



# Coimisiún na Scrúduithe Stáit State Examinations Commission

LEAVING CERTIFICATE EXAMINATION, 2012

GEOGRAPHY – HIGHER LEVEL

FRIDAY, 8 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, marks will be lost.**

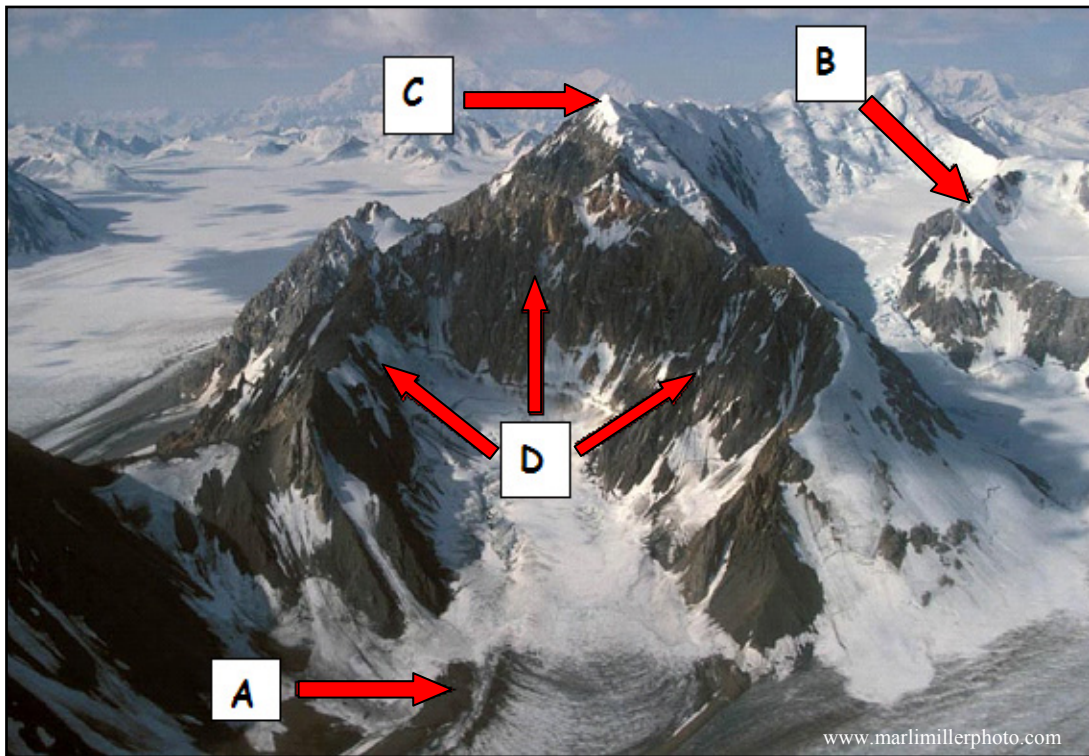
**PART ONE – SHORT-ANSWER QUESTIONS – 80 MARKS**

Attempt **TEN** questions.

All questions carry equal marks.

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

**1. Glacial Landforms**



Examine the aerial photograph above.

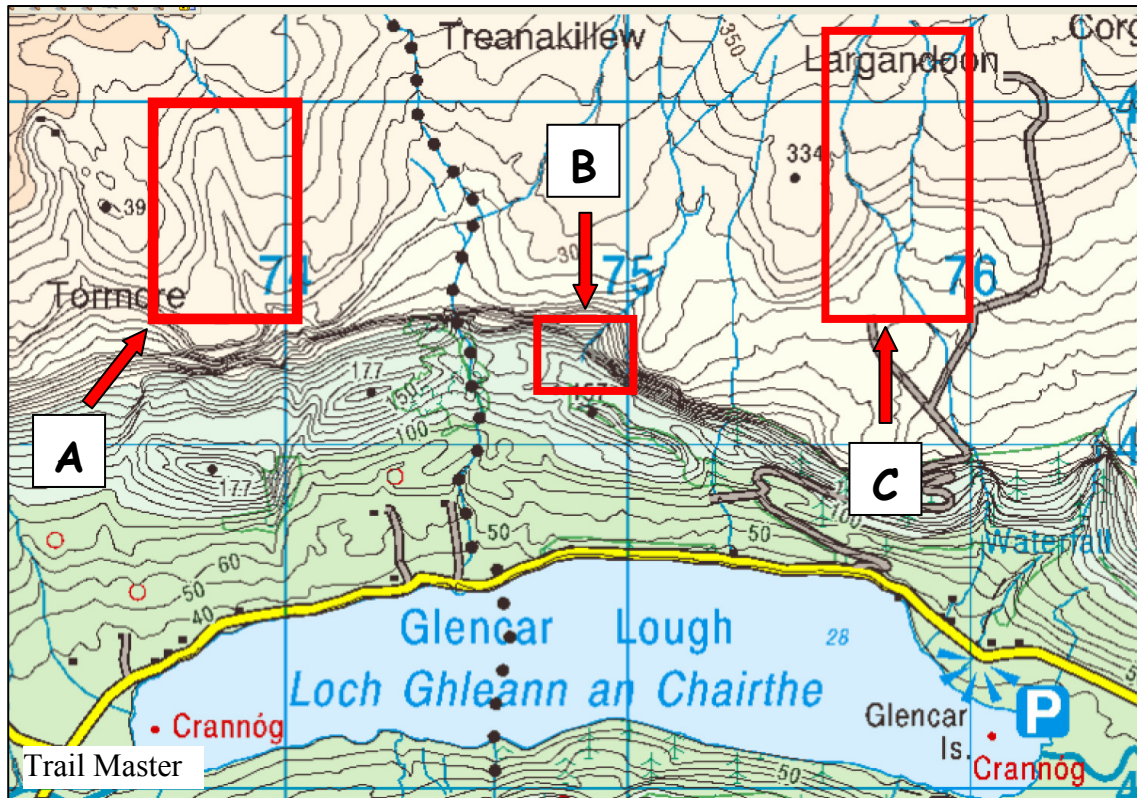
In the table below, match each of the letters **A** to **D** with the correct landform from the following list:

- Drumlin      Lateral moraine      Fiord**  
**Corrie/Coom/Cirque      Arête      Pyramidal peak**

Letter	Landform
A	
B	
C	
D	

[8m]

2. Physical Features



Examine the Ordnance Survey map extract above and answer the following questions.

- (i) Match each of the letters A to C with the correct feature in the table below.

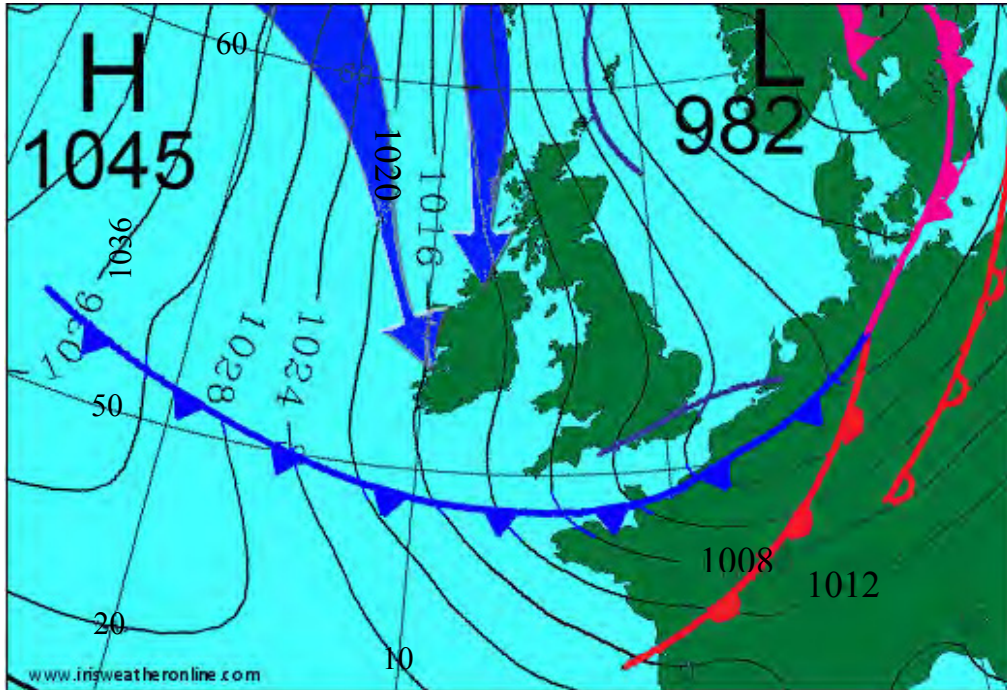
Feature	Letter
Dry river valley	
Dendritic drainage	
Swallow hole	

- (ii) The dry river valley and the swallow hole, on the map extract above, indicate the presence of a common Irish rock. Name this rock.

\_\_\_\_\_

[8m]

### 3. Weather Chart



Examine the weather chart above.

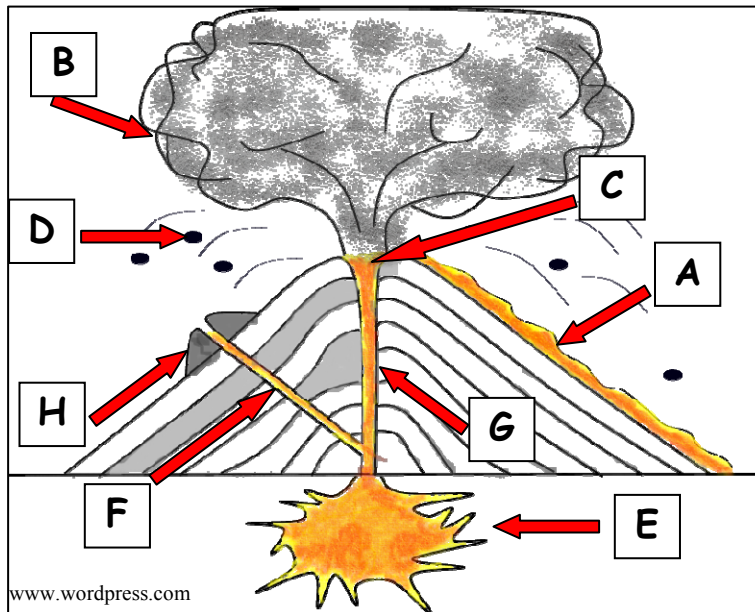
State whether each of the following statements is true or false by ticking the correct box.

- (i) There is a cold northerly airflow over Ireland. True  False
- (ii) There is a cold front over the northern coast of France. True  False
- (iii) There is an anticyclone over Scandinavia. True  False
- (iv) The air pressure nearest to Latitude  $60^\circ$  North and Longitude  $20^\circ$  West, is 1032 hectopascals/millibars. True  False

[8m]



4. Structure of a Volcano

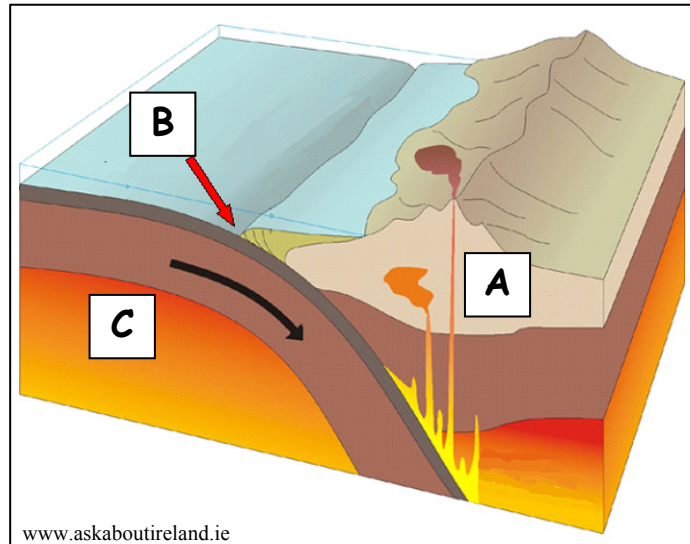


Match each of the letters A to H in the above diagram with the correct volcanic feature in the table below.

Feature	Letter
Vent	
Crater	
Ash cloud	
Secondary cone / parasitic cone	
Lava flow	
Magma chamber	
Volcanic bombs / lava bombs	
Subsidiary vent	

[8m]

**5. Plate Tectonics**



Examine the diagram above showing a plate boundary and answer the following questions.

- (i) Name the type of plate boundary shown above. \_\_\_\_\_
- (ii) Name the type of plate at **A**. \_\_\_\_\_
- (iii) Name the process taking place at **B**. \_\_\_\_\_
- (iv) Name the part of the mantle at **C**. \_\_\_\_\_

**[8m]**

**6. Regions**

- (i) Examine the table below. Match the region type with the example in Europe that best matches it, by writing the correct letter in each case, in the space provided.

Letter	Region Type
<b>A</b>	Climatic region
<b>B</b>	Urban capital
<b>C</b>	Geomorphological region
<b>D</b>	Language region

Example in Europe	Letter
The Central Plain of Ireland	
Wallonia	
Mediterranean	
Berlin	

- (ii) Briefly define each type of region listed below:

Peripheral region \_\_\_\_\_

\_\_\_\_\_

Administrative region \_\_\_\_\_

\_\_\_\_\_

**[8m]**

7. Physical Processes



Examine the photographs above and answer the following questions in the table below.

- (i) Insert the correct letter to match each of the photographs above with its correct description.
- (ii) Insert the correct process from the following list, which best matches the process at work in each of the photographs above:
  - Volcanic activity
  - Chemical weathering
  - Mass movement
  - Tectonic uplift.

Description of photograph	(i) Letter	(ii) Process at work
Incised meander		
Landslide		
Caldera		
Limestone pavement		

[8m]

**8. Ordnance Survey Map**

Using the 1:50000 Ordnance Survey map and legend that accompany this paper, write the correct answer for each of the following, in the spaces provided.

- (i) Name **one** artificial waterway evident on the Ordnance Survey map.

\_\_\_\_\_

- (ii) Which antiquities are found at the following grid references?

G 946 037 \_\_\_\_\_ M 906 950 \_\_\_\_\_

- (iii) Name the feature of glacial deposition found in grid square M 94 95.

\_\_\_\_\_

- (iv) Examine the long axis trend of the feature named in part (iii) above. From which direction did the ice sheet originate?

\_\_\_\_\_

**[8m]**

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

Using the aerial photograph, the 1:50000 Ordnance Survey map and legend that accompany this paper, write the correct answer for each of the following, in the spaces provided.

- (i) State whether the following statement is true or false by ticking the correct box.

There is a church in the shape of a cross in the left foreground of the aerial photograph.

True  False

- (ii) In which direction was the camera pointed when the aerial photograph was taken?

\_\_\_\_\_

- (iii) Name the small meandering river in the left background of the aerial photograph.

\_\_\_\_\_

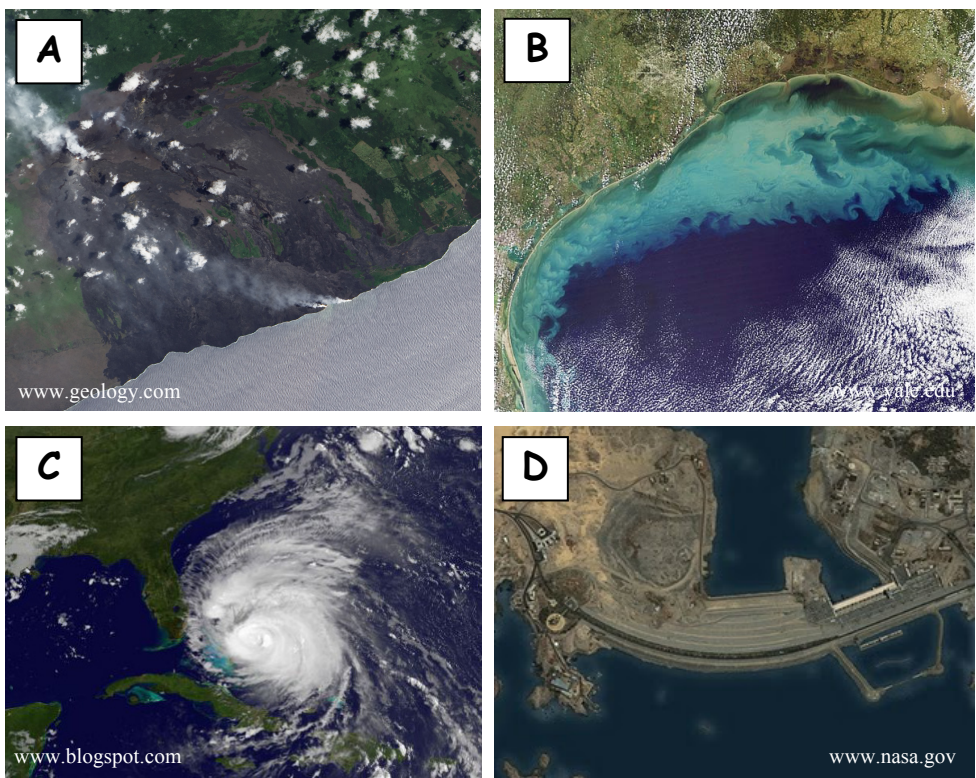
- (iv) Give a six-figure grid reference for the point where the river named in part (iii) above joins the River Shannon.

\_\_\_\_\_

**[8m]**



10. Satellite Interpretation



Examine the satellite images above.  
Match each of the letters **A** to **D** with its correct description in the table below.

Description	Letter
The Aswan Dam	
A Hurricane	
A recent lava flow	
Coastal sediments	

[8m]

## 11. Population - Ireland

### Population of Regional Authority Areas in Ireland, 2006-2011

Regional Authority	2006	2011	Change in Population 2006-2011	
	Persons	Persons	Total	Percentage
<b>Border</b>	468,375	514,152	45,777	9.8
<b>Dublin</b>	1,187,176	1,270,603	<b>X</b>	7.0
<b>Mid-East</b>	475,360	530,437	55,077	11.6
<b>Midlands</b>	251,664	282,195	30,531	12.1
<b>Mid-West</b>	361,028	378,410	17,382	4.8
<b>South-East</b>	460,838	497,305	36,467	7.9
<b>South-West</b>	621,130	663,176	42,046	6.8
<b>West</b>	414,277	444,991	30,714	7.4
<b>State</b>	4,239,848	4,581,269	341,421	8.1

Amended from CSO Preliminary Report on the 2011 Census

Examine the table above which shows the population of regional authority areas in Ireland and answer the following questions.

- (i) What was the percentage change in the State's population between 2006 and 2011?

\_\_\_\_\_

- (ii) Which regional authority area had the lowest percentage change between 2006 and 2011?

\_\_\_\_\_

- (iii) Calculate **X**, the total change in population in the Dublin regional authority area between 2006 and 2011.

\_\_\_\_\_

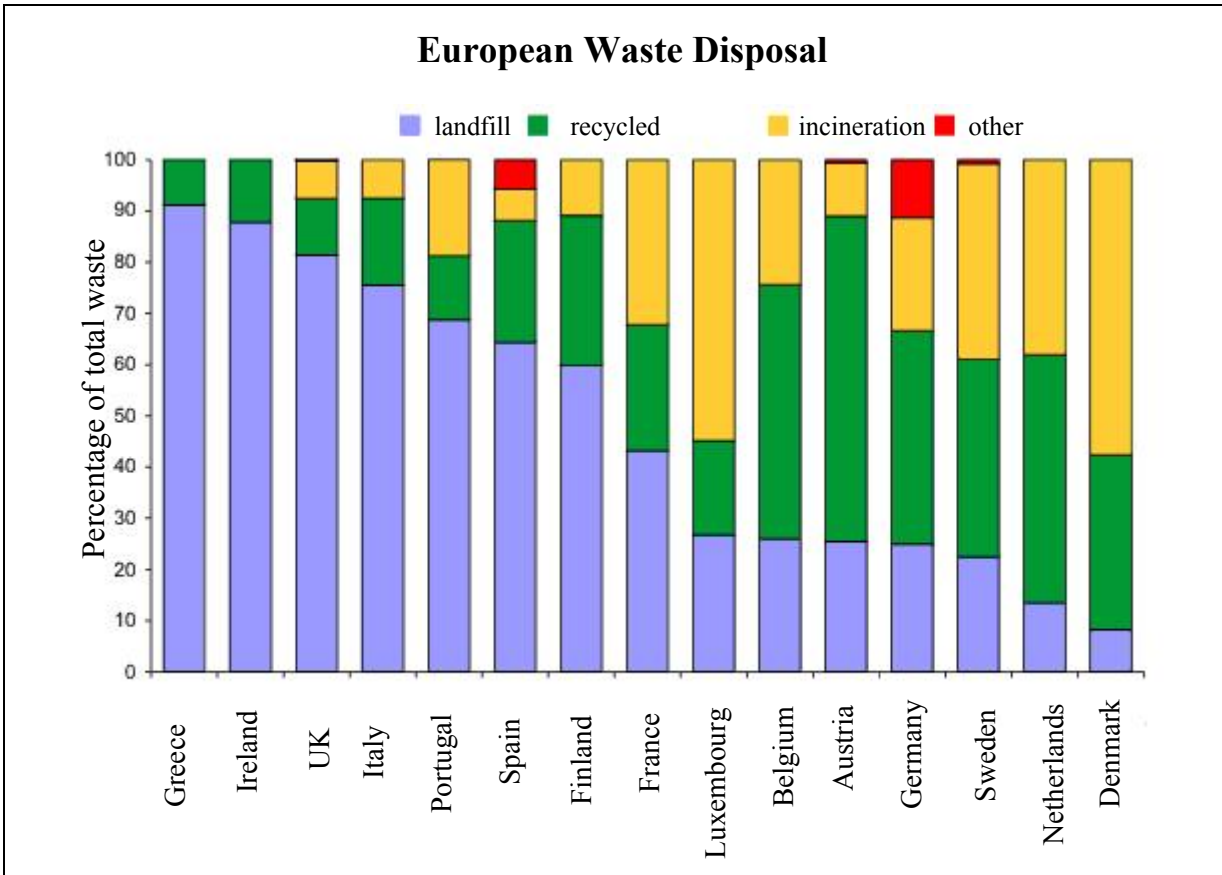
- (iv) Briefly explain **one** reason why the Midlands region had the largest percentage increase between 2006 and 2011.

Reason \_\_\_\_\_

\_\_\_\_\_

[8m]

12. Graphical Interpretation



Amended from Eurostat

Examine the bar graph above which shows the methods used for the disposal of waste by a number of European countries and answer the following questions.

- (i) Which country sent 60% only of its waste to landfill?

\_\_\_\_\_

- (ii) Which country recycled the largest percentage of its waste?

\_\_\_\_\_

- (iii) Which country incinerated the largest percentage of its waste?

\_\_\_\_\_

- (iv) State **one** reason why Ireland has no waste incinerator at present.

Reason \_\_\_\_\_

\_\_\_\_\_

## **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
  - AND**
  - **One** question from Questions 4, 5 and 6
- **ONE** question from **Section 2 – Electives**
- **ONE** question from **Section 3 – Options**

***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**

**AND**

➤ **ONE** from **Regional Geography**



## PATTERNS AND PROCESSES IN THE PHYSICAL ENVIRONMENT

### Questions 1 to 3

Attempt **ONE** question

#### Question 1

##### A. Aerial Photograph

Examine the aerial photograph of Carrick-on-Shannon accompanying this paper. Draw a sketch map of the aerial photograph, half the length and half the breadth. On it, show and label each of the following:

- The complete course of the largest river
- The tributary river in the left background
- Locate the confluence and mark it with an X on the sketch map
- A drumlin.

[20m]

##### B. Sedimentary and Metamorphic Rocks

Describe the formation of **one** sedimentary rock that you have studied **and** briefly explain how this rock may be transformed into a metamorphic rock.

[30m]

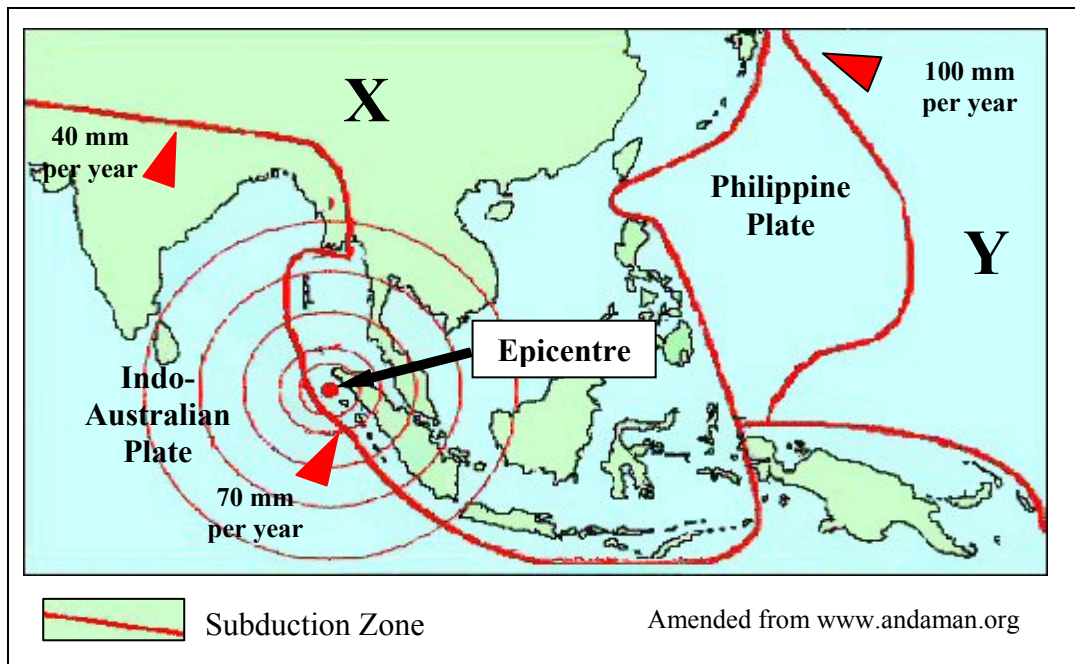
##### C. Earthquakes

Explain, with reference to examples that you have studied, how the theory of plate tectonics helps to explain the distribution of earthquakes around the world.

[30m]

## Question 2

### A. Plate Tectonics – Earthquakes



Examine the map above and answer the following questions.

- Name the plates marked X and Y.
- What is the average annual movement of the Indo-Australian Plate?
- Explain what is meant by the term 'epicentre'.
- Given that the epicentre of the earthquake shown above is off shore, name and briefly explain the main effect of this earthquake on the sea.
- Name **two** scales that measure the magnitude/intensity of an earthquake.

[20m]

### B. Landform Development

Answer (i) or (ii).

- Explain with the aid of a labelled diagram(s) the formation of **one** landform of deposition that you have studied.

Or

- Describe and explain **one** process of mass movement that you have studied.

[30m]

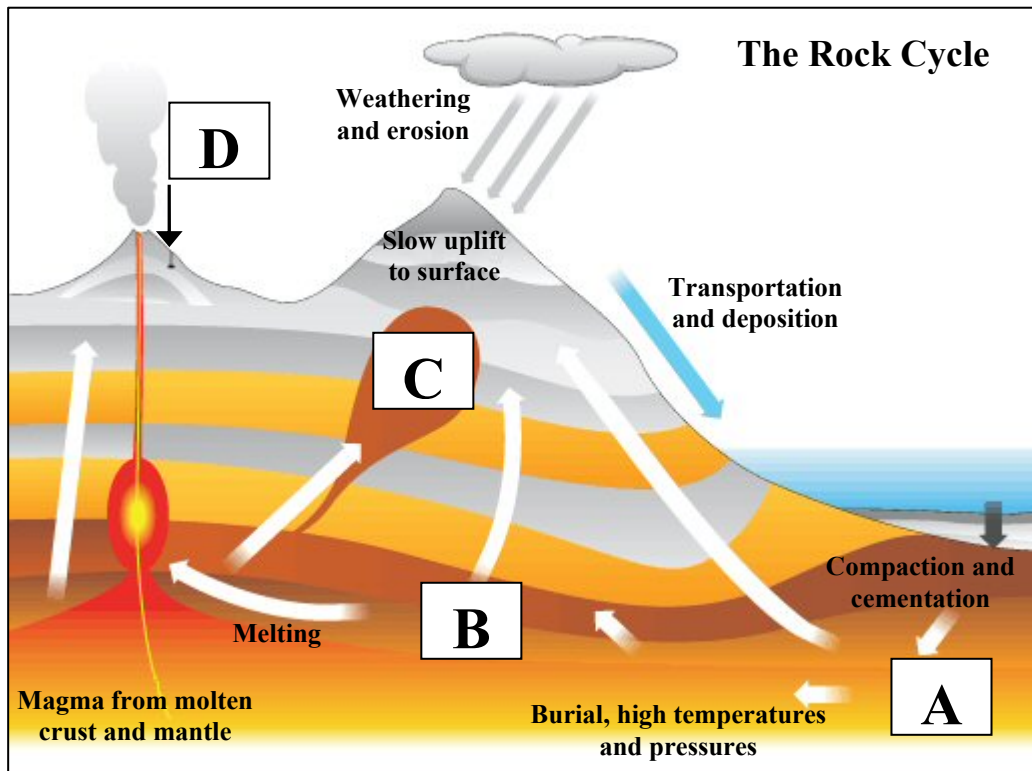
### C. Surface Processes

Examine, with reference to example(s) that you have studied, how human activities have impacted on **either** river, coastal **or** mass movement processes.

[30m]

### Question 3

#### A. Rock Cycle



www.bbc.co.uk

Examine the diagram of the rock cycle above and answer the following questions.

- (i) Name the category of rock formed at **A** and name **one** example of this category of rock.
- (ii) Name the category of rock formed at **B** and name **one** example of this category of rock.
- (iii) Name **one** example of an igneous rock which is formed at **C**.
- (iv) Name **one** example of an igneous rock which is formed at **D**.
- (v) Briefly explain the difference between the process of weathering and the process of erosion.

[20m]

#### B. Limestone Pavement

With the aid of a diagram(s), explain how chemical weathering has shaped the limestone pavement in a karst region.

[30m]

#### C. Folding

Explain, with reference to examples that you have studied, how folding impacts on landscape development.

[30m]

## REGIONAL GEOGRAPHY

### Questions 4 to 6

Attempt **ONE** question

#### Question 4

##### A. Continental / Sub-Continental Region

Draw an outline map of a **Continental / Sub-Continental** region (not in Europe) that you studied.

On it show and name the following:

- A named feature of relief
- A named river
- A named urban centre
- A major road or rail link.

[20m]

##### B. Agriculture in Europe

Account for the development of agriculture in a **European** region (not in Ireland) that you have studied, with reference to any **two** of the factors listed below:

- Relief
- Markets
- Climate.

[30m]

##### C. Population in Ireland

Account for the distribution of population throughout an **Irish** region that you have studied.

[30m]

## Question 5

### A. Irish Agricultural Trade

#### Irish Meat and Livestock Exports

Species	2009 €m	2010 €m	% change 2009-2010
Beef	1,397	1,510	+8
Pigmeat	289	317	+10
Poultry	183	200	+9
Sheepmeat	164	170	+4
Live animals	213	245	<b>X</b>
TOTAL	2,246	2,442	+9

www.themeatsite.com

Examine the table above and answer the following questions.

- (i) Calculate **X**, the percentage change for Live animal exports, between 2009 and 2010.
- (ii) Which species had the lowest percentage increase between 2009 and 2010?
- (iii) What was the increase in the monetary value of beef exports between 2009 and 2010?
- (iv) Briefly explain **one** advantage of agricultural exports to the Irish economy.
- (v) Briefly explain **one** challenge that Irish agriculture will face in the future.

[20m]

### B. Concept of a Region

Examine, with reference to examples that you have studied, how the physical landscape can be used to define regions.

[30m]

### C. Economic Activities

Examine how any **two** of the factors listed below have influenced the development of **one** urban area in a **European** region (not in Ireland) that you have studied:

- Transport
- Location
- Primary economic activity.

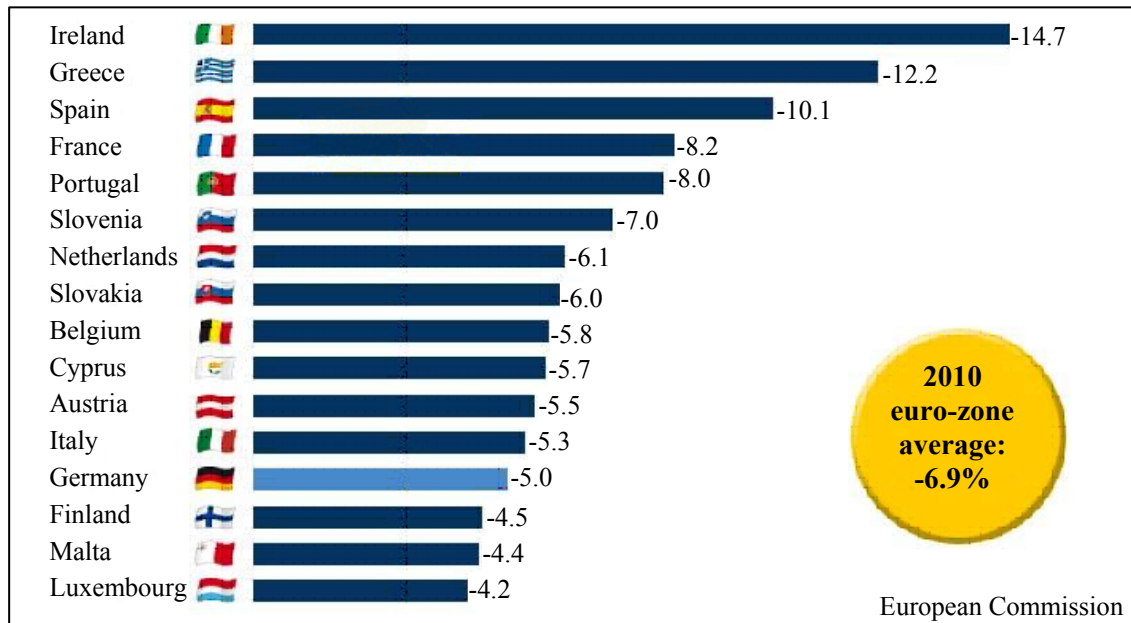
[30m]



## Question 6

### A. The European Union (EU) – ‘Euro Crisis’

**Budget deficits (as a percentage of gross domestic product)  
of euro-zone countries in 2010**



Examine the graph above and answer the following questions.

- (i) How many euro-zone countries had a budget deficit greater than the euro-zone average in 2010?
- (ii) What was the difference in the budget deficit (as a percentage of gross domestic product) between Ireland and Austria in 2010?
- (iii) Name **two** of the six founding member states of what is now the EU.
- (iv) Name **two** EU member states not in the euro-zone.
- (v) Briefly explain what is meant by the ‘Euro Crisis’.

[20m]

### B. Economic Activity

Discuss the factors that influence the development of **one** tertiary economic activity in an **Irish** region that you have studied.

[30m]

### C. The Dynamics of Regions – Human Processes

Population dynamics	Language	Religion
Urban development	Rural development	

Examine the impact of any **two** of the above factors, on the development of a **Continental / Sub-Continental** region (not in Europe), that you have studied.

[30m]

**SECTION 2 – ELECTIVES**

**Questions 7 to 12**

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

**Patterns and Processes in Economic Activities**

**OR**

**Patterns and Processes in the Human Environment**

## PATTERNS AND PROCESSES IN ECONOMIC ACTIVITIES

### Questions 7 to 9

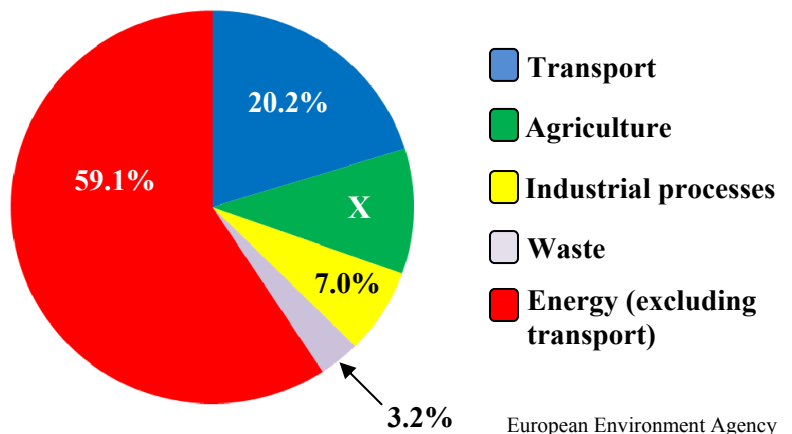
#### Question 7

##### A. Greenhouse Effect

Total CO <sub>2</sub> (Greenhouse Gas) Emissions, 2009	
Region	CO <sub>2</sub> Emissions (million metric tons)
Africa	1,056
North America	6,954
Middle East	1,505
Asia and Oceania	11,219
Central & South America	1,384
Europe	4,720
Total	26,838

SAGE

Greenhouse Gas Emissions by Source Sector in Europe in 2009



European Environment Agency

Examine the information above and answer the following questions.

- (i) Which region had the highest CO<sub>2</sub> (greenhouse gas) emissions and which region had the lowest CO<sub>2</sub> (greenhouse gas) emissions in 2009?
- (ii) Calculate **X**, the percentage of greenhouse gas emissions generated by agriculture in Europe in 2009.
- (iii) Briefly explain **one** reason why Energy (excluding transport) was the sector which produced the highest percentage of greenhouse gas emissions in Europe in 2009.
- (iv) Name **two** greenhouse gases other than CO<sub>2</sub>.
- (v) State **two** ways the greenhouse effect impacts on agriculture.

[20m]

##### B. Economic Development

Using evidence from the 1:50000 Ordnance Survey map, that accompanies this paper, explain **three** factors that have influenced the development of economic activity in the area shown on the Ordnance Survey map.

[30m]

##### C. European Union Policy

Examine how European Union policy influences regional development in Ireland.

[30m]

## Question 8

### A. Energy Sources

**Estimated indigenous energy sources in Ireland in 2020  
(selected sources)**

Energy Source	Percentage
Natural gas	6.1
Peat	4.9
Solar	0.2
Hydro	0.9
Wind	2.6
Forest and woodland	5.2

Transition Ireland

Examine the data in the above table showing the estimated percentage of indigenous energy sources for Ireland in 2020.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) Name **two** other sources of energy not named above.

[20m]

### B. Developing Economies

Examine the positive and the negative impacts of colonialism on a developing country that you have studied.

[30m]

### C. Economic Activities

Examine the factors that have influenced the development of footloose industries **or** tourism in a developed economy that you have studied.

[30m]

## Question 9

### A. Aerial Photograph

Examine the aerial photograph of Carrick-on-Shannon accompanying this paper. Draw a sketch map of the aerial photograph, half the length and half the breadth. On it show and name each of the following:

- A large building under construction
- The bridge
- A large car park in the centre foreground
- An industrial area in the background.

[20m]

### B. Multinational Companies (MNC)

Examine how corporate strategies influence the opening and the closing of branch plants of **one** multinational company that you have studied.

[30m]

### C. Conflict of Interest

Examine how conflict may develop between economic interests and environmental interests, with reference to example(s) that you have studied.

[30m]



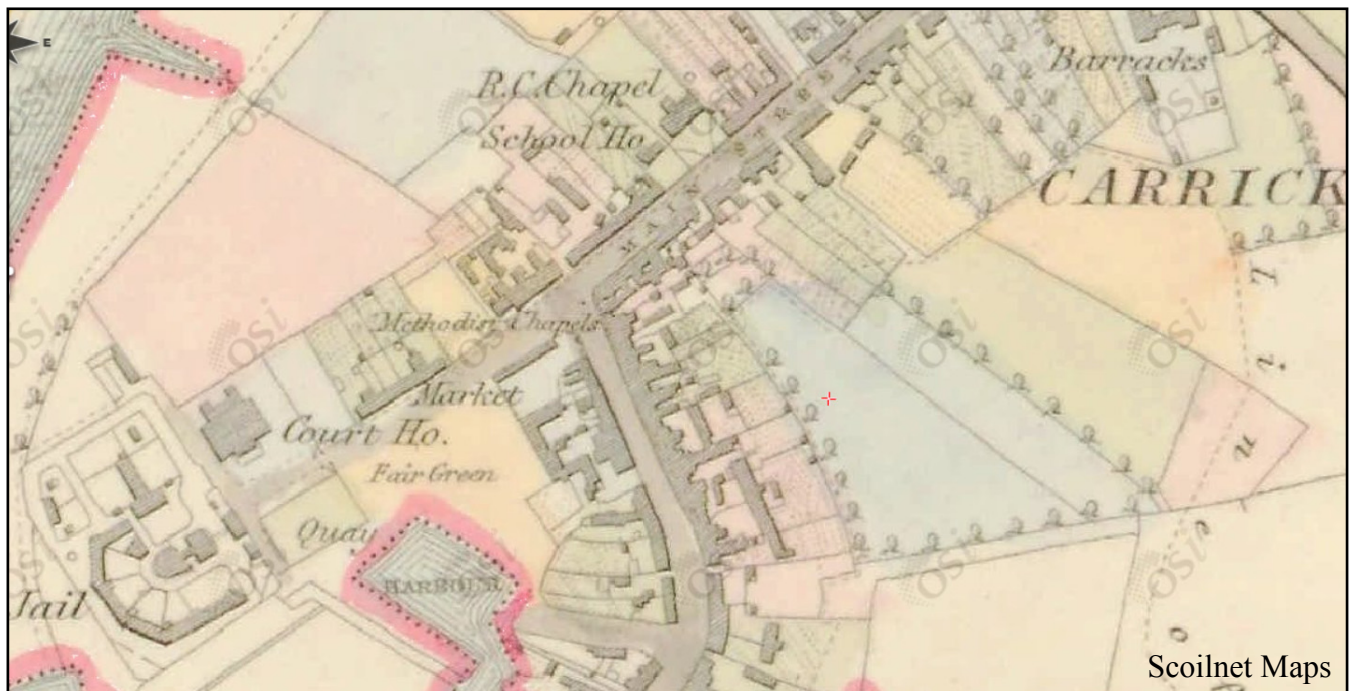
# PATTERNS AND PROCESSES IN THE HUMAN ENVIRONMENT

## Questions 10 to 12

### Question 10

#### A. Historical Map

##### Historical Map of Carrick-on-Shannon



Examine the historical map of Carrick-on-Shannon shown above.

Draw a sketch map of the historical map and on it show and name each of the following:

- Two connecting roads / streets
- The Fair Green
- The school
- An administrative building.

[20m]

#### B. Urbanisation

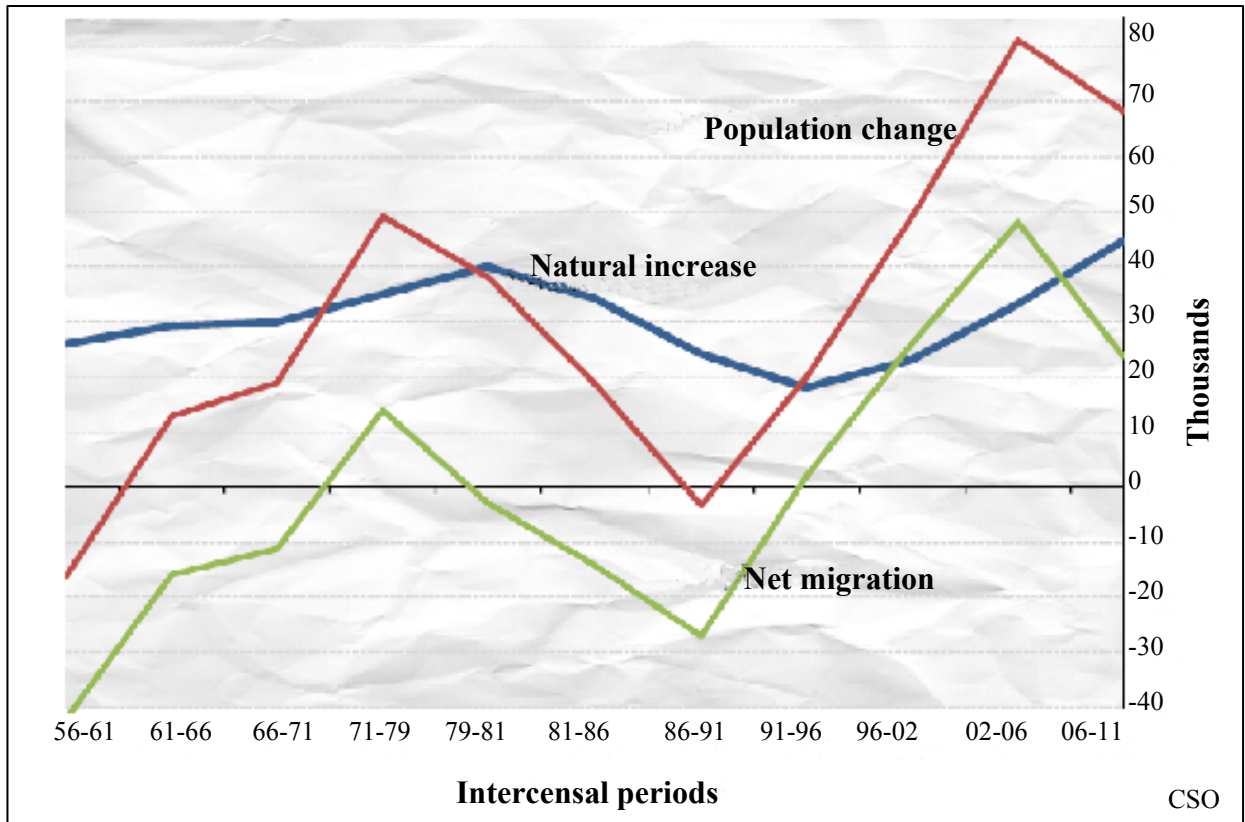
‘Authorities in developing world cities have attempted to overcome the problem of rapid urban growth.’

Examine the above statement with reference to example(s) you have studied.

[30m]

C. **Population Change**

Components of Irish population change (average annual figures)  
for each inter-censal period, 1956-2011



With reference to the graph above, describe and explain **three** changes in Ireland's population between 1956 and 2011.

[30m]

## Question 11

### A. Transport and Traffic

New vehicles registered by taxation class from January to August, 2008 to 2010

Taxation Class	2008	2009	2010
Private	137,566	49,142	73,689
Goods Vehicles	27,200	7,744	8,462
Tractors	3,579	1,583	1,081
Motor Cycles	2,508	1,553	1,048
Other	2,751	1,058	630
<b>Total</b>	<b>173,604</b>	<b>61,080</b>	<b>84,910</b>

CSO

Examine the table above and answer the following questions.

- (i) How many private vehicles were registered from January to August in 2009?
- (ii) What was the percentage decrease in goods vehicles registered from January to August between 2008 and 2009?
- (iii) Briefly explain **one** reason for this decrease.
- (iv) State **two** causes of traffic congestion.
- (v) Briefly explain **one** way authorities attempt to solve the problem of traffic congestion.

[20m]

### B. Urban Functions

Study the aerial photograph accompanying this paper.

Examine any **three** different functions of Carrick-on-Shannon, using evidence from the aerial photograph to support your answer.

[30m]

### C. Demographic Change

Explain how improvements in technology impact on population growth, with reference to examples that you have studied.

[30m]

## Question 12

### A. Life Expectancy

**Female Life Expectancy at Birth (years)**

Country	1990	2009
Bulgaria	75	77
Ireland	78	83
Germany	80	83

Eurostat

Examine the data in the table above showing female life expectancy at birth in a number of European countries.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) State **two** reasons why life expectancy in general is increasing in Europe.

[20m]

### B. Population Distribution

With reference to the Ordnance Survey map that accompanies this paper, use settlement information to explain the main features of the distribution of population in the area shown on the map.

[30m]

### C. Changing Land-Use Patterns

Describe and explain the changing land-use patterns in an urban area that you have studied.

[30m]

## SECTION 3 – OPTIONS

### Questions 13 to 24

Attempt **ONE** question

**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. Examine the impact of Non-Governmental Organisations (NGOs) in empowering people, with reference to examples that you have studied. [80m]
14. Examine the role that national debt, fair trade and land ownership patterns play in the economic development of developing countries. [80m]
15. Examine the causes and impacts of deforestation on a local and a global scale. [80m]

## Geocology

**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. Explain how weathering, leaching and podzolisation have impacted on the characteristics of soil. [80m]
17. Discuss how human activities can accelerate soil erosion. [80m]
18. Examine how any **three** of the activities listed below can impact on biomes:
- early settlement and the clearing of forests
  - the felling of tropical rain forests
  - intensive agricultural practices
  - industrial development.
- [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. Conflicts can occur between national governments and cultural groups.  
Discuss. [80m]
20. Examine the impact of colonialism on racial distribution. [80m]
21. Examine the importance of language as a cultural indicator. [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. The characteristics of climate can change over time and space.  
Discuss this statement with reference to examples that you have studied. [80m]
23. Examine the impact of rainfall on agriculture and on domestic water supplies. [80m]
24. Examine the exchange of water between the oceans and the atmosphere. [80m]

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