be used in conjunction with the A2 textbook. Before attempting to answer the questions, read through the relevant sections in the textbook. Then consult the mark schemes. These tell you how examiners mark your answers (i.e. what they look for and the criteria against which your answers are judged). Check also the guidance given on the content of good answers. For questions that demand examples, suggested case studies from the textbook are given in the examiner's commentary.



## Scheme of assessment

Table 1.1 shows what you have to do in the written examinations for Units F763 and F764. Each paper consists of two Sections, A and B. In F763, Section A contains six data response questions: three on Environmental issues, and three on Economic issues. Candidates must answer three questions, at least one from Environmental issues and one from Economic issues. Section B has 12 open-ended essay questions, two for each option. (Only one question for each option is provided in this online resource.) Candidates answer two essay questions, choosing one from the Environmental issues options and one from the Economic issues option.

The scheme of assessment for F764 is broadly similar. Section A comprises three structured, data response questions based around various stimulus materials. Candidates answer one question. Section B includes two open-ended essay questions that examine fieldwork and research skills. Candidates answer both questions.

**Table 1.1** A2 Scheme of assessment

Unit	% of A2 assessment	Style of assessment	Raw marks	Uniform marks	Time allowed
F763 Global Issues	60	Section A: answer three data response questions. At least one must be chosen from Environmental issues and one from Economic issues	30	120	2½ hours
		Section B: answer two essay questions, one from Environmental issues options and one from Economic issues options	60		
F764 Geographical Skills	40	Section A: choose one structured essay question	20	80	1½ hours
		Section B: answer both essay questions	40		

### F763 Global Issues

- Section A: **Three** data response questions, **at least one** from Environmental issues (i.e. Earth hazards, Ecosystems and Climatic hazards) and **at least one** from Economic issues (i.e. Population and resources, Globalisation, and Development and inequalities). Candidates choose three from six questions.
- Section B: **Two** essay questions, one from Environmental issues (i.e. Earth hazards, Ecosystems, and Climatic hazards) and one from Economic issues (i.e. Population and resources, Globalisation, and Development and inequalities). Candidates select two from twelve questions.

## F764 Geographical Skills

- Section A: **One** data response question on the general stages of geographical investigation (e.g. data collection, data analysis).
- Section B: **Two** essay questions on specific geographical investigations undertaken by candidates.

### Structured/data response questions

In Section A of *Global Issues* (F763), questions are based on data presented as tables, charts, maps, newspaper clippings etc., which are related to the six options that comprise the content of the unit. All the questions have exactly the same wording:

‘Outline an issue indicated and suggest appropriate management.’

While the data sets will change for each examination, the question will retain the same wording.

Section A of *Geographical Skills* (F764) consists of three data response questions. Data sets, in the form of maps, charts, satellite images and tables, are provided for each question and provide the stimulus to assess understanding of the various stages of geographical enquiry. Unlike the standard question in Section A of F763, the structured questions on geographical skills are varied, and change from one examination to the next. Your choice of question might be influenced by the extent to which you can develop synoptic material from other parts of the specification.

### Essay-type questions

Section B of *Global Issues* consists of six essay-type questions on Environmental issues, and six on Economic issues. Assuming that most candidates have studied three out of the six options in this unit, the choice amounts to three questions out of six. The essay questions are discursive, evaluative and wide-ranging, and all provide scope for synoptic input (see section on pages 28–39).

Section B of *Geographical Skills* has two compulsory essay-type questions. These questions include description and explanation, as well as evaluation.

### Synoptic assessment

Synoptic assessment is included in both A2 units. The definition of synoptic assessment is:

...assessment of candidates' ability to draw on their understanding of the connections between different aspects of geography represented in the specification, and to demonstrate their ability to 'think like a geographer'.

Synoptic assessment requires candidates to use knowledge, understanding and skills drawn from outside the content of an A2 unit — that is, from studies at AS and elsewhere at A2.

For example, specimen question 3 on global climate change (see page 32) in Section B of *Global Issues*, provides opportunities to make connections with the content of Cold environments and Hot arid and semi-arid environments of AS.

Study of the mark schemes in this online resource reveals the importance of synopticity. To achieve Level 3 for **Analysis, interpretation and evaluation** (AO2) in the essay-type questions in the *Global Issues* (F763) unit, candidates must demonstrate clear evidence of synopticity. The synoptic requirement also appears in the structured, data response questions in Section A of *Geographical Skills* (F764). In sub-question 1c, Level 2 is only reached where clear synopticity is demonstrated. Synopticity is implicit in the fieldwork and research essay questions in Section B of this unit, where candidates are expected to draw on the fieldwork and research experience they have gained throughout the A-level course.

Synoptic assessment has two main purposes. First, it encourages candidates to adopt a broad perspective when analysing people and environment issues. This is a quintessential geographical approach, seeking to integrate (and synthesise) understanding of society, economy and the physical environment. Second, it gives the A-level Geography specification a coherence, which because of modularity, and the reduction of the subject into a series of discrete units, it might otherwise lack.

## Mark scheme criteria

Examination answers are assessed against a number of criteria. For A2 Geography there are three criteria or assessment objectives (AOs). They are:

- 1 **Demonstrate knowledge and understanding** of the specification content, concepts and processes.
- 2 **Analyse, interpret and evaluate** geographical information, issues and viewpoints, and apply them in unfamiliar contexts.
- 3 **Select and use a variety of methods, skills and techniques** (including the use of new technologies) to investigate questions and issues, reach conclusions and communicate findings.

It is important for you to know exactly how your answers will be judged. If you look at the mark schemes you can see how these assessment criteria are applied. Table 1.2 shows the weighting given to each AO.

**Table 1.2** Assessment objective weightings at A2

Unit	Title	% of A2			
		AO1	AO2	AO3	Total
F763	Global Issues	20	30	10	60
F764	Geographical Skills	10	10	20	40
	<b>Total</b>	<b>30</b>	<b>40</b>	<b>30</b>	<b>100</b>

## Preparing for exams

Success in examinations at A-level depends primarily on two things:

- your knowledge and understanding of the specification content
- your ability to apply your knowledge and understanding accurately to the questions in the examination

### How to revise

The bulk of your revision will focus on improving your knowledge and understanding. This will involve learning ideas, theories, explanations, examples and case studies. However, this must be done intelligently and effectively. The best way to prepare is to structure your revision around the **questions for investigation** and **key ideas** set out for each topic in the specification.

Structured revision will help to focus your learning on those themes commonly used in assessment in the examination. For example, if you were revising flood hazards, it would be most effective to organise your learning around key ideas such as the physical and human factors that create flood risks, the environmental, social and economic effects of flooding, and the human responses to flood hazards (see Figure 1.1). These ideas would be studied within the context of actual river and coastal flood events.

Lists of key ideas are essential revision tools, and these are headlined in your A2 textbook at the start of each new topic. In addition, the subheadings for each topic match the key ideas in the specification.

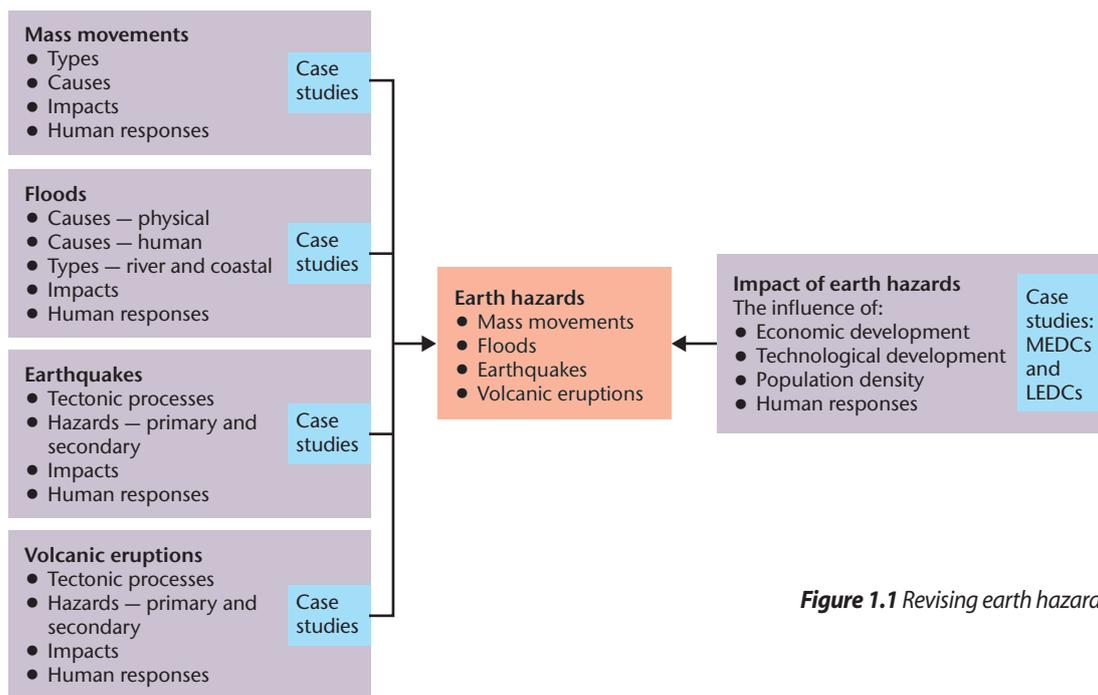


Figure 1.1 Revising earth hazards

It must be emphasised that effective revision cannot be an automatic and unthinking process, where you work chronologically, page by page, through your notes. Meaningful revision must be structured to reflect the requirements of assessment in the final exam. You will find that an organised and structured revision approach is the most rewarding and, ultimately, the most productive way to revise.

### The importance of examples and case studies

An important feature of the OCR A-level Geography specification is its emphasis on exemplification through in-depth case studies. At A2, the essay-type questions in Section B of *Global Issues* require detailed examples, even though the question may not ask for them explicitly. The mark schemes make this clear: to achieve Level 3 for **knowledge and understanding** (AO1), candidates must make 'effective use of detailed exemplification'. More generalised answers, containing some, or limited exemplification, cannot achieve more than Level 2 for knowledge and understanding. For this reason, generalised answers cannot access the highest levels of attainment.

In the *Geographical Skills* unit, exemplification is provided by the experience of fieldwork and research enquiries that you have undertaken. References to this work should be place-specific and provide details of the area studied, the character of the investigation, the influence of the local environment on hypothesis formulation and sampling strategies, and the unique problems encountered.

### How to answer exam questions

Two types of exam question are used in the A2 examination. Shorter answer, data response questions are used in Section A on the *Global Issues* (F763) and the *Geographical Skills* (F764) papers. Section B on both papers uses a different style of assessment based on essay-type questions.

## F763 Global Issues

### Data response questions

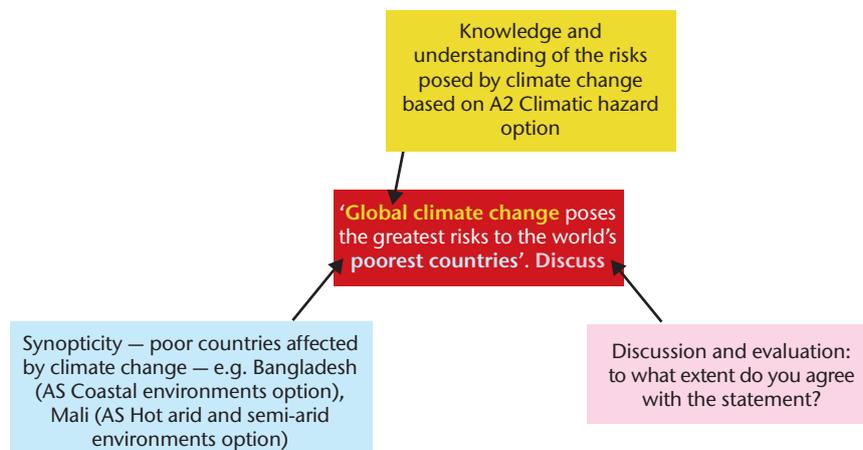
There are six structured, data response questions in Section A, three on Environmental issues, and three on Economic issues. You must answer three questions, with at least one chosen from Environmental issues and one from Economic issues. Each question is worth 10 marks. All the questions are the same: only the stimulus resources vary (see page 12). The resources suggest a wide range of possible issues and management responses, and it is likely that some of your answers will draw on parts of the AS specification, as well as A2. You have approximately 50 minutes to spend on this part of the examination, which means just less than 20 minutes for each data response question. Thus a typical answer is not likely to exceed one to one and a half sides of A4.

Your first task is to outline an issue suggested by the resource material. This part of the question focuses on knowledge and understanding, and requires a clear statement of the issue, its causes and the conflict that might arise between different interest groups. The second part of the question asks for possible management strategies to address the issue. These strategies should be described briefly, outlining their cost (economic and environmental), feasibility, timescale and impact. Some evaluative comments on their relative suitability and likelihood of success are needed for answers to achieve Level 3. Care should be taken to ensure that there is reasonable equality in the length of answers to the two parts of the question.

### Open-ended essays

You have to answer two open-ended essay questions from Section B, one on Environmental issues and one on Economic issues. Each essay is worth 30 marks and should be allocated approximately 50 minutes' writing time. All the questions are discursive and evaluative, require some synoptic input, and are wide ranging and summative. Successful answers will be supported with appropriate examples and case studies. Essays are marked according to three assessment objectives (see page 28): there are 9 marks for **knowledge and understanding** (AO1); 17 marks for **analysis, interpretation and evaluation** (AO2); and 4 marks for **investigation, conclusion and communication** (AO3). You should note that to achieve Level 3 on AO2, answers must 'show clear evidence of synopticity' and 'clear evaluation'. Figure 1.2 shows a typical open-ended essay question and the opportunities to demonstrate knowledge, understanding, synopticity and the skills of discussion and evaluation.

**Figure 1.2** A typical Global Issues open-ended essay question



### Planning answers to open-ended questions

With 50 minutes to write your essay, you can afford to reserve 4 or 5 minutes for thinking time and writing a brief plan of your answer. Your plan should outline the content of each section of your answer and the geographical examples and case studies that you intend to use. It is important to include in your plan some substantial and identifiable synoptic content. It is also important to remember that the emphasis in your essay is discussion and that evaluation should permeate the entire answer, not just be left to the conclusion. Your answer should have a clear structure, with three main components: an introduction, a main body and a conclusion. This simple structure, based on the essay question in Figure 1.2, is shown in the plan in Table 1.3.

**Table 1.3** Sample essay plan

<b>'Global climate change poses the greatest risks to the world's poorest countries.' Discuss</b>	
<b>Introduction</b>	The introduction should (a) define any key terms used in the question, such as 'global climate change' and 'the world's poorest countries'; and (b) indicate the broad structure of your answer. In this example you might first refer to the general risks posed by global climate change, and second assess the risks to the world's poorest countries.
<b>Main body</b>	This is where you develop the points made in the introduction. For example, you might assess the general risks related to rising temperature (e.g. impact on food production, spread of disease, forest fires, sea-level rise), declining rainfall (e.g. drought, desertification), increasing rainfall (e.g. floods) and increased storminess (e.g. hurricanes, depressions). You then need to focus on the level of risk faced by the world's poorest countries. How many people are affected? How severe is the likely impact of climate change? How will change disrupt the environment, society and economy?
<b>Conclusion</b>	The conclusion should be a summary of the main points developed in your answer. It will include some overall evaluation of the validity of the statement or contention. In your conclusion you may accept, partly accept or reject the statement. What matters is that the conclusion should be consistent with the arguments in the body of the answer.

## F764 Geographical Skills

### Structured data response questions

Section A consists of three structured, data response questions designed to test candidates' research skills. Each question is divided three sub-sections (a (i), a (ii) and b or a, b and c) worth 5, 10 and 5 marks respectively. Candidates choose one question. Unlike the data response questions in F763, the format of these data response questions is highly variable. Moreover, in contrast to F763, the questions on F764 require a specific response to the resource materials. The main opportunity for synoptic input occurs in sub-questions (b (i)/(ii) or b/c), which test the wider knowledge and understanding of the research topic. For example, the specimen data response questions (see pages 41–44) require some understanding of sampling, statistical significance and mapping, which are not directly related to the stimulus material and question (a). In selecting a question you should consider its scope for including synoptic material from AS fieldwork/research investigations as well as from other parts of the A2 specification.

You can spend around 30 minutes on Section A. Be sure to read all parts of the question before making your choice and ensure that the length of your answer to each sub-question is proportional to the mark weighting.

The core content for Section A of Geographical Skills, and the focus of your revision, are the six stages of geographical enquiry. Each question on the paper will deal with one or more aspects of geographical enquiry such as data collection, data presentation, and data analysis and interpretation. There is also a significant emphasis on new technologies in geographical research, including computer skills and the application of Geographical Information Systems (GIS).

The mark schemes give two attainment levels for sub-questions (a) and (c), and three for sub-question (b). The term 'clear' is the descriptor for the highest attainment level: answers at the lowest level are termed 'limited'. Synopticity is also likely to be a feature of answers at the highest level.

You should note that there is no expectation that you will have carried out fieldwork investigation on the topics referred to in the questions in Section A.

### *Open-ended essays*

Section B of Geographical Skills comprises two essay-type questions, each worth 20 marks. This is the only part of the AS/A-level specification where you have no choice of question: you must answer both. However, this is less of a constraint than first appears, because both questions invite you to write about aspects of fieldwork investigations that you have completed during the A-level course. The mark weighting suggests that you should spend around 30 minutes on each essay. This will include 3–4 minutes of thinking time and planning (see the section on essay plans on page 9).

The essay questions in Section B typically include two or three command words, such as 'describe', 'how' and 'explain'. In addition they always include some evaluation, with commands such as 'assess', 'to what extent...?' and 'how important...?'. The mark scheme has three levels of attainment, and unlike the essays on F763, it is not structured by the assessment objectives. Instead, all the assessment objectives are subsumed within the description of each level.

To score well on the essay questions it is clear that your answer must relate specifically, and in depth, to research and fieldwork investigation you have undertaken. There should, for example, be detailed references to the local area of study, its specific character, sources of data, the problems (often unique) of data collection and interpretation and so on. Generalised responses, however accurate, are unlikely to achieve more than Level 1. Examiners can further differentiate answers by the extent to which they evaluate theories, methodologies and outcomes. Thus, Level 3 answers will contain 'detailed evaluation' while Level 1 answers have 'little, if any, evaluation.'

## **Command words and phrases**

Command words and phrases in examination questions are crucial because they tell you what you have to do. You must respond precisely to their instructions. For example, the instruction 'describe' is very different from 'explain'. Ignoring command words and phrases is a fundamental error, and is a common cause of under-achievement. Table 1.4 lists the common command words and phrases used in questions in the OCR A2 Geography examination and explains what they require you to do.

**Table 1.4** Key command words and phrases

Command word/phrase	Requirements
Describe	Provide a picture in words of a feature, pattern or process.
Outline	The same as 'describe' but requiring less detail. The idea is to identify the basic characteristics of a feature, pattern or process.
Compare/contrast	Describe the similarities and differences of at least two features, patterns and processes.
Examine	Describe and comment on a pattern, process or idea. 'Examine' often refers to ideas or arguments, which demand close scrutiny from different viewpoints.
Why?/Explain/Account for	Give the causes of a feature, phenomenon or pattern. This usually requires an understanding of processes. Explanation is a higher-level skill than description and this is reflected in its greater mark weighting in examinations.
Discuss/Assess/To what extent?/How important?/ Evaluate/Consider the view that/How far do you agree with?/Assess the degree to which...	These commands are evaluative and invite you to consider the evidence for a given statement or point of view, connected to an issue or problem, and make reasoned judgements. Evaluation is the highest order skill required in the A-level examination and figures prominently in the assessment of essay-style questions on F763 and F764.

## Practise writing your own answers

Before sitting the final examination you will need plenty of practice in answering data response and essay-style questions. In total, your A2 textbook and this online material contain 18 data response questions and 18 essay-style questions for F763, along with six structured data response questions and four essay questions for F764. Together, these cover a large number of the themes that are likely to appear in the final examinations.

You should integrate the answering of examination questions with your revision of each topic. Start with the questions here in *Examination Matters*, and write an outline answer for each question. Each outline should include relevant content and, where appropriate, arguments, evaluation and examples. Use the mark schemes to guide you — these provide indicative content, descriptions of levels of attainment, and examiners' comments. Finally, use the questions in the textbook (without mark schemes) and, under timed conditions, plan and then write out full answers.



## Section A: structured questions and mark schemes

Section A of F763 comprises six questions: three on Environmental issues and three on Economic issues. Each question includes data in various forms (e.g. maps, photos, diagrams, charts and newspaper articles) and provides the stimulus for candidates to identify an issue, and suggest appropriate strategies to manage it. In answering the questions, candidates are expected to adopt a synoptic approach. This means drawing on knowledge, understanding and skills from work at AS as well as A2.

Because the questions in Section A all have the same structure, and make the same demands on candidates, there is a common mark scheme for all questions. This is called a generic mark scheme. Each question is marked out of 10, with the assessment objectives weighted thus:

- AO1: demonstrate knowledge and understanding of the content, concepts and processes (4 marks).
- AO2: analyse, interpret and evaluate geographical information, issues and viewpoints and apply understanding in unfamiliar contexts (4 marks).
- AO3: select and use a variety of methods, skills and techniques to investigate questions and issues, reach conclusions and communicate findings (2 marks).

### Generic mark scheme

Level	Mark	Descriptor
Level 3	9–10 marks	Candidates demonstrate a good knowledge and understanding to identify appropriate issues and a high level of application and evaluation to present a coherent and logical set of possible management strategies. There is good use of geographical terminology and clear evidence of drawing on ideas/concepts from a range of sources to identify and/or suggest remedial strategies.
Level 2	5–8 marks	Candidates demonstrate a sound knowledge and understanding to identify some of the issues and a sound application and evaluation to present a coherent and logical set of possible management strategies. There is sound use of geographical terminology and some evidence of drawing on ideas/concepts from a range of sources to identify and/or suggest remedial strategies.
Level 1	0–4 marks	Candidates demonstrate a limited knowledge and understanding to identify the appropriate issues and a limited or basic level of application and evaluation to present a limited or basic set of possible management strategies. There is limited or inaccurate use of geographical terminology and little evidence of drawing on ideas/concepts from a range of sources to identify and/or suggest remedial strategies.

If there is clear evidence that no strategies are offered then a maximum of 5 marks can be awarded.

If inappropriate issues are identified but appropriate strategies offered, the strategies can be credited by up to a maximum of 5 marks.

## Environmental issues: questions 1–3

### Question 1

#### Resource 1

The 7.6 magnitude Bhuj earthquake that shook the Indian Province of Gujarat on the morning of 26 January 2001 was one of the two most deadly earthquakes to strike India in recorded history. One month after the earthquake official Government of India figures placed the death toll at 19 727 and the number of injured at 166 000. Indications were that 600 000 people were left homeless, with 348 000 houses destroyed and an additional 844 000 damaged. The Indian State Department estimates that the earthquake affected, directly or indirectly, 15.9 million people out of a total population of 37.8 million. More than 20 000 cattle are reported killed. Government estimates place direct economic losses at \$1.3 billion. Other estimates indicate losses may be as high as \$5 billion.

**Resource 1 focuses on the Bhuj earthquake in Gujarat in India, in January 2001.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)

## Question 2

### Resource 2

*Plant and animal species at risk in the Nevada Desert spring communities*

<b>Native spring-dwelling species in southern Nevada</b>	<b>Endangered species/ sub-species</b>	<b>Threatened species/ sub-species</b>
Mammals	1	0
Birds	2	0
Fish	11	2
Plants	1	2

### Resource 3

Explosive economic and population growth in Las Vegas, Nevada, has stimulated demand for additional water supplies. However, water demand in this arid environment has reached the limits of current supply. To meet future needs, local officials from Las Vegas and satellite communities hope to obtain rights to about 1.32 billion m<sup>3</sup> per year from a regional groundwater aquifer extending from Salt Lake City, Utah, to Death Valley, California. This aquifer feeds the Great Basin spring systems. These springs support unique ecosystems of great biodiversity, including 20 species and sub-species — mainly snails, insects and fish — listed under the Endangered Species Act.

Source: *Bioscience*, September 2007, Vol. 57, No. 8.

**Resources 2 and 3 relate to a proposal to extract groundwater from a desert aquifer in southern Nevada.**

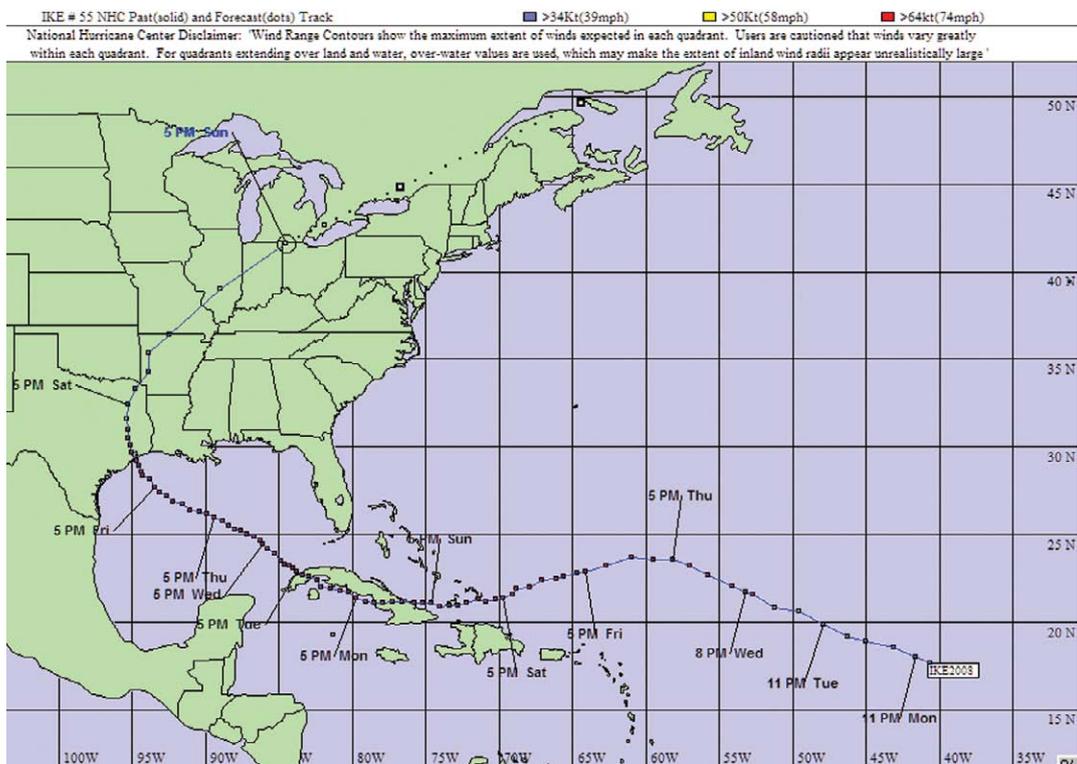
**Outline an issue indicated and suggest appropriate management.**

(10 marks)

### Question 3

#### Resource 4

Track followed by Hurricane Ike across the Caribbean and Gulf of Mexico



#### Resource 5

The Cuban government ordered 1.2 million people to seek safety with friends and relatives or at government shelters.

In Havana, where Hurricane Ike was expected to unleash heavy winds and rain this morning, evacuations began in earnest yesterday afternoon.

The government closed schools and government offices in the capital as people reinforced windows, removed plants from balconies and formed long queues at bakeries.

Gustav tore across western Cuba as a Category 4 hurricane last month, damaging 100 000 homes and causing billions of dollars of damage. But no deaths were reported as a result of mandatory evacuations of at least 250 000 people.

'In all of Cuba's history, we have never had two hurricanes this close together,' said José Rubiera, head of Cuba's meteorological service.

Waves created by Ike crashed into apartment buildings, hurling heavy spray over their rooftops, and winds uprooted trees.

Falling utility poles crushed cars parked along narrow streets in the central city of Camagüey and the wind transformed buildings of stone and brick into piles of rubble.

Felix García, a meteorologist at the US National Hurricane Center in Miami, forecast that Ike would become even more powerful.

'It's over warm waters,' García said. 'It can definitely maintain its strength right now, and when it's out of Cuba it has the potential to become a lot stronger.'

Source: Newspaper extract from 9 September 2008

**Resources 4 and 5 relate to Hurricane Ike, an Atlantic hurricane that hit the Caribbean and Texas in September 2008.**

**Outline an issue indicated and suggest appropriate management.**

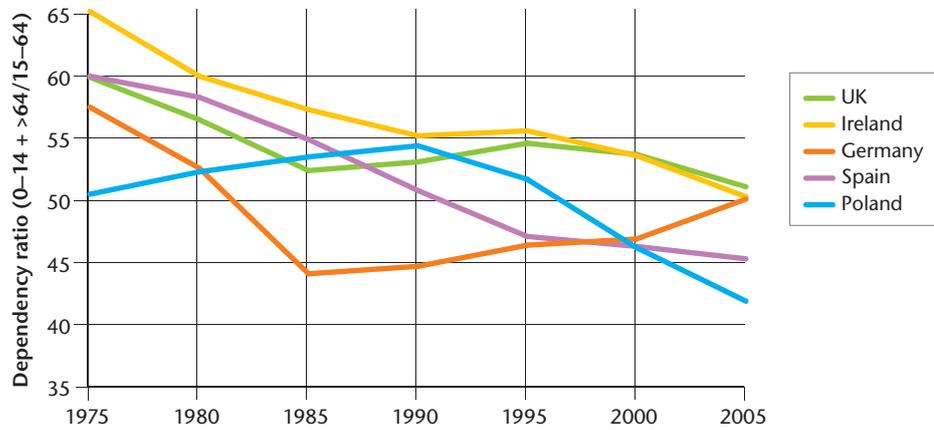
(10 marks)

## Economic issues: questions 4–6

### Question 4

#### Resource 6

Dependency ratios for a range of MEDC countries, 1975–2005



Resource 6 concerns the ageing of populations in MEDCs.

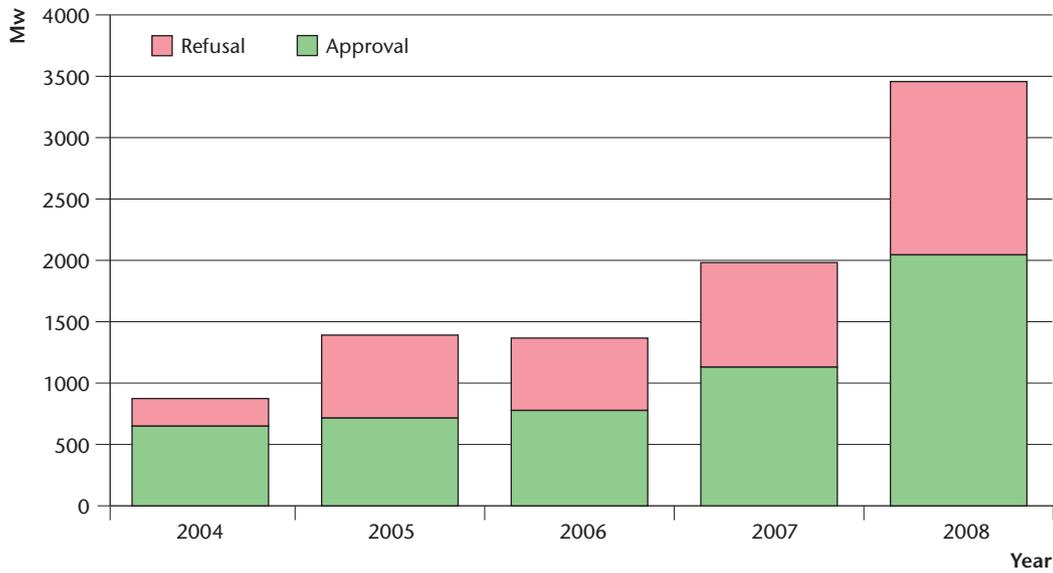
Outline an issue indicated and suggest appropriate management.

(10 marks)

## Question 5

### Resource 7

*Planning approvals and refusals for wind farms in the UK, 2004–08*



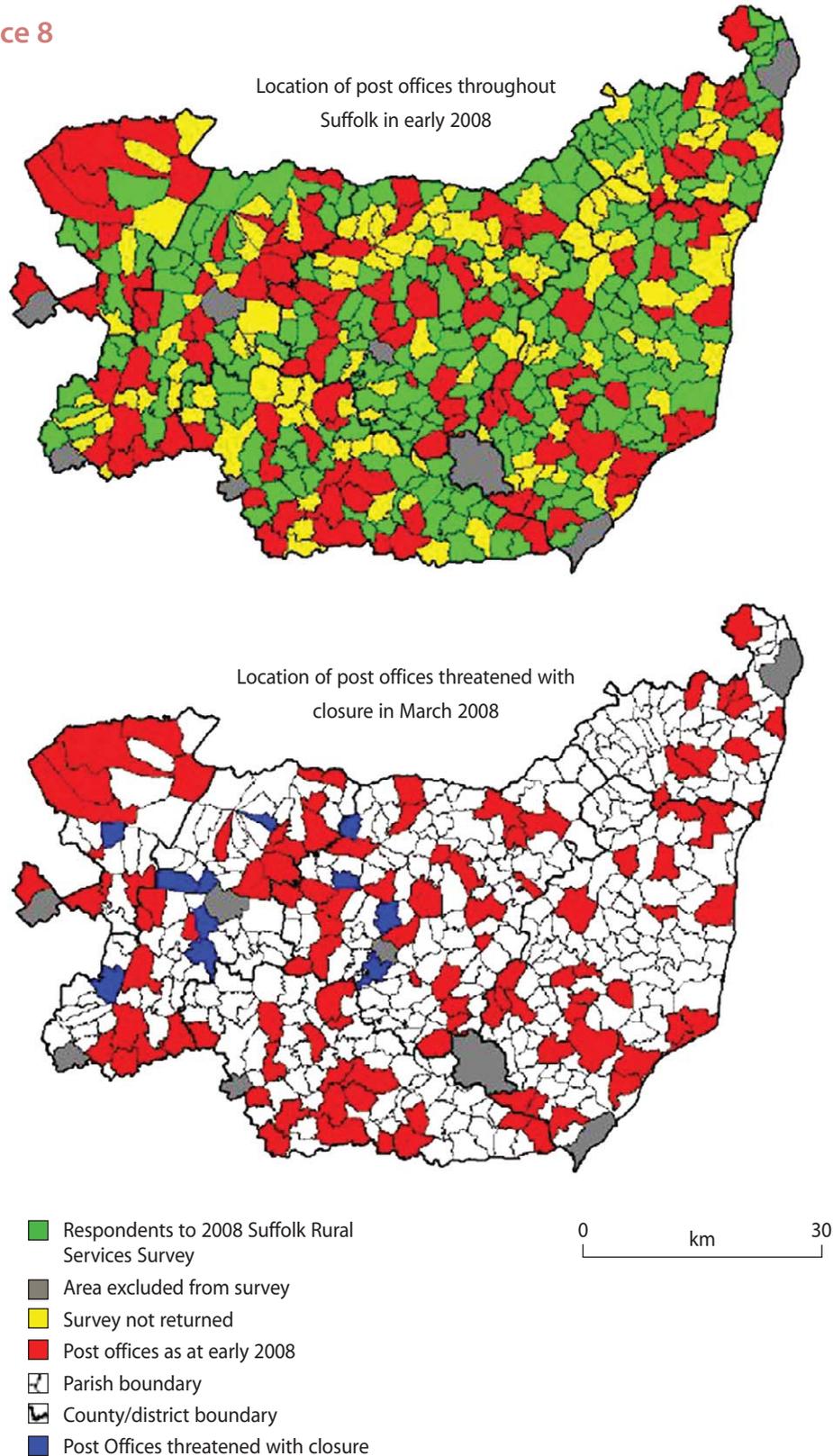
**Resource 7 relates to climate change and alternative energy.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)

## Question 6

### Resource 8



**Resource 8 provides information on rural service decline in eastern England.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)

# Section A: key content

## Environmental issues: questions 1–3

### Question 1

#### Resource 1

The 7.6 magnitude Bhuj earthquake that shook the Indian Province of Gujarat on the morning of 26 January 2001 was one of the two most deadly earthquakes to strike India in recorded history. One month after the earthquake official Government of India figures placed the death toll at 19 727 and the number of injured at 166 000. Indications were that 600 000 people were left homeless, with 348 000 houses destroyed and an additional 844 000 damaged. The Indian State Department estimates that the earthquake affected, directly or indirectly, 15.9 million people out of a total population of 37.8 million. More than 20 000 cattle are reported killed. Government estimates place direct economic losses at \$1.3 billion. Other estimates indicate losses may be as high as \$5 billion.

**Resource 1 focuses on the Bhuj earthquake in Gujarat in India, in January 2001.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)



#### Possible issues

- As Gujarat is a zone of tectonic instability and high earthquake risk, could more have been done to prepare the region for a major quake?
- Why was the earthquake so devastating?
- Should people live in areas of known areas of risk?
- What efforts were made to prepare the people, government, housing and infrastructure for a major quake?
- How effective was the relief effort in the aftermath of the quake?
- Did poverty contribute to the disaster?

#### Possible management

- Stricter building codes (and their enforcement) to make all buildings and infrastructure earthquake-proof.
- Programmes to educate the public better about their response to earthquakes.
- Disaster management plans drawn up by local authorities.
- Economic development to improve living standards and reduce risks.

## Question 2

### Resource 2

*Plant and animal species at risk in the Nevada Desert spring communities*

Native spring-dwelling species in southern Nevada	Endangered species/sub-species	Threatened species/sub-species
Mammals	1	0
Birds	2	0
Fish	11	2
Plants	1	2

### Resource 3

Explosive economic and population growth in Las Vegas, Nevada, has stimulated demand for additional water supplies. However, water demand in this arid environment has reached the limits of current supply. To meet future needs, local officials from Las Vegas and satellite communities hope to obtain rights to about 1.32 billion m<sup>3</sup> per year from a regional groundwater aquifer extending from Salt Lake City, Utah, to Death Valley, California. This aquifer feeds the Great Basin spring systems. These springs support unique ecosystems of great biodiversity, including 20 species and sub-species — mainly snails, insects and fish — listed under the Endangered Species Act.

Source: *Bioscience*, September 2007, Vol. 57, No. 8.

**Resources 2 and 3 relate to a proposal to extract groundwater from a desert aquifer in southern Nevada.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)



#### Possible issues

- Impact of the development on unique habitats and wildlife in desert oases.
- Impact of the development on groundwater resources.
- The sustainability of the proposal.

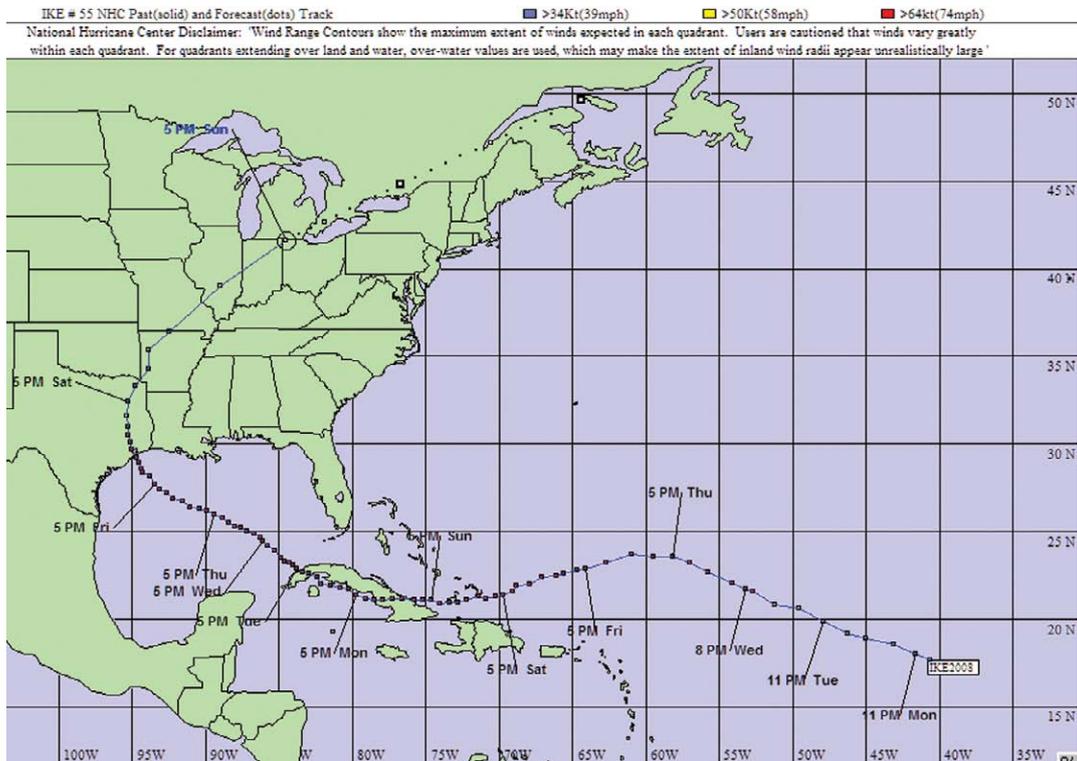
#### Possible management

- Plan for sustainable use of water resources, so that extraction does not exceed annual recharge.
- Limit the demand for water by (a) increasing water charges, (b) encouraging water conservation and (c) refusing planning permission for new housing and commercial developments that increase total demand.

## Question 3

### Resource 4

Track followed by Hurricane Ike across the Caribbean and Gulf of Mexico



### Resource 5

The Cuban government ordered 1.2 million people to seek safety with friends and relatives or at government shelters.

In Havana, where Hurricane Ike was expected to unleash heavy winds and rain this morning, evacuations began in earnest yesterday afternoon.

The government closed schools and government offices in the capital as people reinforced windows, removed plants from balconies and formed long queues at bakeries.

Gustav tore across western Cuba as a Category 4 hurricane last month, damaging 100 000 homes and causing billions of dollars of damage. But no deaths were reported as a result of mandatory evacuations of at least 250 000 people.

'In all of Cuba's history, we have never had two hurricanes this close together,' said José Rubiera, head of Cuba's meteorological service.

Waves created by Ike crashed into apartment buildings, hurling heavy spray over their rooftops, and winds uprooted trees.

Falling utility poles crushed cars parked along narrow streets in the central city of Camagüey and the wind transformed buildings of stone and brick into piles of rubble.

Felix García, a meteorologist at the US National Hurricane Center in Miami, forecast that Ike would become even more powerful.

'It's over warm waters,' García said. 'It can definitely maintain its strength right now, and when it's out of Cuba it has the potential to become a lot stronger.'

Source: Newspaper extract from 9 September 2008

**Resources 4 and 5 relate to Hurricane Ike, an Atlantic hurricane that hit the Caribbean and Texas in September 2008.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)



**Possible issues**

- Were people living in the Caribbean given sufficient early warning of the hurricane?
- Should evacuation be compulsory for populations in the coastal areas the Gulf?
- Should future building be restricted in coastal areas vulnerable to storm surges?
- Are flood defences adequate to cope with a category 4 or 5 hurricane?
- Are poorer people and older people more vulnerable to hurricane hazards than the rest of the population?

**Possible management**

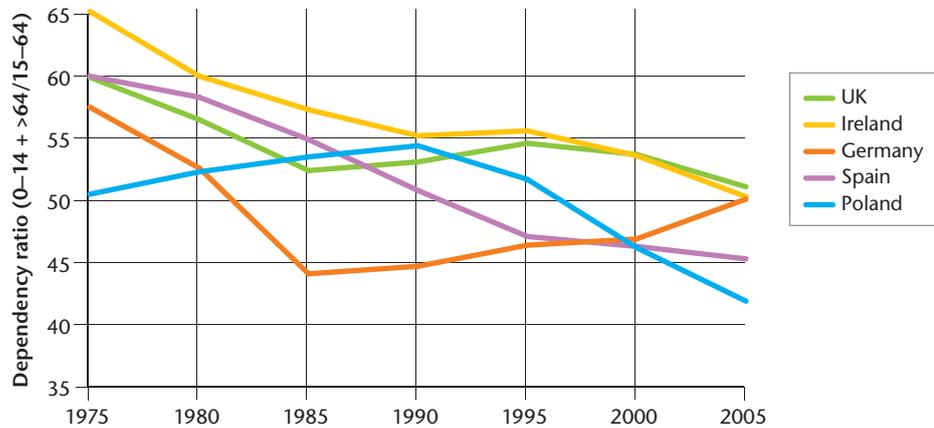
- Improvements in hurricane warnings to inform the populations at risk.
- Effective disaster planning to deal with emergency situations (both evacuation and aftermath at local and national levels).
- Disaster prevention measures such as flood control engineering.
- Integrated ecological approaches to reduce the impact of storm surges (e.g. maintaining wetlands, salt marshes etc.).
- Planning controls on building in flood-prone coastal regions.

## Economic issues: questions 4–6

### Question 4

#### Resource 6

Dependency ratios for a range of MEDC countries, 1975–2005



Resource 6 concerns the ageing of populations in MEDCs.

Outline an issue indicated and suggest appropriate management.

(10 marks)



#### Possible issues

- Increased levels of dependency with the retired population supported by a decreasing percentage of economically active persons.
- Increasing cost to government of state pensions.
- Increasing cost to government of health care for ageing populations.
- Declining birth rates with increasing proportion of old people.
- Less vitality, drive and dynamism within society.
- Social problems with more single-person households.

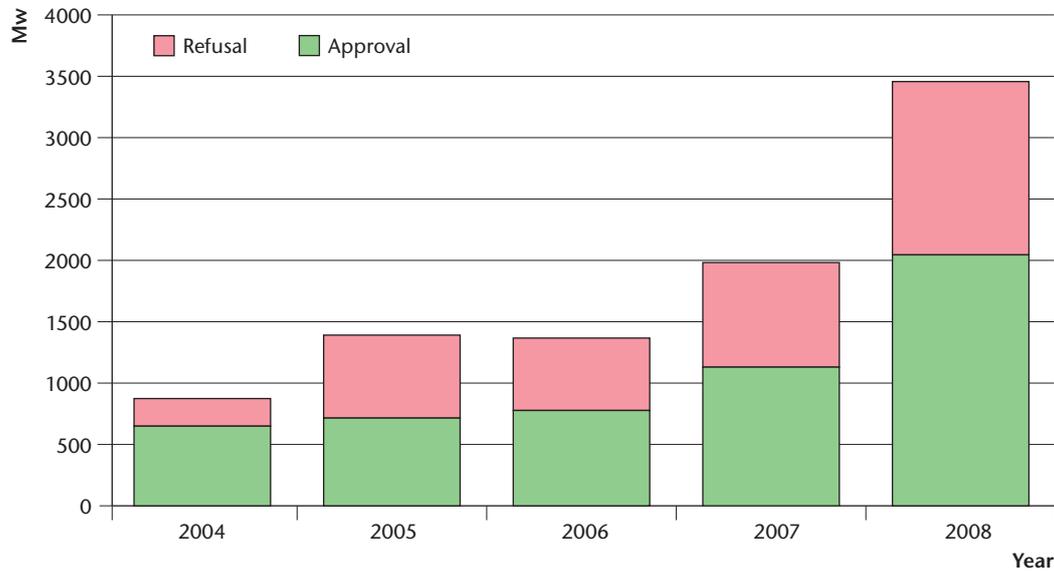
#### Possible management

- Raise the age of retirement (old people work and pay taxes for longer, don't draw pension benefits and some die before reaching pensionable age).
- Encourage immigration of young, skilled migrants.
- Legislate to make contributions to private pensions by workers compulsory.

## Question 5

### Resource 7

Planning approvals and refusals for wind farms in the UK, 2004–08



Resource 7 relates to climate change and alternative energy.

Outline an issue indicated and suggest appropriate management.

(10 marks)



#### Possible issues

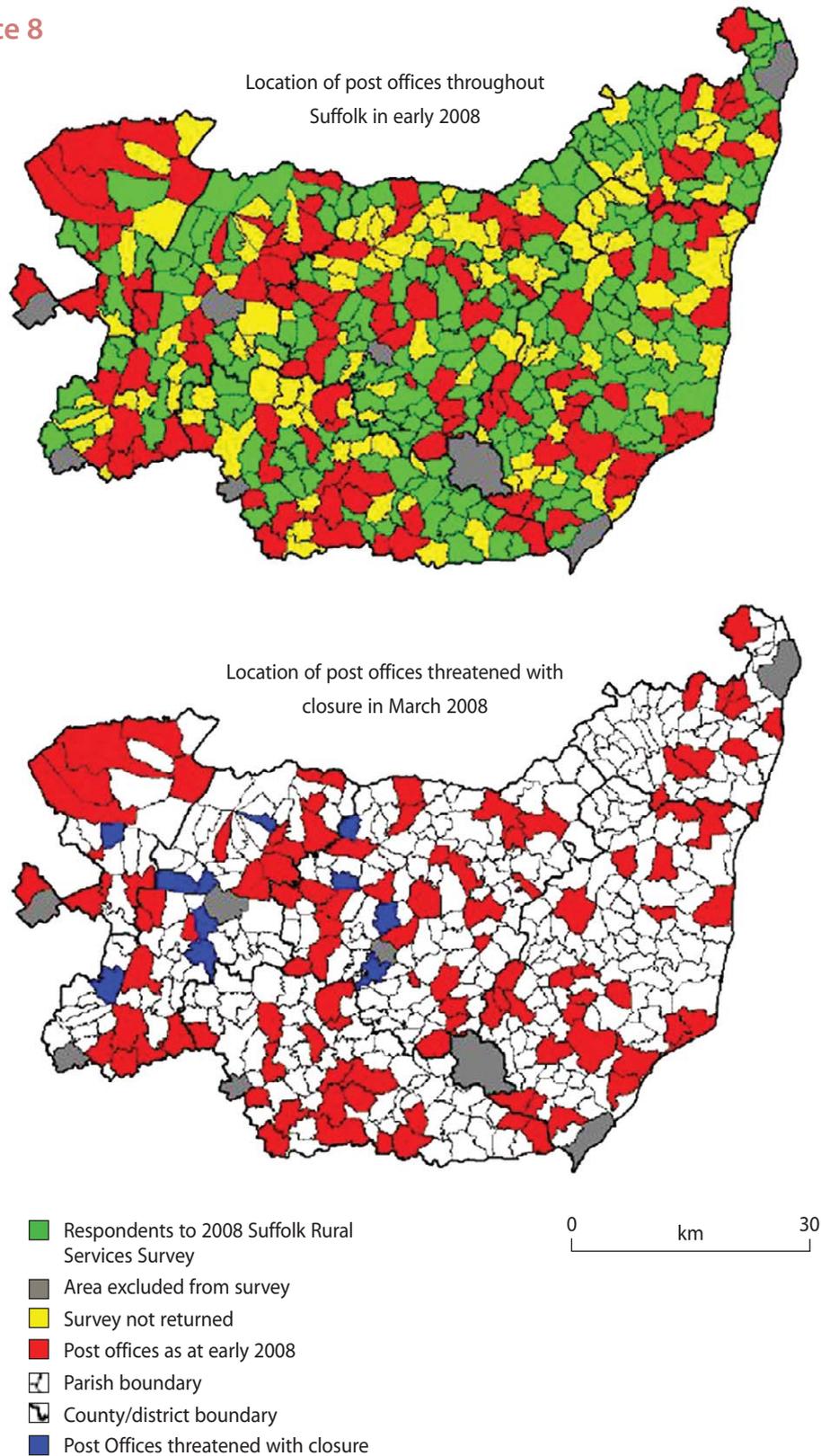
- The production of electricity from fossil fuels is cheaper than alternative energy such as wind power.
- Increased use of alternative energy will create significant environmental problems.
- There is widespread and popular opposition to the expansion of wind power.
- Alternative energy can only meet a relatively small proportion of total energy demand.

#### Possible management

- Carbon dioxide emissions could be reduced by the introduction of clean technologies for coal burning, the sequestration of carbon, carbon trading etc.
- Wind farms can be sited offshore where they are less environmentally damaging and arouse less opposition.
- A range of alternative energy resources (in addition to wind power) could be developed (e.g. wave energy, solar power).

## Question 6

### Resource 8



**Resource 8 provides information on rural service decline in eastern England.**

**Outline an issue indicated and suggest appropriate management.**

(10 marks)



### **Possible issues**

- Closure of rural post offices causes particular hardship for some demographic/social/economic groups, e.g. aged, carless, poor.
- Closure increases economic and social deprivation in the countryside.
- Rural services are essential to the economic health and sustainability of rural communities.
- The loss of rural services means more journeys, which contribute to congestion and pollution and are inconsistent with sustainable planning.

### **Possible management**

- Government subsidies to maintain rural services.
- The introduction of mobile services.
- Local communities cooperate and develop their own non-profit-making enterprises (e.g. retail, transport).

## Section B: essay questions and mark schemes

Section B of F763 comprises twelve essay questions. These questions are split evenly between Environmental issues and Economic issues. There are two questions on each of the six topics covered by the unit. Candidates must answer two essay questions, one from Environmental issues and one from Economic issues. Apart from differences in content, all the essay questions make the same basic demands and rely on a standard generic mark scheme. The questions are broad-based and **invite discussion** and evaluation within the **framework** of a synoptic approach. Synopticity is achieved by drawing widely on knowledge, understanding and skills from other parts of the AS/A2 course and integrating them into the answer.

### Environmental issues: Earth hazards

#### Question 1

**To what extent can preparedness and disaster planning mitigate the effects of earth hazards?**

(30 marks)

-  Preparedness includes building codes in earthquake-prone regions, flood control structures, warnings of potential hazards by government agencies (e.g. volcanic eruptions, mass movements), disaster planning (e.g. evacuation, emergency relief). The effect of these measures is to decrease the vulnerability of a population to natural hazards. Despite these measures, earth hazards can still result in major loss of life and economic damage. This is because other factors influence their impact, e.g. magnitude of the event, speed of the event, distribution and density of the population, levels of economic development and so on.

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#### AO1 Knowledge and understanding

Level 3	8–9 marks	Detailed knowledge and understanding of the influence of preparedness and other factors for a variety of earth hazards. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the influence of preparedness and other factors for a variety of earth hazards. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of the influence of preparedness and other factors on earth hazards. Cause and effect are not well understood and there is limited exemplification.

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#### AO2 Analysis, interpretation and evaluation

Level 3	14–17 marks	Clear analysis of the relative importance of preparedness etc. and an effective evaluation of the significance of scale, population, technology etc. Effective synopticity.
Level 2	8–13 marks	Some analysis of the relative importance of preparedness etc. and a limited evaluation of the significance of other factors. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of the relative importance of preparedness etc. and no attempt to evaluate the significance of other factors.

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**AO3 Investigate, conclude, communicate**

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Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

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- e** You will need to define the terms ‘preparedness’ and ‘disaster planning’ at the outset. Good answers will recognise that the impact/effect of earth hazards is due to a range of factors (scale of the event, population density etc.) and that preparedness can only do so much. Effective preparedness greatly reduced the death toll in earthquakes in San Francisco (1989) and Northridge (1994) but this was not the case in Kobe in 1995. The argument that poor countries are harder hit by earth hazards than rich countries (e.g. Nevado del Ruiz eruption of 1985, Asian tsunami 2004) is persuasive. Arguments should be balanced and draw on a number of different earth hazards. Use should be made of AS studies on population distribution, urban population density and levels of development to provide a synoptic input. The essay should end with a clear conclusion that is consistent with previous arguments.

# Environmental issues: Ecosystems and environments under threat

## Question 2

**Discuss the view that humankind's current exploitation of natural ecosystems is unsustainable.**

(30 marks)

-  Evidence to support the statement will be cited from specific examples at a range of scales, e.g. global warming and climate change, desertification, land degradation, deforestation, overfishing, falling water tables etc. However, candidates can counter the statement with examples of sustainable management of ecosystems, e.g. national parks, nature reserves, forestry, stewardship in modern farming etc.

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### AO1 Knowledge and understanding

---

Level 3	8–9 marks	Detailed knowledge and understanding of sustainable and unsustainable use of natural ecosystems. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the sustainable and unsustainable use of natural ecosystems. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of sustainable and unsustainable use of natural ecosystems. Cause and effect are not well understood and there is limited exemplification.

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### AO2 Analysis, interpretation and evaluation

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Level 3	14–17 marks	Clear analysis of the scale and significance of unsustainable use of natural ecosystems and effective evaluation of its significance compared with sustainable use. Effective synopticity.
Level 2	8–13 marks	Some analysis of unsustainable use of natural ecosystems and limited evaluation of its significance compared with sustainable use. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of unsustainable use of natural ecosystems and no attempt to evaluate its significance.

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### AO3 Investigate, conclude, communicate

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Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

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- e In general terms the statement is probably valid, but in detail it can be challenged. The concept of 'sustainability' will be central in good answers (i.e. meeting the needs of the present without compromising the needs of future generations) and should be defined in the introduction. Arguments must be supported by a range of specific examples related to human activities such as energy extraction/production, manufacturing, tourism, farming and so on and their harmful impact on ecosystems. Case studies from AS will be relevant (e.g. oil production in Alaska, mass tourism in Spain, ecotourism in Nepal) and will provide the necessary synopticity. Examples of sustainable human use of ecosystems will provide balance to the discussion. The essay should have a reasoned conclusion, which on the whole, is more likely to go along with the assertion.

## Environmental issues: Climatic hazards

### Question 3

**'Global climate change poses the greatest risks to the world's poorest countries'. Discuss.**

(30 marks)

-  Candidates will need to identify the 'risks' that include: rising sea level; increased storminess, hurricanes, drought, heat waves and rainfall in some regions; spread of disease/pests; loss of habitat etc. The world's poorest countries lack the economic resources to protect against the worst effects of climate change. This contention should be supported by specific examples such as Bangladesh (tropical cyclones, sea-level rise), desertification in sub-Saharan Africa, water supplies in countries dependent on Himalayan glaciers etc. An alternative view is that climate change also affects MEDCs. For instance, southern Spain and the US mid-west may become too dry for crop farming, coastal defences may be abandoned in the face of rising sea level and increased storminess etc. While MEDCs also face great risks, the likely conclusion is that these are less than in the world's poorest countries.

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#### AO1 Knowledge and understanding

Level 3	8–9 marks	Detailed knowledge and understanding of the risks posed by climate change and their likely impact. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the risks posed by climate change and their likely impact. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of the risks posed by climate change and their likely impact. Cause and effect are not well understood and there is limited exemplification.

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#### AO2 Analysis, interpretation and evaluation

Level 3	14–17 marks	Clear analysis of the impact of climate change and effective evaluation of its relative significance in LEDCs and MEDCs. Effective synopticity.
Level 2	8–13 marks	Some analysis of the impact of climate change and limited evaluation of its relative significance in LEDCs and MEDCs. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of the impact of climate change and no attempt to evaluate its significance.

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#### AO3 Investigate, conclude, communicate

Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

- e You should first define global climate change (though resist the temptation to write in any detail about its causes), then state the risks associated with climate change and finally explain what you understand by the term 'the world's poorest countries'. Arguments both for and against the statement must be considered and evaluation of the question should appear throughout the answer (not just in the conclusion). Your overall position on the issue should appear in the conclusion. The scope for synoptic input includes studies on flooding (coastal and river), coastal erosion, land degradation and desertification in arid and semi-arid environments from AS.

## Economic issues: Population and resources

### Question 4

**To what extent is natural resource development and exploitation in LEDCs influenced by population growth?**

(30 marks)

-  Natural resource development depends on a range of economic, social and political, as well as demographic factors. At a national scale population growth may stimulate resource development (e.g. Brazil in Amazonia) and provide a domestic market. The influence of population growth is evident at local scales where resource over-exploitation and land degradation occur. Good answers will recognise that population growth is often of minor significance. Other factors, especially economic and political, are often of far greater importance (e.g. the political influence of China in the Democratic Republic of Congo and the Sudan; economic requirements to cut or service international debt, promote economic and social development, boost exports and reduce imports etc.).

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#### AO1 Knowledge and understanding

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Level 3	8–9 marks	Detailed knowledge and understanding of the influence of population growth and other factors on resource development. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the influence of population growth and other factors on resource development. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of the influence of population growth and other factors on resource development. Cause and effect are not well understood and there is limited exemplification.

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#### AO2 Analysis, interpretation and evaluation

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Level 3	14–17 marks	Clear analysis of the role of population growth and effective evaluation of its significance compared with other factors. Effective synopticity.
Level 2	8–13 marks	Some analysis of the role of population growth and limited evaluation of its significance compared with other factors. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of role of population growth and no attempt to evaluate its significance.

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#### AO3 Investigate, conclude, communicate

---

Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

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- e The key to a successful answer is finding examples where population growth has played a major part in natural resource development and exploitation, and where its influence has been insignificant. At a local or regional scale, over-exploitation is often linked directly (or indirectly) to population growth. AS examples, which provide synopticity, include deforestation in the Himalayas (Nepal) and desertification in the Sahel (Mali). On the other hand, AS examples such as energy developments in Alaska, Nigeria and California, and overfishing in the North Sea have little, if any connection, to population growth. Conclusions need to be balanced, well reasoned and consistent.

## Economic issues: Globalisation

### Question 5

**'Recent globalisation has resulted in a widening of the development gap.'**

**How far do you agree with this statement?**

(30 marks)

-  Arguments are balanced on both sides. It can be argued that globalisation has brought greater benefit to rich countries and TNCs than to the world's poorest countries, especially in Africa. The effects of free trade and trade restrictions are instructive here. On the other hand, globalisation has created millions of jobs in LEDCs (outsourcing, offshoring) and has led to significant foreign direct investment. Emerging economies like China, India and Brazil have closed the development gap for these countries.

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#### AO1 Knowledge and understanding

Level 3	8–9 marks	Detailed knowledge and understanding of the impact of globalisation on the development gap. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the impact of globalisation on the development gap. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of the impact of globalisation on the development gap. Cause and effect are not well understood and there is limited exemplification.

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#### AO2 Analysis, interpretation and evaluation

Level 3	14–17 marks	Clear analysis of globalisation and effective evaluation of its impact on the development gap. Effective synopticity.
Level 2	8–13 marks	Some analysis of globalisation and limited evaluation of its impact on the development gap. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of globalisation and no attempt to evaluate its impact on the development gap.

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#### AO3 Investigate, conclude, communicate

Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

- e The question demands a definition of globalisation (e.g. integration of the world economy, increasing flows of goods, services, capital, people etc. between countries) and the development gap (economic differences between rich and poor countries). Answers should aim to be discursive and evaluative throughout. Arguments supporting and disagreeing with the statement should be presented, and illustrated with detailed examples. Although the 'development gap' usually refers to international differences in economic well being, there is scope for synoptic input by referring to regional differences in wealth within countries that result from developments in tourism and energy sponsored by TNCs. A valid conclusion might be to argue that the validity of the statement depends on the scale of analysis.

# Economic issues: Development and inequalities

## Question 6

**Assess the contribution of physical factors to global inequalities in development.**

(30 marks)



Physical factors will include natural resources and relative location (i.e. accessibility). Some of the world's poorest countries are isolated and landlocked (e.g. in sub-Saharan Africa) and some have few natural resources (e.g. Haiti, Ethiopia). Others are predominantly arid or semi-arid (e.g. Chad, Somalia). In the humid tropics, the prevalence of disease may contribute to inequality. However, many economic, social, demographic, historical and political factors contribute to inequalities. Many successful MEDCs have few natural resources, e.g. Japan, Netherlands. The influence of human resources (skills and education of the workforce) is crucial in explaining global inequalities.

### AO1 Knowledge and understanding

Level 3	8–9 marks	Detailed knowledge and understanding of the significance of physical, and other factors in explaining global inequalities. Cause and effect are well understood and there is effective use of detailed examples.
Level 2	5–7 marks	Some knowledge and understanding of the significance of physical and other factors in explaining global inequalities. Cause and effect are understood and there is use of exemplification.
Level 1	1–4 marks	Limited knowledge and understanding of the significance of physical, and other factors in explaining global inequalities. Cause and effect are not well understood and there is limited exemplification.

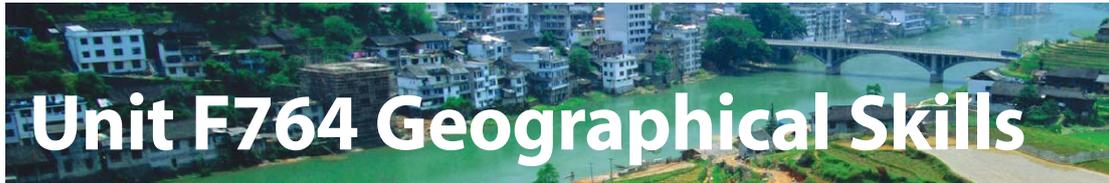
### AO2 Analysis, interpretation and evaluation

Level 3	14–17 marks	Clear analysis of the factors responsible for global inequalities, and effective evaluation of the relative importance of physical factors. Effective synopticity.
Level 2	8–13 marks	Some analysis of the factors responsible for global inequalities, and limited evaluation of the relative importance of physical factors. Some attempt at synopticity.
Level 1	1–7 marks	Limited analysis of the factors responsible for global inequalities, and no attempt to evaluate the relative importance of physical factors.

### AO3 Investigate, conclude, communicate

Level 3	4 marks	Answer is well structured with effective use of grammar and spelling. Geographical terminology is used accurately. There is a clear conclusion.
Level 2	3 marks	Answer may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology. There is a limited conclusion.
Level 1	1–2 marks	Communication is basic, with little structure and inaccurate spelling. There is no attempt at a conclusion.

- e You need to be clear what is meant by the term 'physical factors', and so the first task is one of definition. It might be useful to list all the factors that make significant contributions to global inequality. Specific examples are needed to support the contention that physical factors have a significant influence, particularly in extreme environments. AS studies of drought and of mountain environments will provide some synopticity. While a range of other factors influence global inequalities (economic, social, political etc.) and should be explained, the focus and emphasis must be on physical factors. An approach that simply goes through all of the factors that cause global inequalities, and is largely descriptive, will not provide a satisfactory and relevant answer. Evaluation should figure prominently throughout the answer, and should not be reserved for the conclusion.



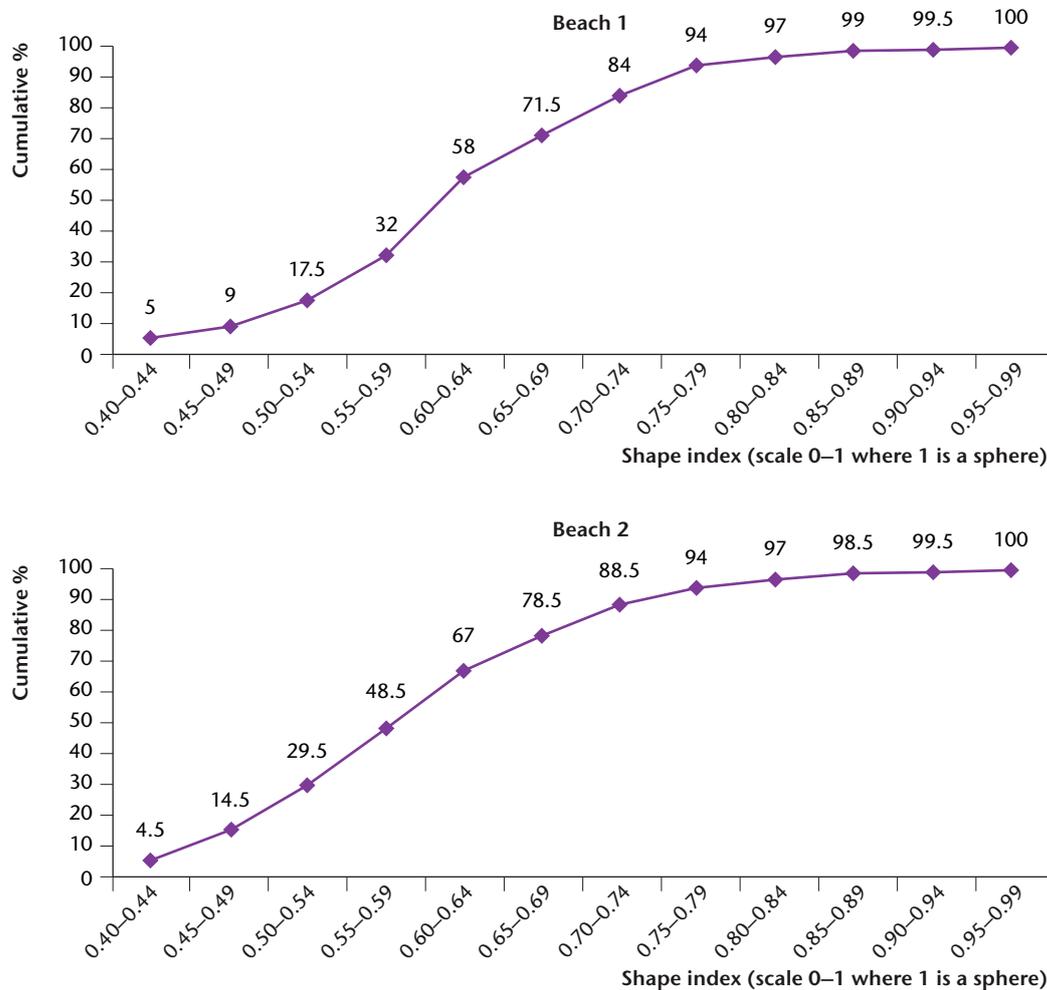
## Questions and mark schemes

The Geographical Skills paper is divided into two sections. Section A comprises three structured questions, each divided into three parts and worth a total of 20 marks. These questions are supported by data, in the form of tables, charts, maps and photographs, and test general understanding of geographical research skills. Candidates answer one question from Section A. Section B consists of two essay questions centred on a candidate's personal fieldwork experience. Candidates must answer both questions.

# Section A: structured questions

## Geographical research: questions 1–3

### Question 1



Limestone beach sediments: shape indices (1 = spherical)

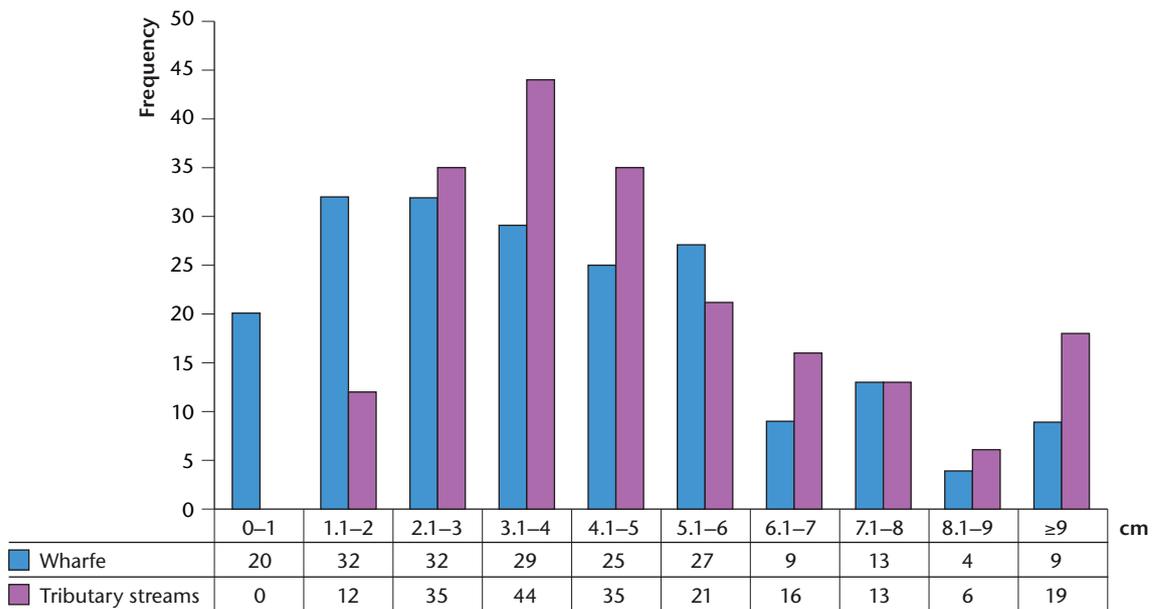
**Figure 1** Sediment shape on the Kent estuary, Cumbria

**Figure 1** presents some of the results of a geographical investigation into the shape of limestone shingle on two beaches near the mouth of the Kent estuary in Cumbria, backed by low limestone cliffs. A sample of 200 particles was collected on each beach in order to answer the following question:

**'Are there significant differences in the shape of limestone shingle on the two beaches?'**

- a** Comment on the effectiveness of Figure 1 in representing the data used to answer the research question. (5 marks)
- b** Describe and explain one relevant statistical technique that could be used to analyse differences in particle shape between the two beaches. (10 marks)
- c** Suggest possible reasons why fieldwork and/or research investigations often fail to show the results you expected. (5 marks)

## Question 2



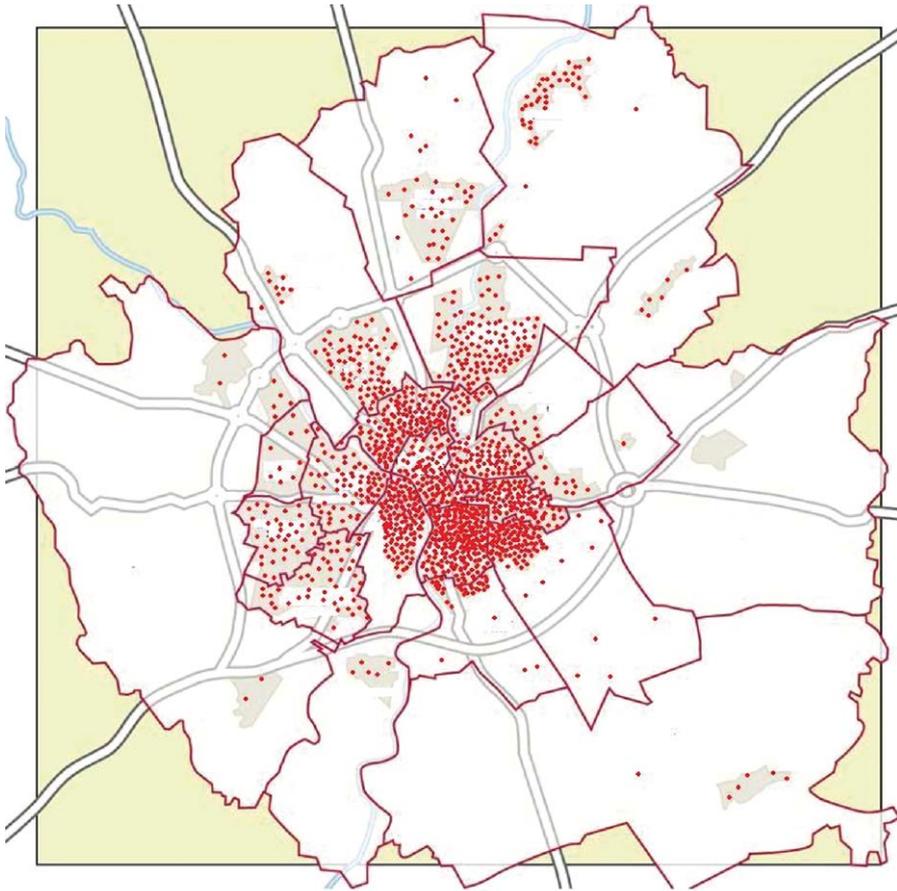
**Figure 2** Sediment size on the River Wharfe and tributaries

**Figure 2** presents some of the results of geographical research into the size of river sediments. The data, collected by systematic sampling in the field, aim to answer the following question:

**'Are the sandstone bedload sediments in the River Wharfe smaller than those input by shorter tributary streams?'**

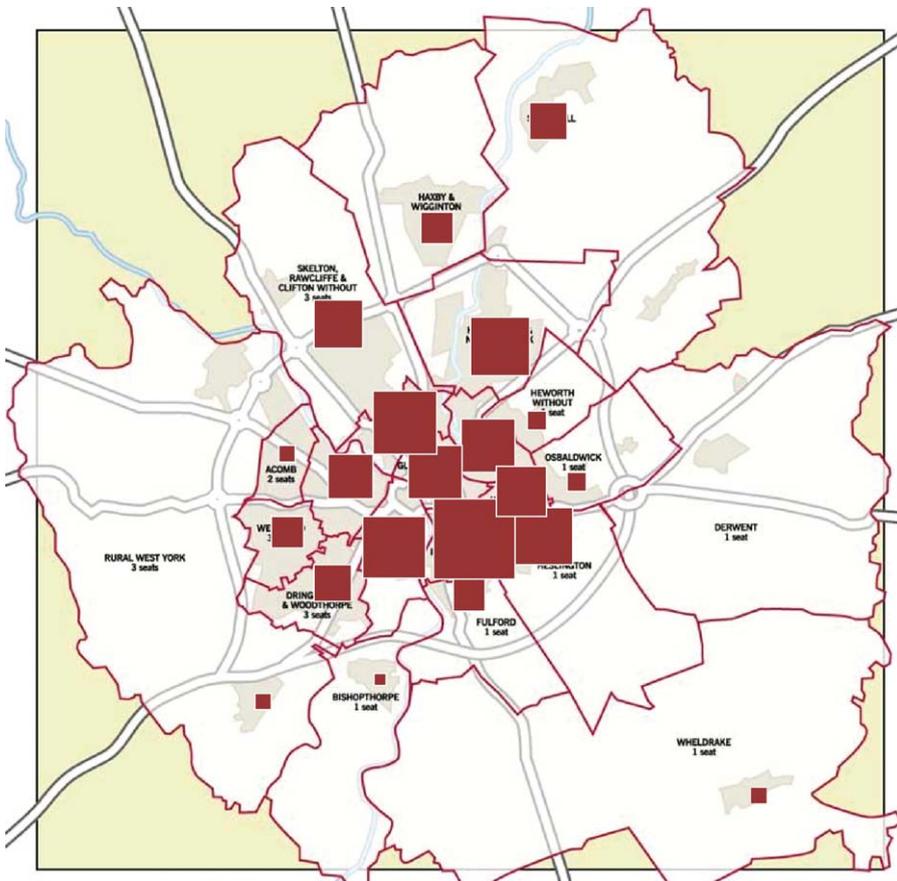
- a** Comment on the effectiveness of **Figure 2** in representing the data used to answer the research question. (5 marks)
- b** Explain why it is often important to establish the statistical significance of the differences between two data sets and how you would do this. (10 marks)
- c** Why is it often difficult to obtain accurate and representative examples in geographical investigations? (5 marks)

**Question 3**



**Figure 3**  
Distribution of the Asian population in York, 2001 (dot map)

1 dot = 1 person



**Figure 4**  
Distribution of the Asian population in York, 2001 (proportional symbol map)

Number of persons  
 100  
 50  
 25

Figures 3 and 4 show the distribution of the Asian population in York by ward in 2001. They formed part of an investigation into the city's ethnic geography, which aimed to answer the following question:

**'How segregated is the Asian population within the city of York?'**

- a** Outline the methods you would use to construct either a dot map (Figure 3) or a proportional symbol map (Figure 4). (5 marks)
- b** Compare the effectiveness of the maps in Figures 3 and 4 for representing spatial distributions in geography. (10 marks)
- c** Outline an alternative technique you could use to represent the data shown in Figures 3 and 4. (5 marks)

# Section A: mark schemes

## Geographical research: questions 1–3

### Question 1

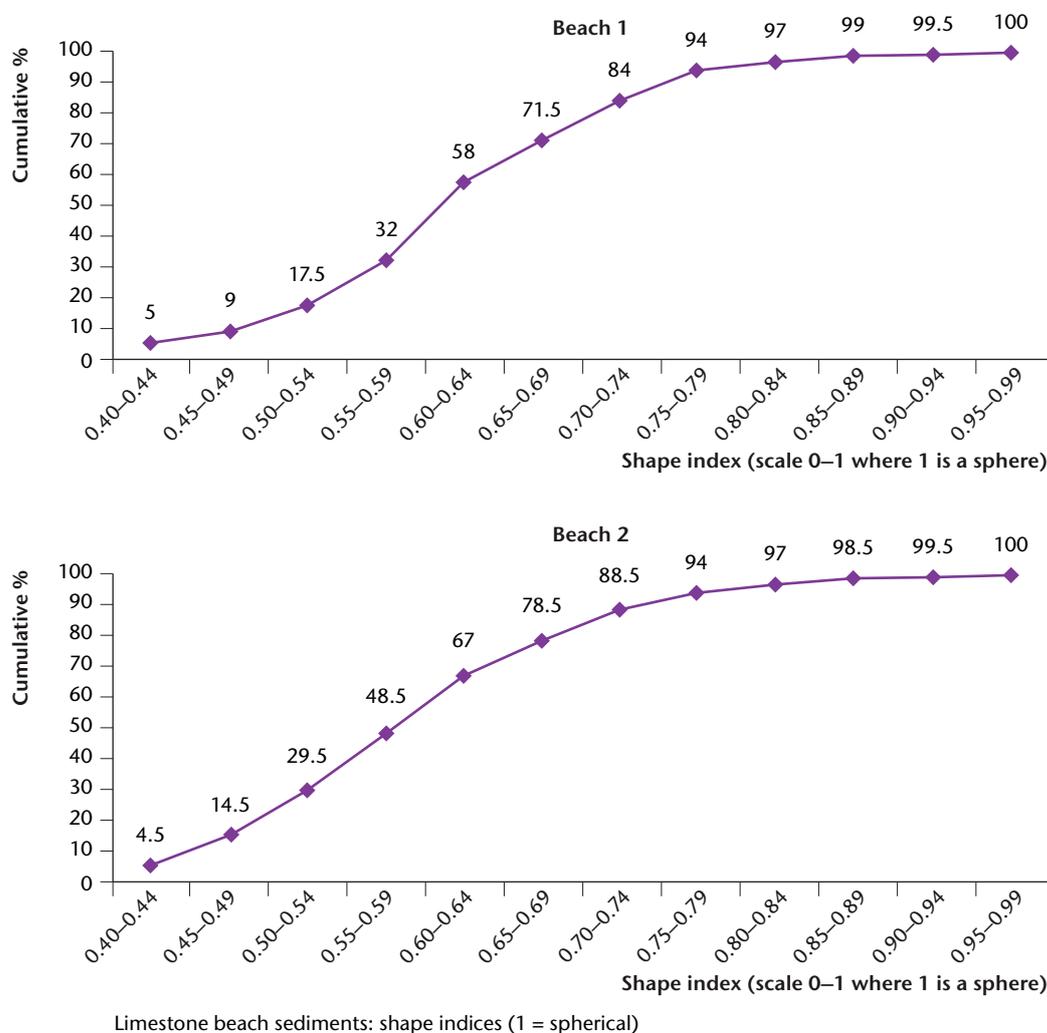


Figure 1 Sediment shape on the Kent estuary, Cumbria

Figure 1 presents some of the results of a geographical investigation into the shape of limestone shingle on two beaches near the mouth of the Kent estuary in Cumbria, backed by low limestone cliffs. A sample of 200 particles was collected on each beach in order to answer the following question:

'Are there significant differences in the shape of limestone shingle on the two beaches?'

**a** Comment on the effectiveness of Figure 1 in representing the data used to answer the research question.

(5 marks)

 Cumulative frequency curves show the distribution of the shapes of particles on the two beaches. Differences and similarities are evident in the contrasts in the slopes of the two curves. Although the differences are relatively small, it is clear that particles are more spherical on beach 2. This graphical technique allows statistical data to be recovered from the chart easily. However, the charts tell us nothing about summary values of the two distributions, e.g. the mean values and the dispersion values.

Level	Mark	Descriptor
Level 2	4–5 marks	Candidates comment clearly on Figure 1 and give a range of advantages and limitations well linked to the question. Specific references are made to Figure 1.
Level 1	0–3 marks	Candidates provide only limited comments on Figure 1 with few advantages and disadvantages, and with little, if any, linkage to the question or Figure 1.

**b Describe and explain one relevant statistical technique that could be used to analyse differences in particle shape between the two beaches.** (10 marks)

-  Chi-squared is the appropriate inferential statistical test that compares the differences between two frequency distributions. It is based on absolute values so the values in Figure 1 would have to be converted from percentages. The bigger the value of Chi-squared the greater the probability that the differences are not due to chance. An alternative (but less analytical) technique would involve calculating the means, standard deviations and coefficient of variations for the two data sets.

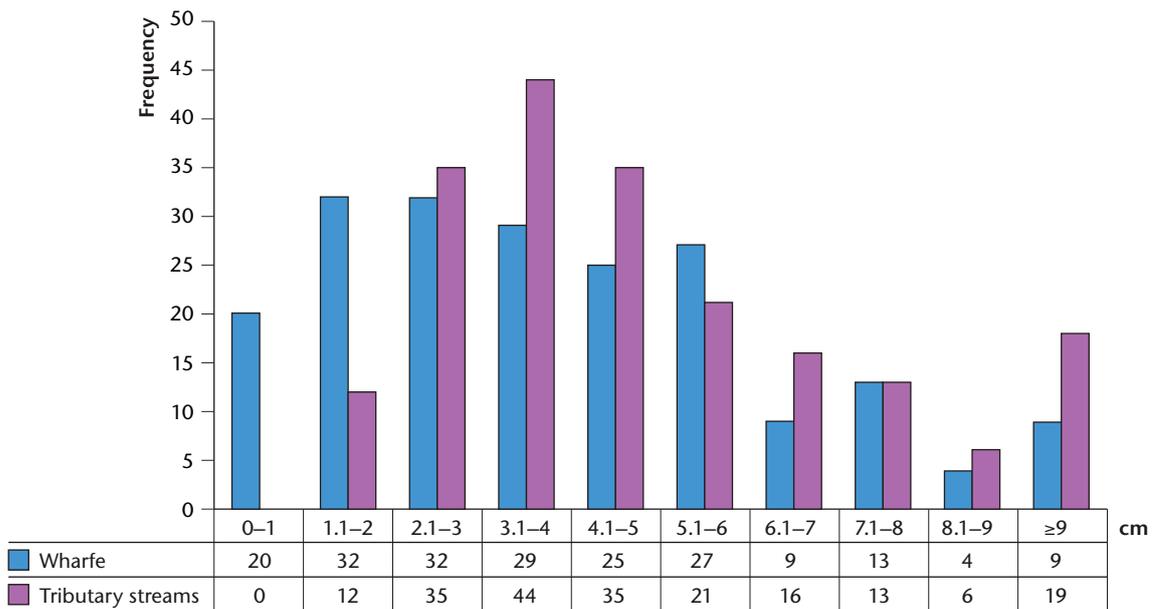
Level	Mark	Descriptor
Level 3	8–10 marks	Candidates describe a relevant statistical technique clearly and accurately. They explain clearly why the technique is appropriate and what it shows.
Level 2	5–7 marks	Candidates describe a relevant statistical technique with limited detail and accuracy. There is some explanation of the appropriateness of the technique. Alternatively, candidates may describe a technique that is only partly appropriate, but provide a reasoned explanation of its use.
Level 1	0–4 marks	Candidates may describe a technique that is only partly appropriate and are unable to provide a reasoned explanation for its use.

**c Suggest possible reasons why fieldwork and/or research investigations often fail to show the results you expected.** (5 marks)

-  Among possible reasons are problems with methodology and the complex, multi-variate nature of the real world. Typical methodological problems include inadequate sample size, unrepresentative samples, inaccurate measurement, inappropriate scales and so on. Many investigations of relationships often assume that  $y$  is influenced by  $x$ , when in reality  $y$  may be influenced by  $x_1, x_2, x_3, x_n$ . Candidates can draw on their experience of fieldwork/research at both AS and A2 to achieve synoptic input.

Level	Mark	Descriptor
Level 2	4–5 marks	Candidates provide detailed suggestions (two or more), supported by appropriate examples, and demonstrate effective synopticity.
Level 1	0–3 marks	Candidates give limited suggestions (either superficial or only one in detail), with little evidence of synopticity.

## Question 2



**Figure 2** Sediment size on the River Wharfe and tributaries

**Figure 2** presents some of the results of geographical research into the size of river sediments. The data, collected by systematic sampling in the field, aim to answer the following question:

**'Are the sandstone bedload sediments in the River Wharfe smaller than those input by shorter tributary streams?'**

**a** Comment on the effectiveness of **Figure 2** in representing the data used to answer the research question.

(5 marks)

 The data are presented as histograms that show the frequency of occurrence of sediments by size class. The charts effectively show the contrast between the two distributions. They show where the distributions peak (modal classes) and the spread of data around the peak. For example, the principal mode of tributary streams is 3.1–4 cm, compared with 1.1–2 cm and 2.1–3 cm for the Wharfe. The distribution of sediments in the Wharfe is more dispersed across the size range. The chart stores data that are easy to recover. However, the data are generalised in classes and we have no information on individual particle sizes. The 9+ is open-ended and is therefore even more generalised, and the number of classes used and the choice of class intervals are subjective.

Level	Mark	Descriptor
Level 2	4–5 marks	Candidates comment clearly on the effectiveness of Figure 2 and give a range of advantages and limitations well linked to the question. Specific references are made to Figure 2.
Level 1	0–3 marks	Candidates provide only limited comments on the effectiveness of Figure 2 with few advantages and disadvantages, and with little, if any, linkage to the question or Figure 2.

**b Explain why it is often important to establish the statistical significance of the differences between two data sets and describe how you would do this.**

(10 marks)

 Investigations often compare the differences between two sample data sets (as in Figure 2). Although the samples should have been collected objectively and scientifically, there is, nonetheless, a possibility that any differences could be due to chance. Statistical analysis tells us the probability of this happening. Normally, if the differences have just a 5% or less probability of occurring by chance, we accept them as statistically significant. Three statistical tests are available to analyse the differences between samples: *t*-test, U-test and chi-squared. In this question a description of one test would be sufficient. The *t*-test can only be used where data are available on a ratio scale; the U-test is based on ordinal (i.e. ranked) data; and chi-squared analyses the differences between frequency distributions (two in this case). Some reference to how you would use statistical tables to determine the significance of differences should be included.

Level	Mark	Descriptor
Level 3	8–10 marks	Candidates explain the need to establish statistical significance and describe a relevant statistical technique, clearly and accurately.
Level 2	5–7 marks	Candidates explain the need to establish statistical significance and describe a relevant statistical technique, with some detail and accuracy. Alternatively, candidates may describe accurately a technique that is only partly appropriate, and how they would use it.
Level 1	0–4 marks	Candidates provide a limited explanation of statistical significance and describe a statistical technique that is only partly appropriate. They are unable to say how they would use it.

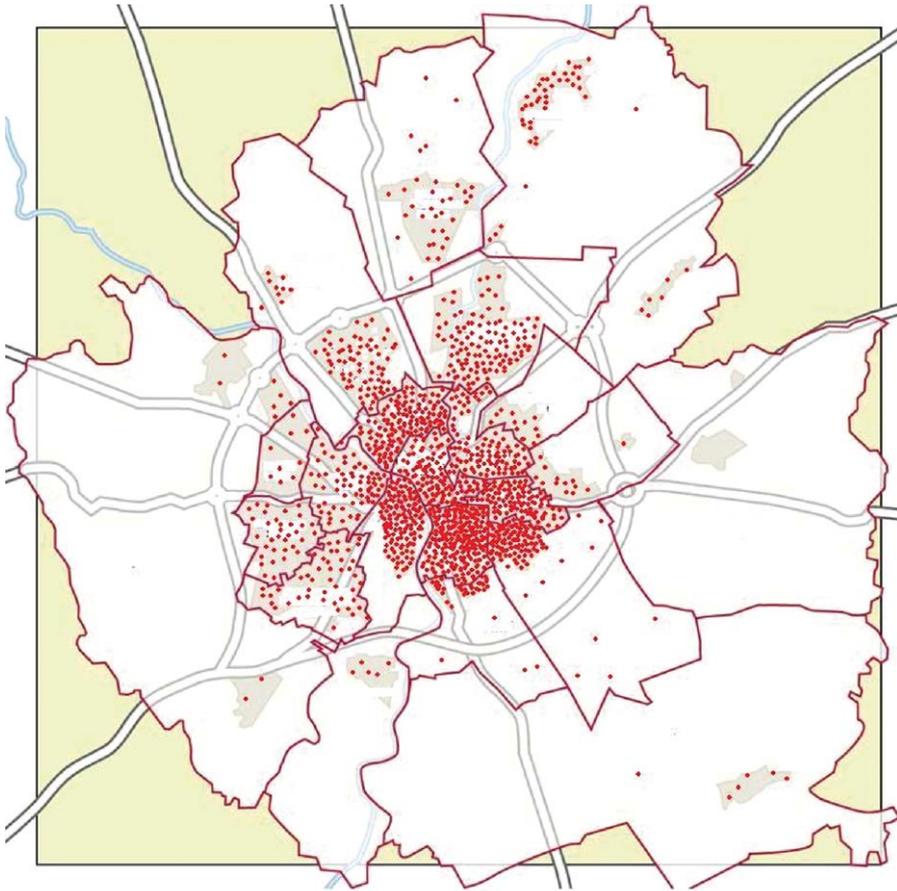
**c Why is it often difficult to obtain accurate and representative samples in geographical investigations?**

(5 marks)

 The best way to approach this is to focus on actual examples. In physical geography populations are often not distributed randomly. For example, sediments in river channels may have variable sorting along some reaches. This makes it very difficult to achieve a truly representative sample. Often in human geography, the lack of any sample frame (i.e. documents with a listing of the population) makes achieving a representative sample almost impossible. For example, the problem of stratifying samples of shoppers interviewed in a shopping centre (e.g. what proportion should be males/females, high/medium/low income, young/middle aged/old etc.?). Further problems of accuracy and representativeness occur when respondents, selected for interview either randomly or systematically, decline to be interviewed. Synoptic input will draw on fieldwork/research investigations completed during AS and A2 studies.

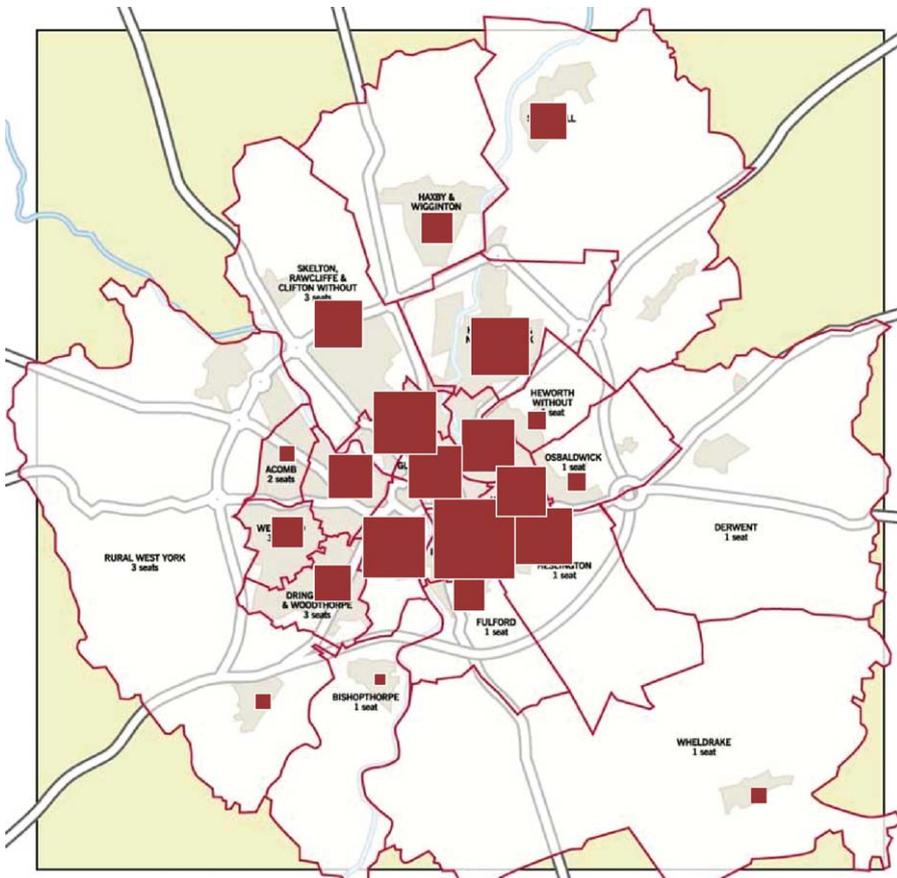
Level	Mark	Descriptor
Level 2	4–5 marks	Candidates provide detailed suggestions (two or more), supported by appropriate examples, and demonstrate effective synopticity.
Level 1	0–3 marks	Candidates give limited suggestions (either superficial or only one in detail), with little evidence of synopticity.

**Question 3**



**Figure 3**  
Distribution of the Asian population in York, 2001 (dot map)

1 dot = 1 person



**Figure 4**  
Distribution of the Asian population in York, 2001 (proportional symbol map)

Number of persons  
 100  
 50  
 25

Figures 3 and 4 show the distribution of the Asian population in York by ward in 2001. They formed part of an investigation into the city's ethnic geography, which aimed to answer the following question:

**'How segregated is the Asian population within the city of York?'**

**a Outline the methods you would use to construct either a dot map (Figure 3) or a proportional symbol map (Figure 4).** (5 marks)

 Both maps require a base map that shows the statistical areas for which data are available. Before constructing dot maps, decisions are needed on the size of dot, the value of each dot, and placement within statistical areas. A map showing the distribution of built areas is required for accurate placement of the dots. With proportional symbol maps decisions have to be made on the type of symbol used (circles or squares usually), their scale in relation to the map and their placement within the statistical areas.

Level	Mark	Descriptor
Level 2	4–5 marks	Candidates outline clearly and accurately all the steps involved in the construction of their chosen map.
Level 1	0–3 marks	Candidates provide only a limited outline of the steps involved, or a more detailed outline of just one or two of the steps.

**b Compare the effectiveness of the maps in Figures 3 and 4 for representing spatial distributions in geography.** (10 marks)

 The criteria that could be used to compare the effectiveness of the maps include: accuracy, level of detail/generalisation, visual impact, recovery of statistical data from the map, ease of interpretation etc. Proportional symbol maps are more generalised and show less detail. Overcrowding of symbols in central areas of the city may compromise the visual impact and interpretation. Moreover, because the area of symbols is proportional to values, interpretation can be difficult. Dot maps give a misleading impression of accuracy (placement involves a large degree of subjectivity). Recovering data in areas of highest density is also problematic.

Level	Mark	Descriptor
Level 3	8–10 marks	Candidates compare the two maps clearly and accurately using a good range of criteria, and support their answers with specific references to Figures 3 and 4.
Level 2	5–7 marks	Candidates provide a sound comparison of two maps, either across a limited range of criteria or with limited depth. Answers are fairly generalised but with some reference to Figures 3 and 4.
Level 1	0–4 marks	Candidates provide some comparison of the two maps, but with little detail and against few relevant criteria. Answers make few, if any, references to Figures 3 and 4.

**c Outline an alternative technique you could use to represent the data shown in Figures 3 and 4.**

(5 marks)



The most obvious mapping technique is choropleth mapping. Effective outlines of this technique would refer to the size and shape of statistical units, number of classes, class intervals, shading and so on. Isopleth maps, although more generalised and more difficult to draw, would also be an appropriate alternative. Candidates could opt for non-mapping statistical techniques such as Lorenz curves and the Gini coefficient, and dissimilarity (segregation) indexes. The technique chosen could be drawn specifically from topics across a range of human geography options at AS and A2. This would provide evidence of synopticity.

Level	Mark	Descriptor
Level 2	4–5 marks	Candidates provide detailed suggestions (two or more) of appropriate factors that demonstrate clear synopticity.
Level 1	0–3 marks	Candidates give limited suggestions (either superficial or only one in detail), with little evidence of synopticity.

## Section B: essay questions

### Geographical investigations: questions 4 and 5

#### Question 4

Using your fieldwork and research experience at A-level, describe the use you made of sampling methods in data collection and assess their value.

(20 marks)

### Question 5

**State the nature of an investigation (fieldwork/research) conducted during your A-level studies. Describe the analytical techniques used in your investigation, justify your choice, and assess their usefulness.**

(20 marks)

## Section B: mark schemes

### Geographical investigations: questions 4 and 5

#### Question 4

**Using your fieldwork and research experience at A-level, describe the use you made of sampling methods in data collection and assess their value.** (20 marks)

-  The description will include details of scale, sample sizes, sampling methodologies and precautions taken to ensure that the samples accurately represented the population. Assessment of the value of the samples will consider the accuracy of the sample data, the appropriateness of the sample data for statistical analysis and hypothesis testing, the representativeness of the data and the resources required to complete the sampling exercises. Answers should be presented within the framework of actual fieldwork investigations.

Level	Mark	Descriptor
Level 3	16–20 marks	Most aspects of the indicative content will be covered in a fieldwork-focused context. Answers will be well structured with accurate use of geographical terminology.
Level 2	10–15 marks	Sound description of some aspects of sampling methods combined with some assessment of their value, partly related to actual fieldwork. Alternatively, descriptions may be clear and detailed but contain little or no assessment (or vice versa). There will be some valid references to fieldwork. Answers may have poor structure with some inaccurate spelling and inaccurate use of geographical terminology.
Level 1	0–9 marks	Limited description of sampling methods combined with little or no assessment of their value. Answers tend to be generic rather than based on actual fieldwork across AS and A2.

## Question 5

**State the nature of an investigation (fieldwork/research) conducted during your A-level studies. Describe the analytical techniques used in your investigation, justify your choices, and assess their usefulness.**

(20 marks)



Introductory statements should be given about the nature of the investigation (e.g. location, aim, subject area, scale). Clear reference should be made to a fieldwork/research investigation undertaken during A-level studies. Analytical techniques will include some or all of the following: charts, descriptive statistics, inferential statistics, spatial indices. Differentiation will largely be achieved through the prominence given to justification and evaluation.

Level	Mark	Descriptor
Level 3	16–20 marks	Candidates describe and justify in detail a range of analytical techniques they used. There is a detailed evaluation with clear and specific reference to an actual fieldwork/research investigation. The answer is well structured with accurate grammar and spelling. Geographical terminology is used accurately.
Level 2	10–15 marks	Candidates describe and justify two or more analytical techniques. There is some evaluation and some reference to an actual fieldwork/research investigation. The answer may be poorly structured with some inaccurate spelling and inaccurate use of geographical terminology.
Level 1	0–9 marks	Candidates offer some description of analytical techniques, but only very limited justification and little, if any, evaluation. Answers tend to lack a well-developed link to a fieldwork/research investigation. Communication is basic with little structure and inaccurate spelling.