



# Coimisiún na Scrúduithe Stáit State Examinations Commission

LEAVING CERTIFICATE EXAMINATION, 2019

GEOGRAPHY – HIGHER LEVEL

FRIDAY 7 JUNE – MORNING 9:30 – 12:20

Examination Number

For the Examiner's Use Only

Part One Short-Answer Questions	Total Mark	Adv. Ex.	App. Ex.	App. Adv.
Question 1				
Question 2				
Question 3				
Question 4				
Question 5				
Question 6				
Question 7				
Question 8				
Question 9				
Question 10				
Question 11				
Question 12				
Accumulated Mark				
Disallowed Marks				
<b>Net Mark</b>				

**Note: Remember to return this paper with your answer book.**

**Otherwise, you will lose marks.**

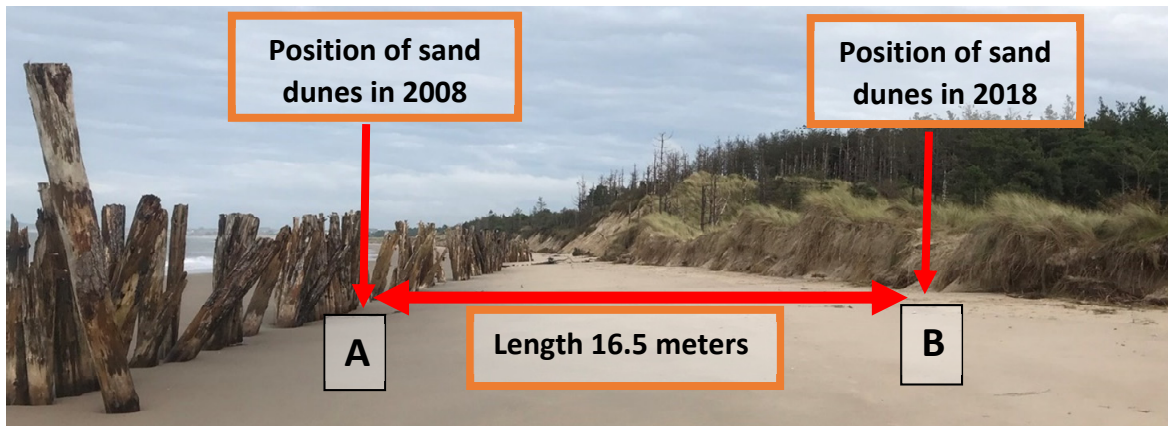
## PART ONE – SHORT-ANSWER QUESTIONS – 80 MARKS

Attempt any **TEN** questions.

All questions carry equal marks.

**THESE QUESTIONS ARE TO BE ANSWERED IN THE SPACES PROVIDED**

### 1. Coastal Processes



Examine the image above which illustrates erosion of a coastline from 2008 to 2018 and answer each of the following questions.

- (i) Calculate the average annual rate of erosion (in metres) between 2008 and 2018.

\_\_\_\_\_

- (ii) Name **two** processes of coastal erosion.

1. \_\_\_\_\_

2. \_\_\_\_\_

- (iii) Name **two** landforms formed as a result of coastal erosion.

1. \_\_\_\_\_

2. \_\_\_\_\_

- (iv) State whether the following statement is true or false.

The strength of a destructive wave's swash is weaker than its backwash.

\_\_\_\_\_

**[8m]**

## 2. The Physical Environment



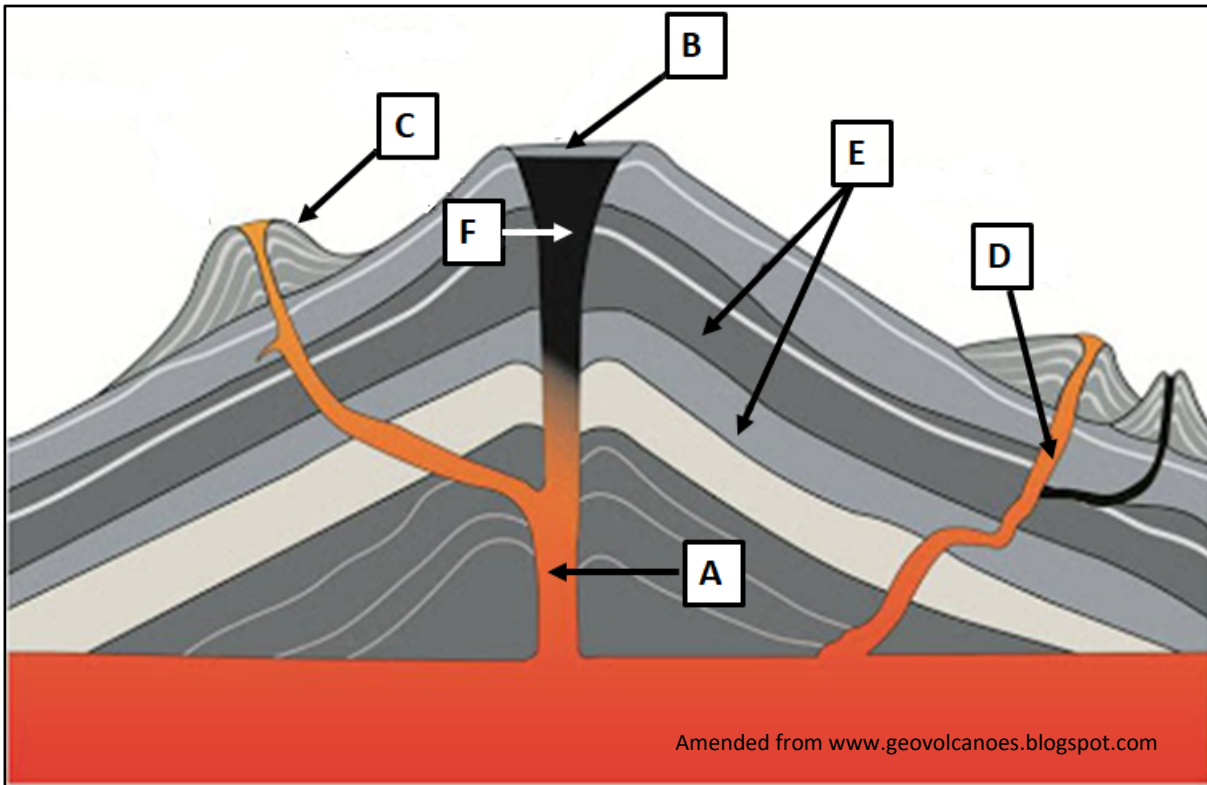
Examine the photographs above and answer each of the following questions.

- (i) Match each of the photographs **A**, **B**, **C** and **D** with the feature that best matches it in the table below.
- (ii) Indicate, by ticking the correct box, whether each of the features in the table below, is most associated with processes of erosion or processes of deposition.

Q.2(i)	Feature	Q.2(ii)	
Letter		Processes of Erosion (✓)	Processes of Deposition (✓)
	Delta		
	Geo		
	Pyramidal peak		
	Drumlin		

[8m]

### 3. Structure of a Volcano



Examine the diagram of the structure of a volcano above, and answer each of the following questions.

- (i) Match each of the letters **A, B, C, D, E** and **F** on the diagram, with the feature that best matches it in the table below.

Feature	Letter
Layers of lava and volcanic ash	
Parasitic cone	
Vent	
Crater	
Subsidiary vent	
Volcanic plug	

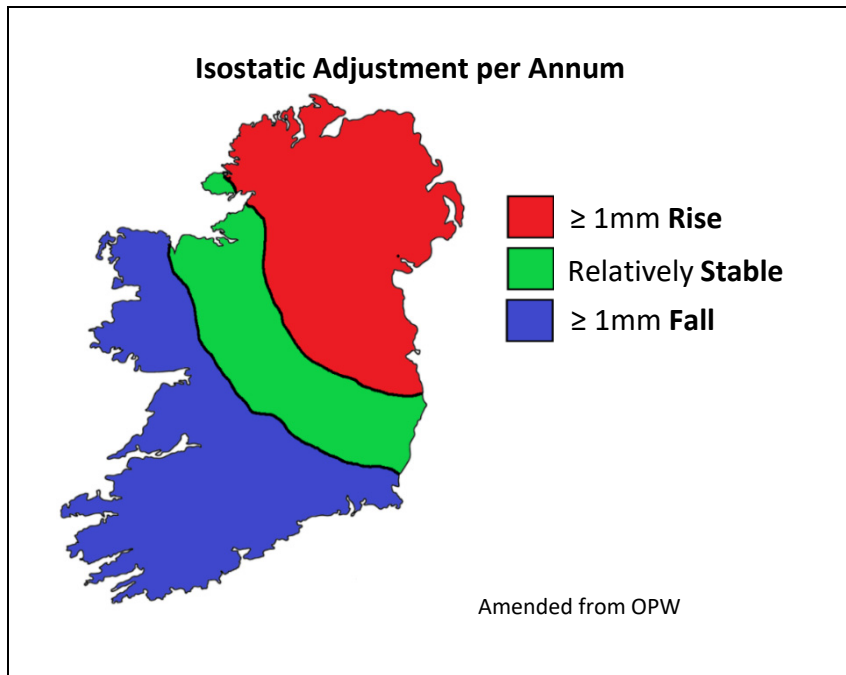
- (ii) State whether the following statement is true or false.

A shield volcano is formed by lava flows of low viscosity.

---

[8m]

#### 4. Isostatic Processes



Examine the map above showing isostatic adjustment per annum in millimetres (mm), and answer each of the following questions.

- (i) Name **two** coastal features formed due to isostatic adjustments, that may be found in the area marked in red.

1. \_\_\_\_\_

2. \_\_\_\_\_

- (ii) Name **two** coastal features formed due to isostatic adjustments, that may be found in the area marked in blue.

1. \_\_\_\_\_

2. \_\_\_\_\_

- (iii) What is the name of the process resulting in a renewal of erosive activity in the old stage of a river?

\_\_\_\_\_

- (iv) State whether the following statement is true or false.

Endogenic forces are processes operating below the earth's crust.

\_\_\_\_\_ **[8m]**

**5. Concept of a Region**

- (i) Complete the table by matching each of the examples of regions in the list below, with the type of region most associated with it in the table.

**Example of Region:**

The Burren

Leinster Batholith

Mediterranean

Sambre Meuse Valley

Co. Cavan

Islamic World

Type of Region	Example of Region
Region of industrial decline	
Geomorphological region (Karst landscape)	
Climatic region	
Administrative region	
Geomorphological region (Granite landscape)	
Cultural region (Religion)	

- (ii) State whether each of the following statements is true or false.

- (a) The hinterland is the area beyond a major town or city.

---

- (b) A nodal region is a region characterised by poor transport.

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**[8m]**

## 6. Landscape Identification

Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper.

In the table below, match each of the following landscape features with the grid reference that best matches its location, on the Ordnance Survey map:

- V-shaped valley
- Even slope
- Concave slope
- Flat land.

Grid Reference	Feature
S 06 73	
S 10 73	
S 04 76	
S 04 71	

[8m]

## 7. Map Skills

Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper, and answer each of the following questions.

- (i) Name the antiquity located at S 083 688.

---

- (ii) Measure the length, in kilometres, of the entire railway line.

---

- (iii) What type of forestry is present in grid box S 15 69?

---

- (iv) Calculate the approximate area, in square kilometres, of the entire area of land above 300 metres.

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[8m]

**8. Aerial Photograph and Ordnance Survey Map**

Examine the aerial photograph and the 1:50 000 Ordnance Survey map and legend accompanying this paper and answer each of the following questions.

- (i) In what direction was the camera pointed when the aerial photograph was taken?

---

- (ii) Give a six-figure grid reference for the large church that is located in the right background of the aerial photograph.

---

- (iii) Name the main road that runs through the aerial photograph from the left foreground, through the centre middleground, to the left background.

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- (iv) Examine the aerial photograph, and state whether the following statement is true or false.

The wide street network in the town centre indicates that Templemore was an unplanned town.

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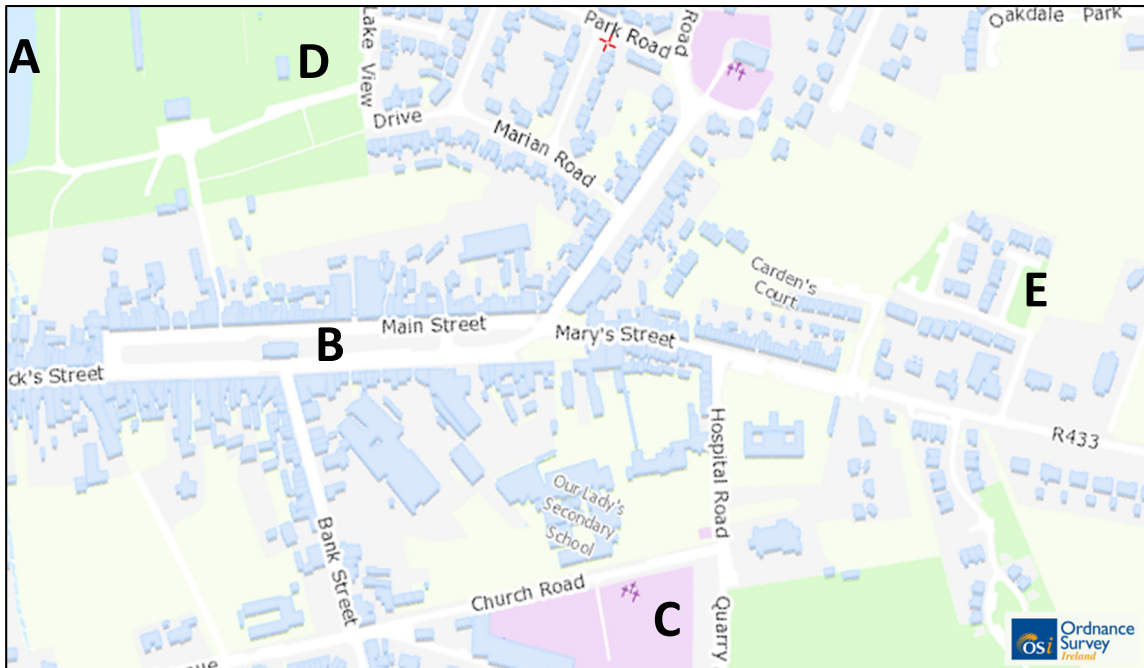
**[8m]**



**9. Aerial Photograph**

Examine the aerial photograph of Templemore accompanying this paper.  
Examine the street map below of part of the area covered by the aerial photograph.

Note: The orientation of the aerial photograph accompanying this paper is different from the orientation of the street map below.



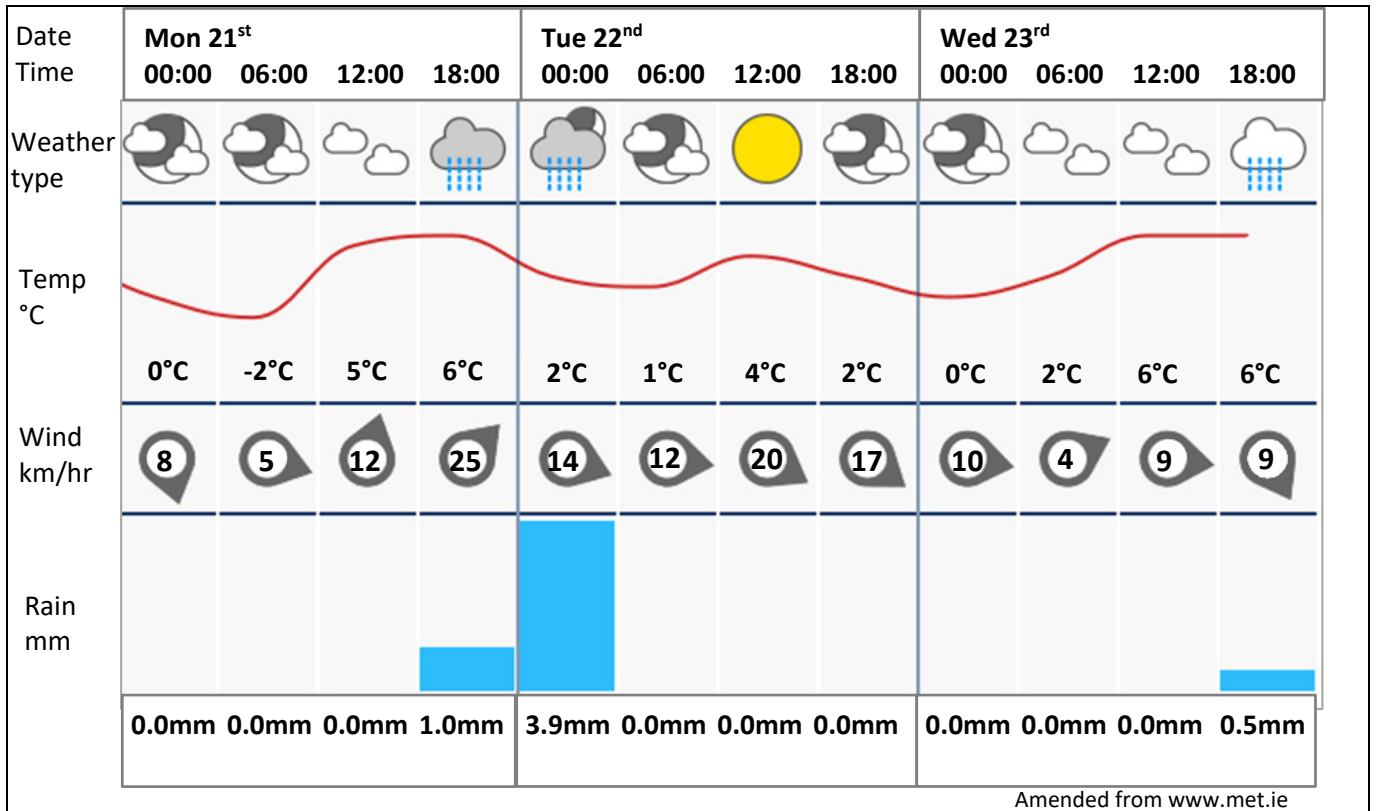
Locate each of the features labelled **A**, **B**, **C**, **D** and **E** above, on the aerial photograph accompanying this paper.

Using accepted notation, give the location of each of these features on the aerial photograph, in the table below. One has been completed for you.

Feature on Street Map	Location on Aerial Photograph
<b>A</b> Lake	<b>Left middleground</b>
<b>B</b> Town hall	
<b>C</b> Graveyard	
<b>D</b> Athletics track	
<b>E</b> Housing estate	

**[8m]**

## 10. Graphical Interpretation



Examine the weather information above from Met Éireann, for three days in January, and answer each of the following questions, using the data provided.

- (i) Calculate the total rainfall (in mm), over the three days.

---

- (ii) Calculate the temperature range (°C), on Monday.

---

- (iii) Calculate the mean wind speed (km/hr), on Wednesday.

---

- (iv) What is the term used to describe the wind that blows most frequently over an area?

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[8m]

## 11. Statistical Interpretation

Irish Citizenship Applications by Age Group in 2017

Nationality	Age Groups (in years)				Total
	0-17	18-34	35-64	65+	
Romania	168	332	480	1	981
United Kingdom	29	77	497	215	818
India	194	264	316	4	778
Nigeria	162	198	317	5	682
Pakistan	123	290	229	3	645
Philippines	101	92	225	0	418

Amended from Dept. of Justice and Equality, 2017

Examine the table above showing the number of Irish citizenship applications, by age group, from a selection of countries in 2017. Answer each of the following questions.

- (i) Which country had the highest number of applications for Irish citizenship in the 0-17 year age group?

\_\_\_\_\_

- (ii) How many Romanians in the 18-34 year age group applied for Irish citizenship?

\_\_\_\_\_

- (iii) Calculate the percentage of total applications from the United Kingdom that were in the 65+ year age group.

\_\_\_\_\_

- (iv) The possible exit of the United Kingdom from the European Union has resulted in an increase in the number of citizens from the United Kingdom applying for Irish citizenship.

State **two** advantages for citizens of the United Kingdom having Irish citizenship, if the United Kingdom leaves the European Union.

1. \_\_\_\_\_

2. \_\_\_\_\_

[8m]

## 12. Economic Development

### Project Ireland 2040

Project Ireland 2040 takes a radically different approach to future planning by focusing not just on bricks and mortar, but on social, economic and cultural development. It links planning and investment for the first time in Irish history, balances rural and urban investment, and will avoid the mistakes of the past.

Three quarters of new growth will be outside Dublin, with 50% of the projected population growth planned for our towns, villages and rural areas and 50% for our cities. Dublin, our capital city, must grow up and not out. It is underpinned by a 10 year, €116 billion, National Development Plan.

This is a dramatic increase in public investment for Ireland, and makes Ireland a European leader for investment, leaving behind the lost decade since 2008. The overall aim of Project Ireland 2040 is to Brexit-proof Ireland by investing in the future, with a particular focus on the Border Regions.

Amended from Irish Government Press Office

Read the extract above and answer each of the following questions.

- (i) What proportion of new growth is planned for inside Dublin?

---

- (ii) What is the planned investment (€ billion) under the National Development plan?

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- (iii) What percentage of the projected population growth is planned for towns, villages and rural areas?

---

- (iv) In order to Brexit-proof Ireland for the future, according to the extract above, what specific regions are the focus of investment?

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[8m]

## **PART TWO – STRUCTURED and ESSAY QUESTIONS – 320 MARKS**

You must attempt **FOUR** questions, as follows:

- **TWO** questions from **Section 1 – Core:**
  - **One** question from Questions 1, 2 and 3 **(80 marks)**
  - AND**
  - **One** question from Questions 4, 5 and 6 **(80 marks)**
- **ONE** question from **Section 2 – Electives (80 marks)**
- **ONE** question from **Section 3 – Options (80 marks)**

***THESE QUESTIONS ARE TO BE ANSWERED IN THE ANSWER BOOK***

**SECTION 1 – CORE**

**Questions 1 to 6**

You **MUST** attempt **TWO** questions:

**ONE** from **Patterns and Processes in the Physical Environment (Questions 1 to 3)**

**AND**

**ONE** from **Regional Geography (Questions 4 to 6)**

All questions carry 80 marks.

# PATTERNS AND PROCESSES IN THE PHYSICAL ENVIRONMENT

## Questions 1 to 3

Attempt **ONE** question.

### Question 1

#### 1A. Ordnance Survey Map

Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper.

Draw a sketch map of the area shown to half scale.

On it, correctly show and label each of the following:

- The course of the River Suir from S 132 728 to S 119 680
- The entire area of land above 200 metres
- The entire area of Templemore Lake
- The entire route of the railway line.

[20m]

#### 1B. Surface Processes

Answer (i) or (ii)

- (i) Examine the role of the **process of deposition** on the formation of **one** fluvial landform **or one** coastal landform **or one** glacial landform that you have studied.

Or

- (ii) Describe and explain the **factors governing the operation** of **one** mass movement process that you have studied.

[30m]

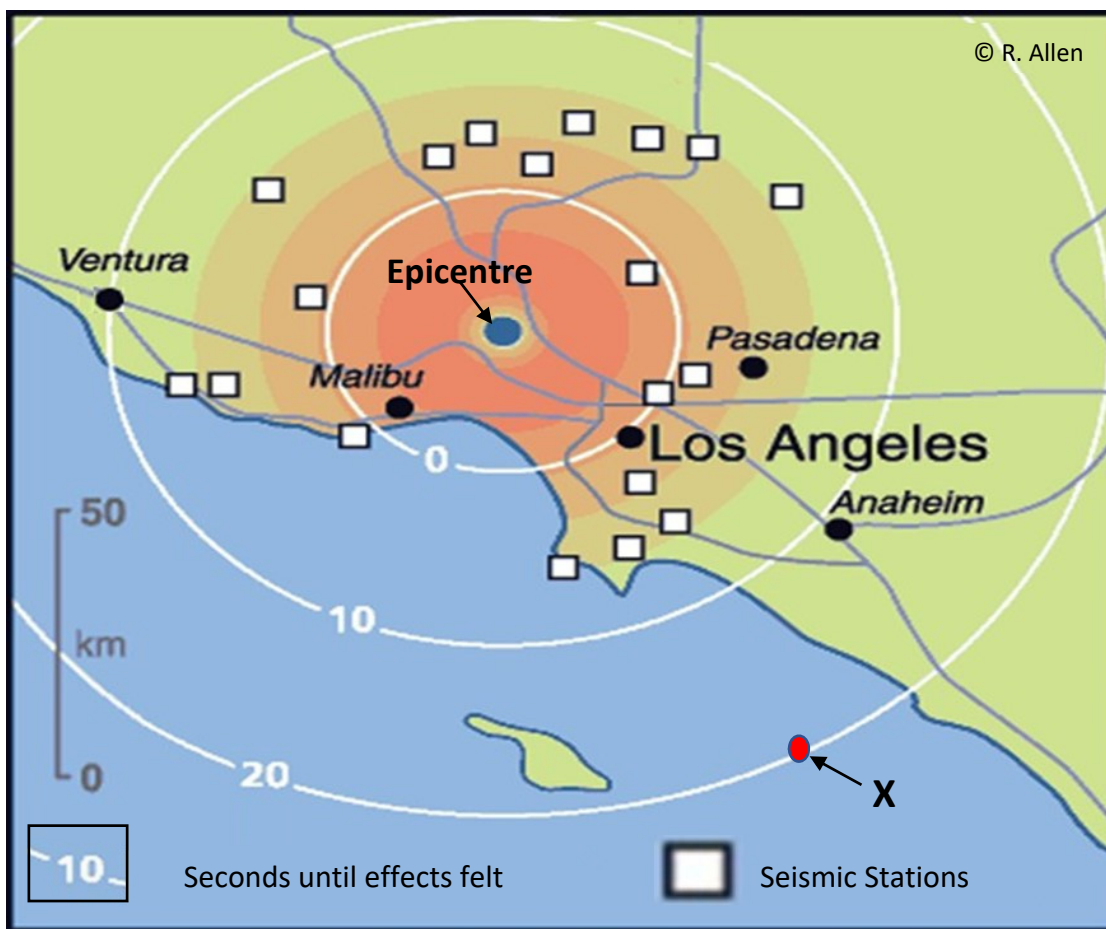
#### 1C. Tectonic Activity – Irish Landscape

Examine the impact of tectonic activity on the landscape of Ireland.

[30m]

## Question 2

### 2A. Earthquakes



On January 17, 1994, the Northridge Earthquake, magnitude 6.7, rocked the Los Angeles area causing billions of dollars in damage, thousands of injuries and 60 fatalities. Roads crumbled, gas mains burst and caught fire and thousands of buildings were either destroyed or declared unsafe and later demolished.

Amended from [www.theatlantic.com](http://www.theatlantic.com)

Examine the information above and answer each of the following questions.

- (i) What was the magnitude of the Northridge earthquake in 1994?
- (ii) Which of the named Los Angeles urban areas was closest to the earthquake's epicentre?
- (iii) How long did it take (in seconds) for the effects of the earthquake to be felt in Ventura?
- (iv) How many kilometres did the seismic waves travel from the epicentre to point X?
- (v) State **one** negative impact of the earthquake, referred to in the text above.
- (vi) Explain briefly **one** function of a seismic station.
- (vii) Explain briefly **one** way of making infrastructure earthquake proof.

[20m]



**2B. Rocks**

Explain the formation of each of the following, with reference to examples that you have studied:

- **One** sedimentary rock
- **One** metamorphic rock.

**[30m]**

**2C. Human Interaction with Surface Processes**

Human activity impacts on surface processes.

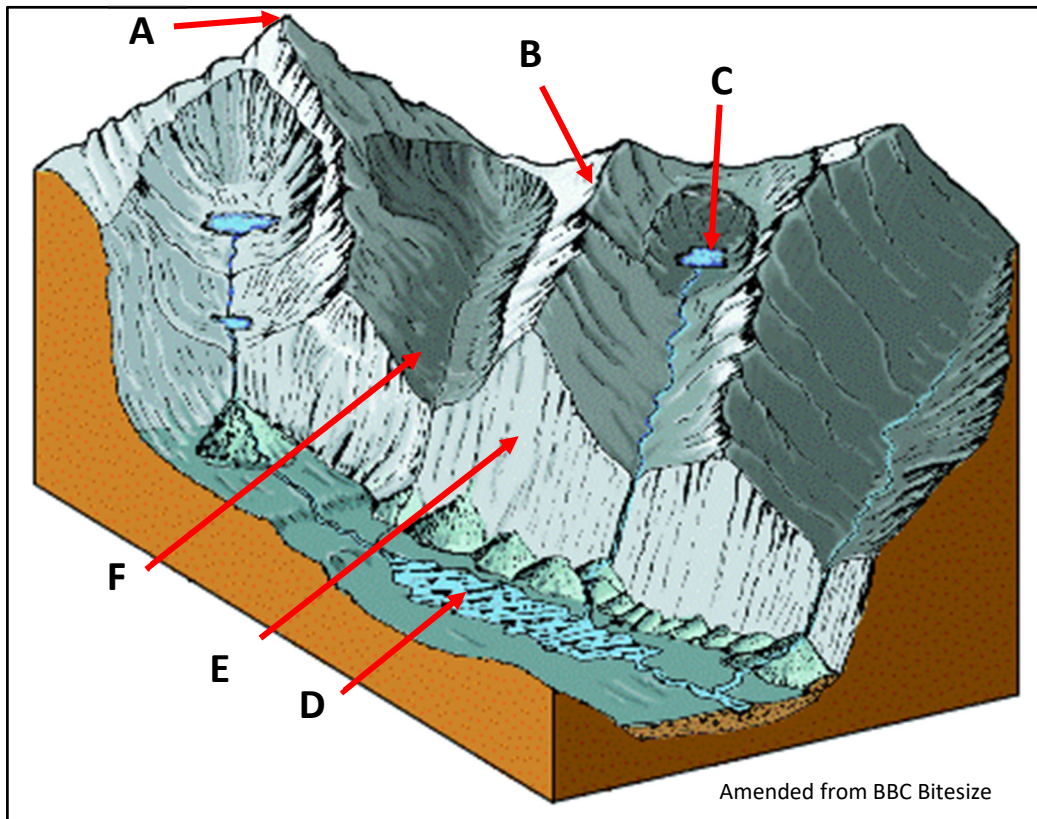
Examine this statement with reference to **one** of the following:

- The impact of human activity on river processes
- The impact of human activity on coastal processes
- The impact of human activity on mass movement processes.

**[30m]**

### Question 3

#### 3A. Glacial Landforms



Examine the diagram of glacial landforms above, and answer each of the following questions.

- (i) Name each of the glacial landforms labelled **A**, **B**, **C**, **D**, **E** and **F**.
- (ii) Explain briefly what is meant by the term *plucking* in relation to glaciation.
- (iii) Explain briefly how glaciers move.

[20m]

#### 3B. Landscape Development

Explain how different rock types produce distinctive landscapes in Ireland, with reference to examples that you have studied.

[30m]

#### 3C. Plate Tectonics

Discuss the theory of plate tectonics (the plate tectonics model).

[30m]

## REGIONAL GEOGRAPHY

### Questions 4 to 6

Attempt **ONE** question.

#### Question 4

##### 4A. Map Skills

Draw an outline map of a **European** region (not in Ireland) that you have studied.

On it, show and name each of the following:

- The course of a named river in the region
- The outline of a named feature of relief (upland or lowland) in the region
- **Two** named urban centres in the region.

[20m]

##### 4B. Tertiary Economic Activity – Tourism

Examine **two** factors that have influenced the development of tourism in an **Irish** region that you have studied.

[30m]

##### 4C. Complexity of Regions

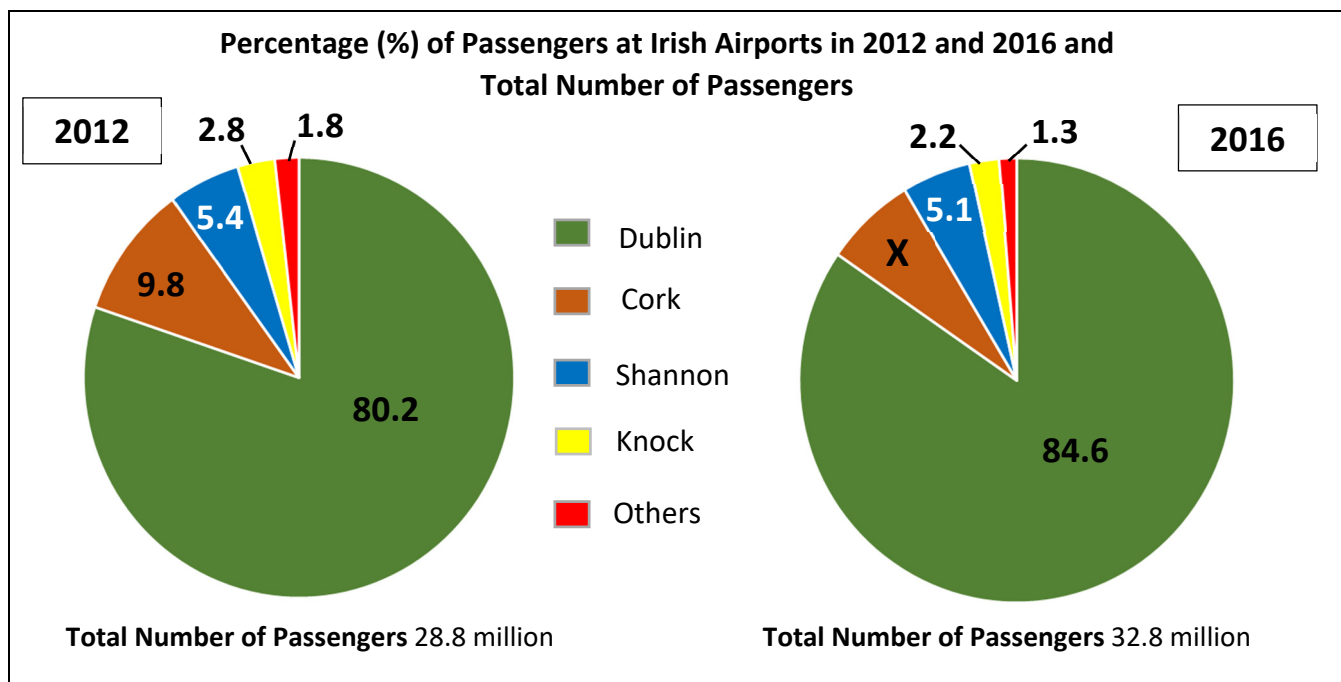
Changes in boundaries over time can impact on cultural groups.

Examine this statement with reference to example(s) that you have studied.

[30m]

## Question 5

### 5A. Irish Transport



Examine the charts above showing the percentage of passengers and the total number of passengers, at Irish airports in 2012 and 2016. Answer each of the following questions.

- (i) By how many million did the total number of passengers at Irish airports increase between 2012 and 2016?
- (ii) Calculate **X**, the percentage of passengers at Cork airport in 2016.
- (iii) Name the airport that experienced an increase in the percentage of passengers from 2012 to 2016 **and** explain briefly **two** reasons for this increase.
- (iv) Explain briefly **one** impact of changes in European Union structure, such as Brexit, on Dublin airport.

[20m]

### 5B. Primary Economic Activity – Agriculture

Account for the development of agriculture in a **Continental / Sub-Continental** region (not in Europe) that you have studied.

[30m]

### 5C. Population Dynamics

Account for the population distribution throughout a **European** region (not in Ireland) that you have studied.

[30m]

## Question 6

### 6A. European Agriculture

Production of Cow's Milk (in thousand tonnes)

Region	2008	2010	2012	2014	2016
Wallonia	1,376	1,479	1,476	1,382	1,459
*BMW, Ireland	1,096	1,097	1,093	1,177	1,397
Southern & Eastern Ireland	4,034	4,253	4,307	4,644	5,454
Paris Basin	5,728	5,709	5,850	6,095	6,023
Northern Italy	9,213	9,332	9,439	9,992	10,020
Mezzogiorno	1,314	1,333	1,352	1,295	1,307
Northern Ireland	2,079	2,111	2,184	2,531	2,537

\*BMW: Border, Midlands and West

Amended from Eurostat

Examine the table above, showing the production of cow's milk, (in thousand tonnes), in selected regions in Europe, and answer each of the following questions.

- (i) Which region experienced a decline in the production of cow's milk from 2014 to 2016?
- (ii) Calculate the increase (in thousand tonnes), in the production of cow's milk in the Southern & Eastern region of Ireland, between 2008 and 2016.
- (iii) Calculate the percentage increase in the production of cow's milk in the BMW region of Ireland from 2014 to 2016.
- (iv) Explain briefly **two** reasons why agricultural output is higher in core areas, such as Northern Italy, than in peripheral regions, such as the Mezzogiorno.
- (v) Explain briefly **one** environmental problem that may result from increased numbers of cattle.

[20m]

### 6B. Secondary Economic Activity

Examine how any **two** factors have influenced the development of secondary economic activity in a **Continental / Sub-Continental** region (not in Europe), that you have studied.

[30m]

### 6C. Concept of a Region

Examine how geomorphology **or** climate can be used to define regions, with reference to examples that you have studied.

[30m]

**SECTION 2 - ELECTIVES**

**Questions 7 to 12**

You **MUST** attempt **ONE** question from:

**Patterns and Processes in Economic Activities (Questions 7, 8 and 9)**

**OR**

**Patterns and Processes in the Human Environment (Questions 10, 11 and 12)**

All questions carry 80 marks.

## PATTERNS AND PROCESSES IN ECONOMIC ACTIVITIES

### Questions 7 to 9

#### Question 7

##### 7A. Economic Activity

Internet Access using Fixed Broadband in Irish Regions in 2018 (%)

Region	Internet Access using Fixed Broadband
Midlands	67%
Mid-East	86%
West	71%
Dublin	90%
Mid-West	78%
South-East	82%

Amended from CSO

Examine the data above showing internet access using fixed broadband in Irish regions, in 2018, and answer each of the following questions.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) Explain briefly what is meant by the term *e-commerce*.

[20m]

##### 7B. Colonialism

Examine the impact of colonialism on a developing economy that you have studied.

[30m]

##### 7C. Ireland and European Union Policy

Explain how any **one** European Union policy has influenced the Irish economy.

[30m]

## Question 8

### 8A. Ordnance Survey Map

Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper.

- (i) Draw a sketch map of the area shown to half scale.
- (a) On it, correctly show and label each of the following:
- The built-up area of Templemore
  - The entire route of the N62 road.
- (b) By-passes are often built to improve transport and to ease traffic congestion in urban areas.

On your sketch map, draw and label a suitable route for a by-pass of Templemore, that would ease traffic congestion on the N62.

- (ii) Explain briefly **one** disadvantage of such a by-pass for Templemore.

[20m]

### 8B. The Global Economy

Examine the mobility of modern economic activity with reference to example(s) that you have studied.

[30m]

### 8C. Renewable Energy

With reference to **one** specific renewable energy source, explain the advantages of this renewable energy source with reference to each of the following:

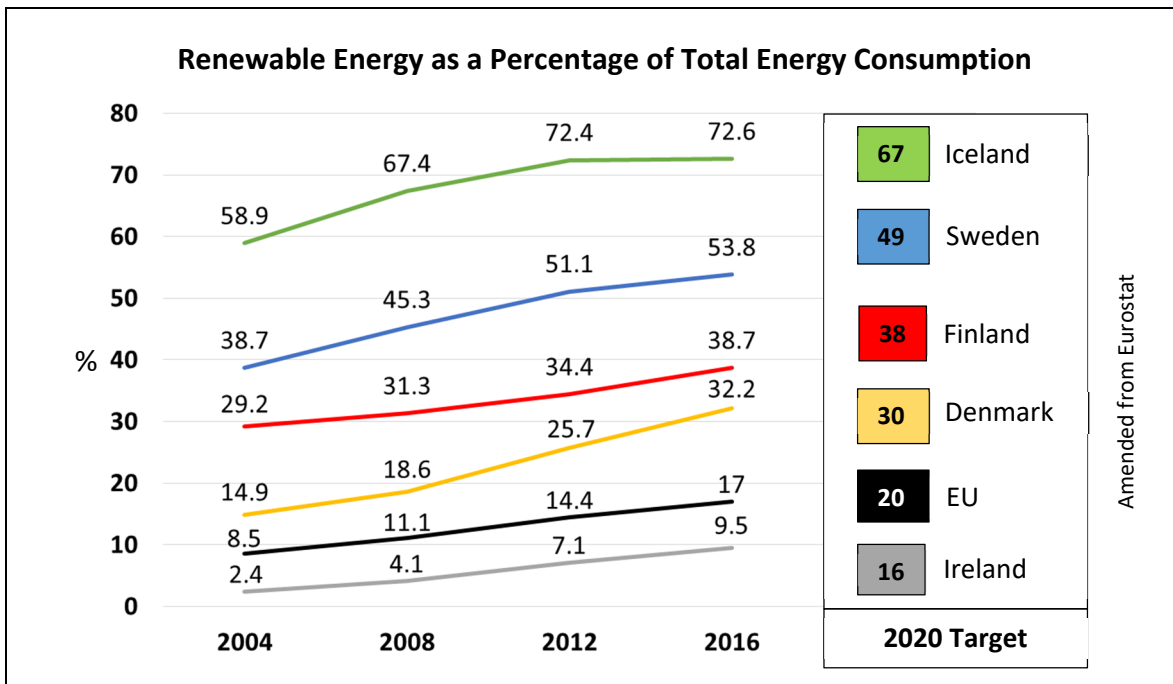
- Economic advantages
- Environmental advantages.

[30m]



## Question 9

### 9A. Renewable Energy



Examine the graph above showing renewable energy as a percentage of total energy consumption in a number of countries, and the target for each country for 2020.

Answer each of the following questions.

- (i) What was the difference between renewable energy as a percentage of total energy consumption in the EU and renewable energy as a percentage of total energy consumption in Iceland in 2012?
- (ii) Which country had the greatest increase in renewable energy as a percentage of total energy between 2004 and 2016?
- (iii) Which country was exceeding its 2020 target by the greatest amount in 2016?
- (iv) Explain briefly **two** reasons why Ireland was the country furthest from its 2020 target in 2016.
- (v) Name **two** sources of renewable energy in Ireland.

[20m]

### 9B. Location of Economic Activity

Discuss **three** reasons why the Templemore area is a suitable location for the development of secondary economic activity.

Use evidence from the aerial photograph **or** the Ordnance Survey map to support each reason.

[30m]

### 9C. Economic Development – Developed Economy

Discuss how levels of economic development can change over time with reference to a developed economy that you have studied.

[30m]

# PATTERNS AND PROCESSES IN THE HUMAN ENVIRONMENT

## Questions 10 to 12

### Question 10

#### 10A. Aerial Photograph

Examine the aerial photograph accompanying this paper.

- (i) Draw a sketch map of the aerial photograph, half the length and half the breadth.
- (a) On it, correctly show and label **one** example of each of the following:
- An ecclesiastical land-use
  - A recreational land-use.
- (b) On your sketch map, show and label **one** example of one other land-use (not named above).
- (ii) With reference to the land-use shown and labelled by you in part (i)(b) above, explain briefly **one** advantage of this location for this land-use.

[20m]

#### 10B. Dynamics of Settlement

Examine Central Place Theory with reference to example(s) that you have studied.

[30m]

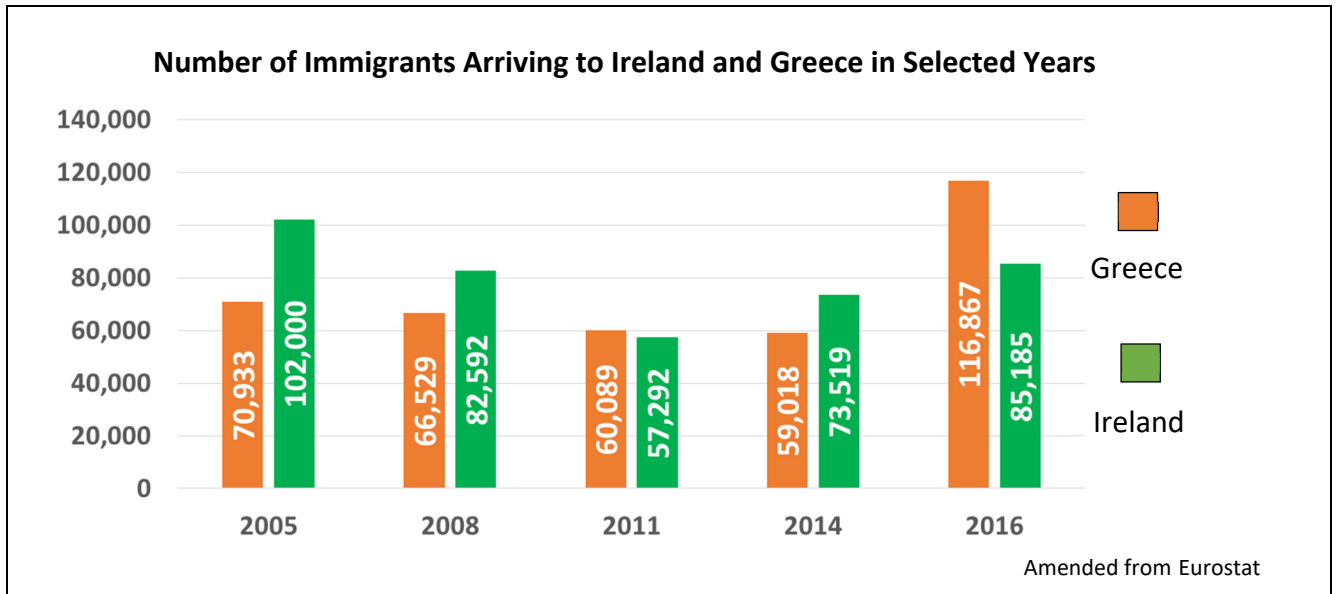
#### 10C. Migration

Discuss the impact of migration on rural areas in Ireland.

[30m]

## Question 11

### 11A. European Immigration



Examine the graph above showing the number of immigrants arriving to Ireland and Greece in selected years and answer each of the following questions.

- (i) In which year was immigration to Greece at its lowest?
- (ii) In which **two** years was immigration to Greece greater than immigration to Ireland?
- (iii) Explain briefly **one** negative impact of the change in immigration to Greece from 2014 to 2016.
- (iv) Calculate the percentage change in immigration to Ireland from 2011 to 2016.
- (v) What was the trend in immigration to Ireland between 2005 and 2011 and explain briefly **one** reason for this trend.

[20m]

### 11B. Urban Land-Use

Examine how the location of **two** of the following land-uses has changed in an Irish city that you have studied:

- Industrial land-use
- Residential land-use
- Commercial land-use.

[30m]

### 11C. Overpopulation

Describe and explain the causes of overpopulation.

[30m]

## Question 12

### 12A. Population Dynamics

Population Change in Ireland in Selected Years

Years	Population Change (in thousands)
2008	109
2010	21
2012	19
2014	31
2016	52
2018	65

Amended from CSO

Examine the data above showing population change (in thousands) in Ireland in selected years and answer each of the following questions.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) Birth rates and death rates are factors that influence population change.

Explain briefly any **one** other factor that influenced population change in Ireland from 2012 to 2018.

[20m]

### 12B. Historical Settlement

Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper and answer each of the following questions.

- (i) Name **and** locate using six-figure grid references, **three different** phases of historical settlement evident on the Ordnance Survey map.
- (ii) Explain briefly each of the **three** phases of historical settlement named by you in part (i) above.

[30m]

### 12C. Urban Problems

Discuss the problems that can arise from the growth of cities in the developing world.

[30m]

## **SECTION 3 – OPTIONS**

### **Questions 13 to 24**

Attempt **ONE** question.

All questions carry 80 marks.

**Note:** It is better to discuss **three** or **four** aspects of the theme in some detail, rather than to give a superficial treatment of a large number of points.

## Global Interdependence

**Note:** It is better to discuss **three** or **four** aspects of the theme in some detail, rather than to give a superficial treatment of a large number of points.

13. Discuss the impact of global trading patterns in relation to both producer and consumer regions, with reference to **one** multinational company that you have studied. [80m]
14. Discuss how aid programmes can help and hinder development. [80m]
15. Examine the causes and impacts of any **one** of the following global environmental issues:
- Deforestation
  - Global warming
  - Desertification.
- [80m]

## Geoecology

**Note:** It is better to discuss **three** or **four** aspects of the theme in some detail, rather than to give a superficial treatment of a large number of points.

16. Examine how each of the following impact on soil characteristics:
- Overgrazing
  - Desertification
  - Conservation methods.
- [80m]
17. Examine the influence of mineral matter, air, water and organic matter on soil development. [80m]
18. Biomes are altered by human activity. Discuss. [80m]

## Culture and Identity

**Note:** It is better to discuss **three** or **four** aspects of the theme in some detail, rather than to give a superficial treatment of a large number of points.

19. Identity as a concept entails a variety of cultural factors including nationality, language and religion.

Examine this statement with reference to a European region that you have studied.

[80m]

20. Conflict can arise between political structures and cultural groups.  
Discuss.

[80m]

21. Examine the impact of the movement of people on racial patterns.

[80m]

## The Atmosphere – Ocean Environment

**Note:** It is better to discuss **three** or **four** aspects of the theme in some detail, rather than to give a superficial treatment of a large number of points.

22. Examine how solar energy is redistributed through circulation patterns in the atmosphere and oceans.

[80m]

23. Exchanges of water between oceans and atmosphere, over the earth's surface, impact on precipitation and its distribution patterns.  
Discuss.

[80m]

24. Describe and account for the specific characteristics of **one** global climate type that you have studied.

[80m]

There is no examination material on this page

Leaving Certificate 2019 – Higher level

**Geography**

Friday 7 June

Morning 9:30 – 12:20