Coimisiún na Scrúduithe Stáit
State Examinations Commission

LEAVING CERTIFICATE EXAMINATION 2016

GEOGRAPHY – ORDINARY LEVEL

FRIDAY 10 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.
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			
Net Mark			

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

Otherwise marks will be lost.

1.   **Aerial Photograph**

Examine the aerial photograph of Westport accompanying this paper and answer each of the following questions.

(i)   Indicate whether each of the following statements is true or false, by circling the correct option in each case.

   (a)   There is a river meander in the right background.

   True   *False*

   (b)   There is a bridge crossing the river in the centre middleground.

   True   *False*

   (c)   There is a church located in the centre foreground.

   True   *False*

   (d)   There is a large playing field in the left foreground.

   True   *False*

(ii)   Indicate whether the aerial photograph accompanying this paper is a vertical or an oblique aerial photograph, by ticking the correct box.

   Vertical   [ ]

   Oblique   [ ]

[10m]

2.   **Ordnance Survey Map**

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

(i)   What is the total area of the map? Tick the correct box.

99 km²   ☐

108 km²   ☐

(ii)   The length of the N5 road, from where it enters the map at M 040 849 to where it meets the R330 road at L 998 845 is:

4.4 km   ☐

2.9 km   ☐

Tick the correct box.

[10m]

3.   **Ordnance Survey Map**

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

(i)   Name the features which can be found at each of the following grid references:
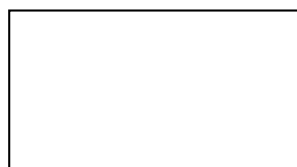
- L 981 846   _____
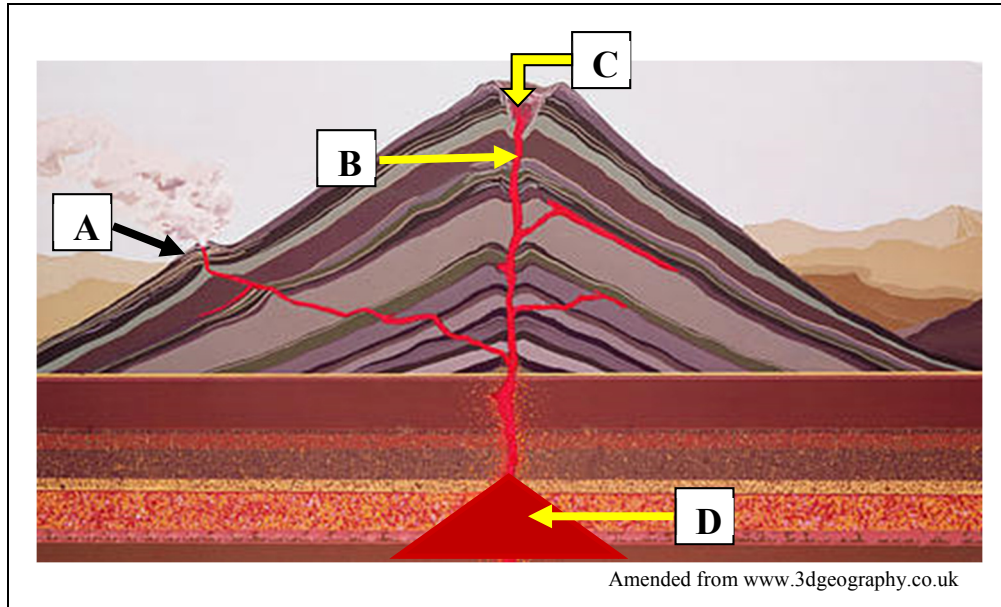
- L 971 857   _____

- L 972 793   _____

- M 037 868   _____

(ii)   Draw the Ordnance Survey map symbol for a Picnic Site in the box below.

[10m]

4.   **Volcanoes**

Amended from www.3dgeography.co.uk

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

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

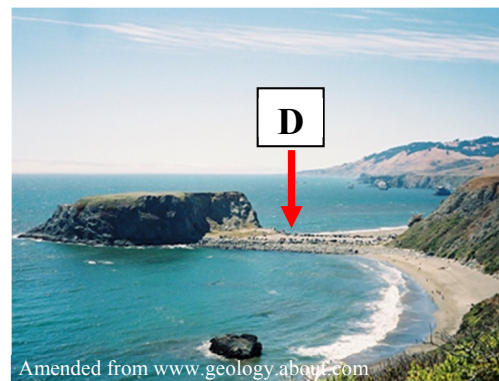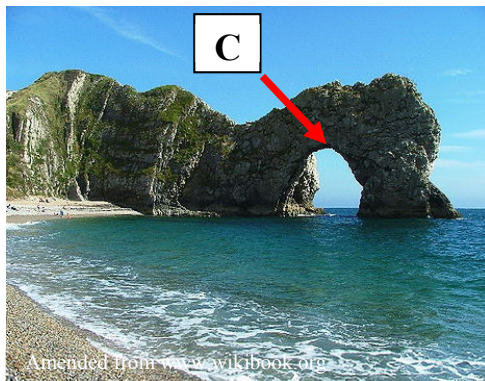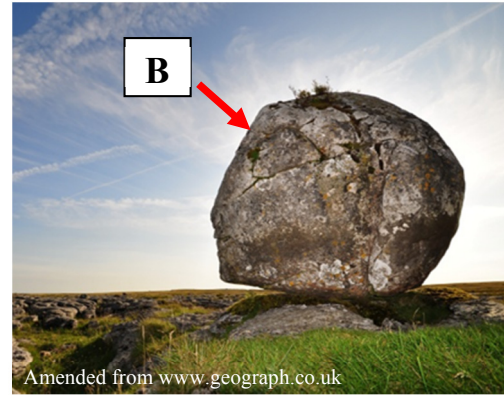| Feature	Letter
Crater	
Secondary volcanic cone	
Magma chamber	
Vent	

(ii)   What name is given to a volcano that has not erupted in many hundreds of years but may erupt again? Tick the correct box.

Dormant   ☐

Active   ☐

[10m]

5. **Physical Landforms and Processes**

Amended from www.deviantart.com

Amended from www.geograph.co.uk

Amended from www.wikibook.org

Amended from www.geology.about.com

Examine the photographs and complete the table below by answering each of the following questions. Some of the table is completed for you.

(i)   Name each of the landforms in the photographs above.

(ii)   State whether the process of erosion or the process of deposition is most associated with the formation of each landform.

Letter	(i) **Landform Name**	(ii) **Process of Erosion/Deposition**
A		
B	Erratic	
C		Erosion
D	Tombolo	

[10m]

6.   Rocks

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

(i)   Indicate whether each of the following statements is true or false, by circling the
    correct option in each case.

(a)   The rock type in the photograph is
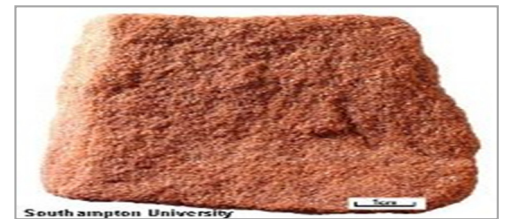   limestone and it is a permeable rock.

True   *False*

(b)   The rock type in the photograph is slate
    and it was formed from lava cooling.

True   *False*

(c)   The rock type in the photograph is marble
    which was once limestone or chalk but
    was changed by great heat and/or pressure.

True   *False*

(d)   The rock type in the photograph is basalt
    and it can be found in Co. Antrim.

True   *False*

(ii)   Is **basalt** an igneous, sedimentary or metamorphic rock?

_____

[10m]

7.   Weather Charts

(i)   Match each of the weather chart symbols with the feature of weather that best matches it, by writing the correct letter, in each case in the table below.

Letter	Symbol
A	
B	
C	
D	

Feature of Weather	Letter
High Pressure System	
Cold Front	
Low Pressure System	
Warm Front	

(ii)   Indicate whether the following statement is true or false, by circling the correct option.

Isotherms are lines that join places of equal temperature on a weather chart.

True   ***False***

[10m]

8.   Weathering and Erosion

Match the explanation of the process with the name of the process most associated with it, by writing the correct letter in each case in the table below.

Letter	Explanation of Process
A	A type of weathering that breaks down rocks after repeated freezing and thawing.
B	A process of glacial erosion.
C	The transport of sediment such as sand and shingle along the coast in a zig-zag manner.
D	The force of moving water that breaks down rock.
E	A type of weathering that occurs in hot dry climates.

Name of Process	Letter
Onion weathering (Exfoliation)	
Hydraulic action	
Freeze-thaw action	
Longshore drift	
Plucking	

[10m]

9.   Economic Activities

Primary, Secondary and Tertiary Economic Activities in Ireland, Brazil and Nepal

Amended from www.bbc.co.uk
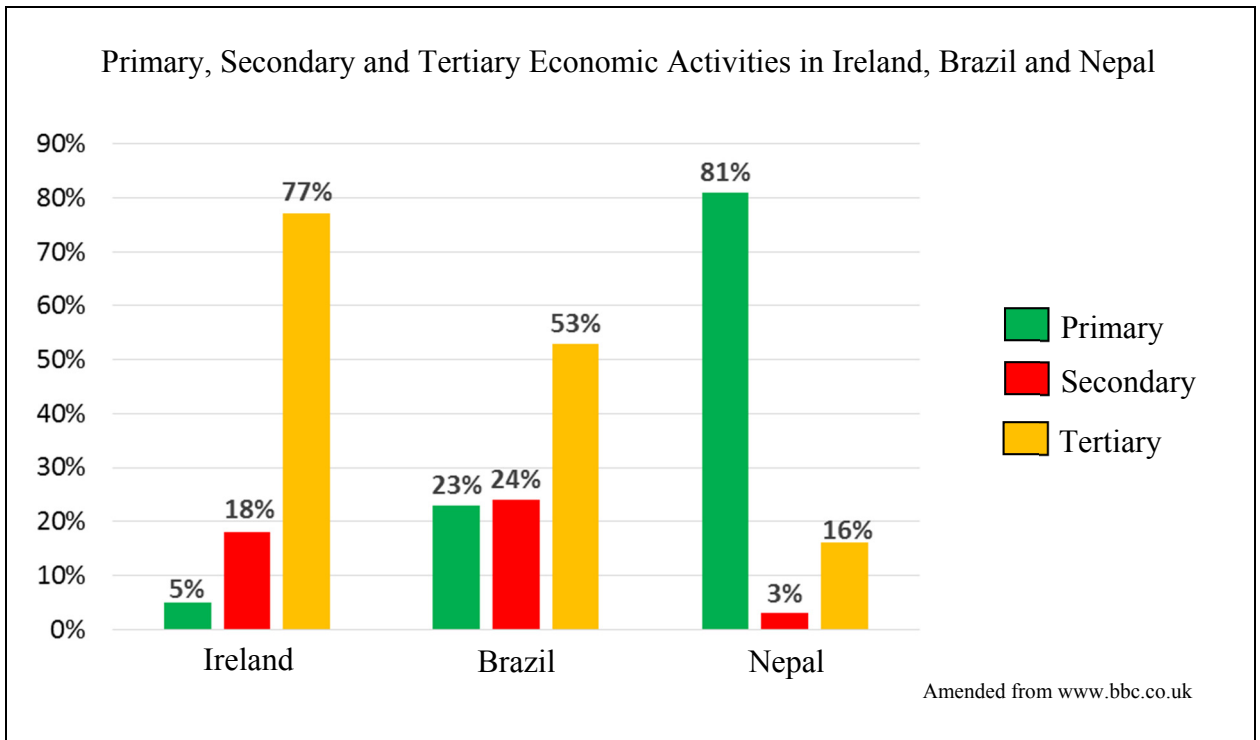
Examine the chart above and answer each of the following questions.

(i)   Which country has the highest percentage of primary economic activities?

_____

(ii)   Calculate the total percentage of primary and secondary economic activities combined, in Brazil.

_____

(iii)   Which of the three countries, Ireland, Brazil or Nepal, has the most developed economy?
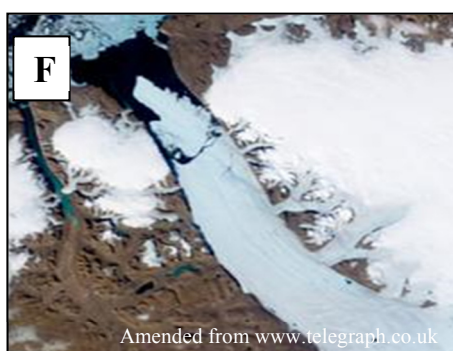
_____

(iv)   State whether each of the following is an example of a primary, secondary or tertiary economic activity.

Teaching   _____

Fishing   _____

[10m]

10. Satellite Image Interpretation

A

Amended from www.telegraph.co.uk

B

Amended from Google Images

C

Amended from Google Images

D

Amended from www.nasa.gov

E

Jan. 23, 2010

March 12, 2011

Amended from www.eijournal.com

F

Amended from www.telegraph.co.uk
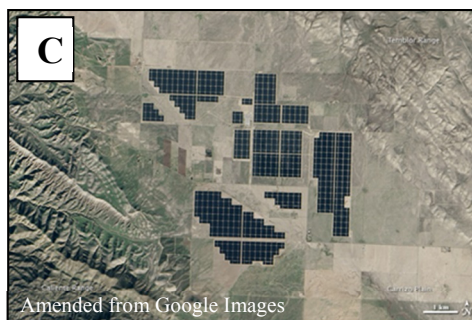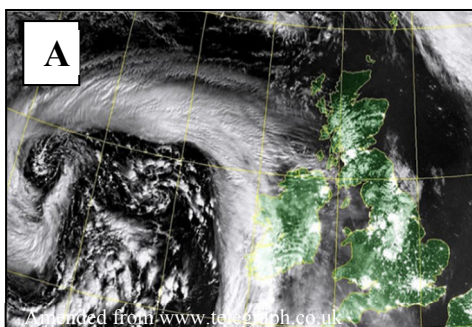
Match each satellite image with the most suitable description, by writing the correct letter in each case in the table below. One has been completed for you.

Description	Letter
Solar power plant in the desert	
Before and after Japan tsunami 2011	
Copacabana Beach, Rio de Janeiro	
Atlantic storm	
Retreating glacier	
Forest fires	**D**

[10m]

11. Weather Statistics

Mean Monthly Temperature and Monthly Rainfall at Shannon Airport, 2014

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Mean Temp (°C)	6.0	6.1	7.7	10.9	12.1	15.2	17.1	14.9	15.2	11.8	8.1	6.7
Rainfall (mm)	176	195	87	38	90	41	36	90	72	105	129	110

Annual mean temperature: 11°C

Amended from www.met.ie

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

(i)   What was the highest mean monthly temperature (°C) at Shannon airport in 2014?

_____

(ii)   In how many months were the mean temperatures greater than 10°C?

_____

(iii) What was the annual mean temperature (°C) at Shannon airport in 2014?

_____

(iv)   In which month was the highest level of rainfall?

_____

(v)   What was the total rainfall (mm) for June, July and August combined?

_____

[10m]

12.   Regions

Match the description of a region with the example of the region most associated with it, by writing the correct letter in each case in the table below.

Letter	Description of Region	Example of Region	Letter
A	A climatic region	The Gaeltacht	
B	A region defined by language	Mezzogiorno, Southern Italy	
C	A core region	Islamic World	
D	A peripheral region	Greater Dublin Area	
E	A region defined by religion	Cool Temperate Oceanic	

[10m]

PART TWO – STRUCTURED QUESTIONS – 300 MARKS

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

- **TWO** questions from **Section 1 – Core**:

  - ➢ **One** question from Questions 1, 2 and 3 **(100 marks)**

    AND

  - ➢ **One** question from Questions 4, 5 and 6 **(100 marks)**

- **ONE** question from **Section 2 – Electives (100 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**

AND
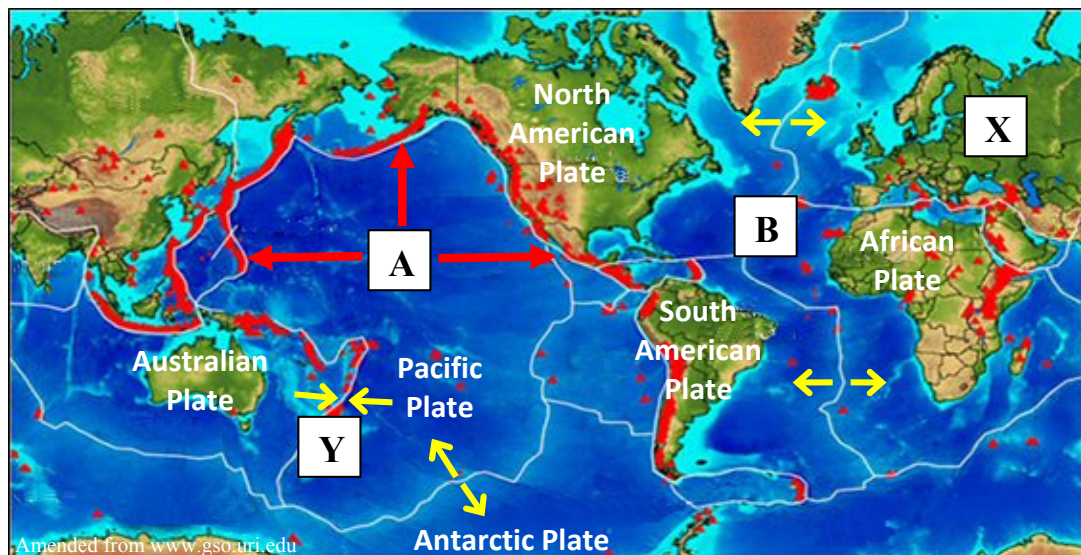
ONE from **Regional Geography**

Question 1

A.   Plate Tectonics

Amended from www.gso.uri.edu

	Plate boundary		Direction of plate movement

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

(i)   What is the name given to the area marked **A** where a large number of earthquakes and volcanic eruptions occur?

(ii)   Name **X**, the plate on which Ireland lies.

(iii)   Explain briefly what is meant by the term *plate*.

(iv)   Are the plates colliding or separating at **Y**?

(v)   Name the ocean ridge running north from **B** along the plate boundary.

(vi)   Explain briefly how this ocean ridge was formed.

(vii)   Name **two** other landforms resulting from plates moving.

[30m]

B.   Landform Development

Answer (i) **or** (ii).

(i)   Explain, with the aid of diagrams, the formation of any **two** landforms.

Or

(ii)   Describe and explain any **two** processes of mass movement.

[40m]

C.   Human Interaction with Surface Processes

Describe and explain how humans attempt to control **either** river processes **or** coastal processes **or** mass movement processes.

[30m]

Question 2

A.   **Ordnance Survey Map**

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

Draw a sketch map of the area shown on the Ordnance Survey map.

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

- Westport Bay
- The Owenwee River
- **Two** named lakes
- An area of Coniferous Plantation.

[30m]

B.   **Rocks**

(i)   Name **one** example of an igneous rock **and** name an Irish location where it can be found.

(ii)   Describe how igneous rocks are formed.

(iii)   Name **one** example of a metamorphic rock **and** name an Irish location where it can be found.

(iv)   Describe how metamorphic rocks are formed.

[40m]

C.   **Weathering**
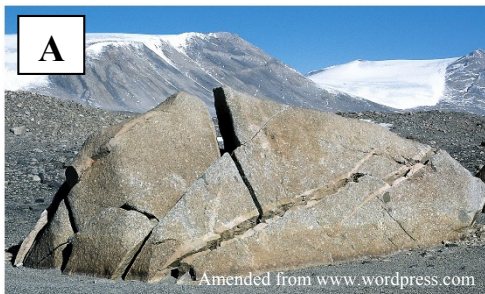
(i)   In your answer book, match each of the photographs **A** and **B** with the weathering process most associated with it from the list below:

- Carbonation
- Freeze-thaw action.

(ii)   With the aid of a diagram(s), explain how rocks are weathered by freeze-thaw action.

[30m]

Question 3

A. Earthquakes

Nepal Earthquake, 2015

The death toll in Nepal from a severe earthquake and intense aftershocks has risen to over 8,000 people and left thousands injured.

The original quake, with a magnitude of 7.9, struck before noon and was most severely felt in the capital Kathmandu, as well as the densely populated Kathmandu Valley. Its epicentre was some 80 km east of Nepal's second largest city, Pokhara. The quake occurred at a shallow depth (approximately 15 km), intensifying the amount of energy released over a relatively small area.

As a consequence, houses collapsed, centuries-old temples were levelled and avalanches were triggered in the Himalayas. The earthquake also shook several cities across northern India and was felt as far away as Lahore in Pakistan and Lhasa in Tibet.

Amended from www.irishtimes.com

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

(i) What was the magnitude of the earthquake in Nepal?

(ii) At what depth (in kilometres) did the earthquake occur?

(iii) State what is meant by the term *aftershock*.

(iv) List **three** effects of earthquakes referred to in the newspaper extract above.

(v) State **two** ways that the effects of earthquakes could be reduced.

(vi) Explain briefly the term *epicentre*.

[30m]

B. Human Interaction with the Rock Cycle

Explain how humans interact with the rock cycle with reference to **one** of the following:

- Quarrying
- Mining
- Oil/Gas exploitation
- Geothermal energy production.

[30m]

C.   Karst Landscape

Amended from www.scoilnet.ie

Amended from www.usgs.gov

Examine the photographs of karst landscape features above and answer each of the
following questions.

(i)   Name **one** surface karst feature evident in photograph **A** and explain, with the
        aid of a diagram, how this surface feature was formed.

(ii)   Name **one** underground karst feature evident in photograph **B** and explain, with
        the aid of a diagram, how this underground feature was formed.

[40m]

Question 4

A.   Continental / Sub-Continental Region

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

On it, **show** and **name** each of the following:

- **Two** named towns or cities in this region
- **One** named river in this region
- **One** named area of relief (upland or lowland) in this region.

[30m]

B.   Agriculture in Ireland

(i)   Name **two** types of farming in Ireland.

(ii)   Explain how any **two** of the following factors influence the development of agriculture in an **Irish** region that you have studied:

- Relief and soils
- Markets
- Climate.

[40m]

C.   Regions and Culture

The culture of a region can often be determined by the following factors:

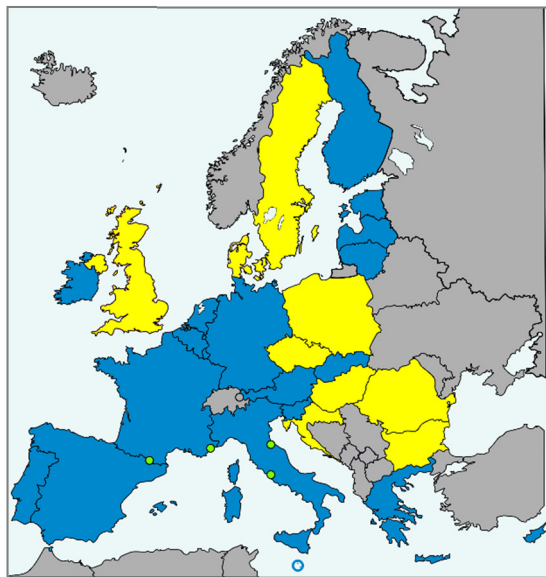- Religion
- Language
- Politics
- Music/Dance
- Sport/Games.

Describe and explain the importance of culture in any region that you have studied.

[30m]

Question 5

A.   European Union

The Eurozone Area, 2015

	Year of Joining the Eurozone area
1999	Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain
2001	Greece
2007	Slovenia
2008	Cyprus, Malta
2009	Slovakia
2011	Estonia
2014	Latvia
2015	Lithuania

EU member states in the Eurozone area

Other EU member states

Amended from www.wikimedia.org

Examine the map above showing the Eurozone area in 2015 and answer each of the following questions.

(i)   In what year did Ireland join the Eurozone area **and** how many countries including Ireland joined that year?

(ii)   Name **two** European Union (EU) member states not in the Eurozone area in 2015.

(iii)   Calculate the total number of European Union member states in the Eurozone area in 2015.

(iv)   Explain briefly **two** advantages of being part of the Eurozone area.

[30m]

B.   Economic Activity in an Irish Region

Explain any **two** of the following with reference to an **Irish** region that you have studied:

- The role of tourism in the economy of this region
- The reasons for the development of industry in this region
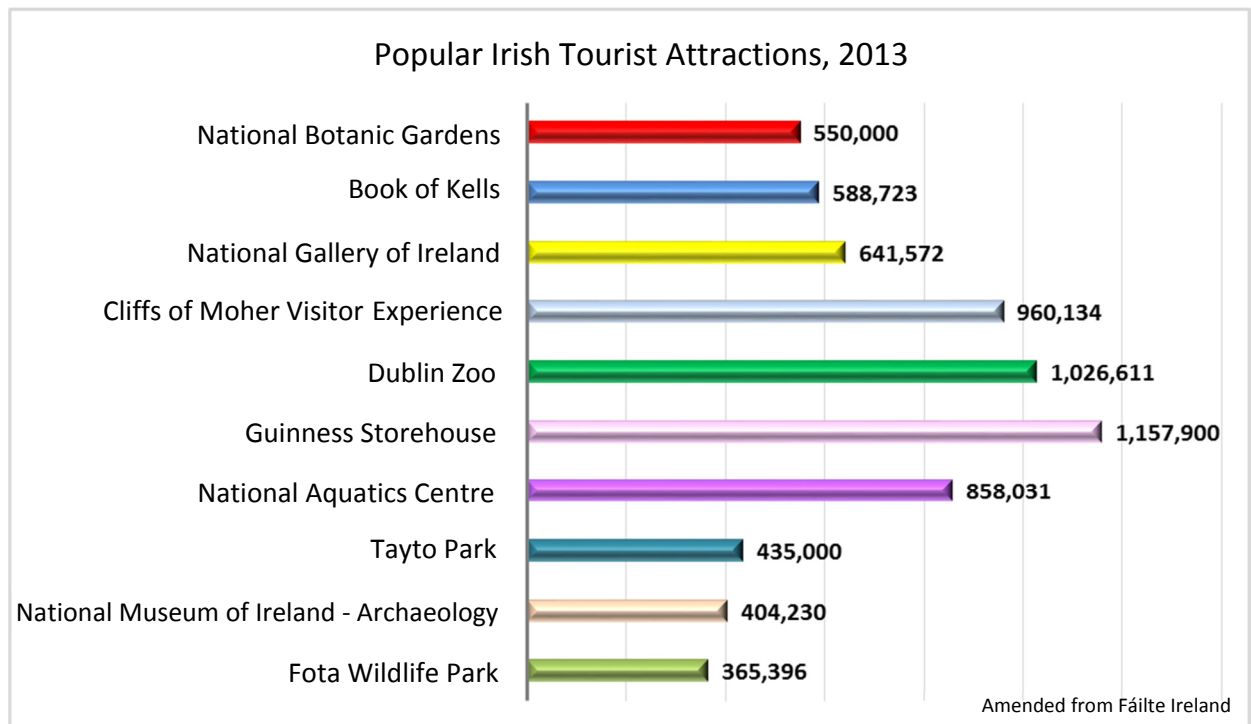- The problems facing agriculture in this region.

[40m]

C.   Urban Growth

Explain the reasons for the growth of any urban area that you have studied.

[30m]

Question 6

A. Tourism in Ireland

Popular Irish Tourist Attractions, 2013

Attraction	Visitors
National Botanic Gardens	550,000
Book of Kells	588,723
National Gallery of Ireland	641,572
Cliffs of Moher Visitor Experience	960,134
Dublin Zoo	1,026,611
Guinness Storehouse	1,157,900
National Aquatics Centre	858,031
Tayto Park	435,000
National Museum of Ireland - Archaeology	404,230
Fota Wildlife Park	365,396

Amended from Fáilte Ireland

Examine the chart above showing information regarding popular Irish tourist attractions in 2013 and answer each of the following questions.

(i)   Name the **two** most popular Irish tourist attractions in 2013.

(ii)   Name the tourist attraction with the least number of visitors **and** state how many visitors it received.

(iii)   Calculate the difference between the number of tourists that visited the National Botanic Gardens and the number of tourists that visited Tayto Park in 2013.

(iv)   Explain briefly **one** positive effect of tourism on Ireland.

(v)   Explain briefly **one** negative effect of tourism on Ireland.

[30m]

B. Manufacturing in a Continental / Sub-Continental Region

Describe and explain the development of manufacturing in a **Continental / Sub-Continental** region (**not in Europe**) that you have studied.

[30m]

C. **Primary Economic Activity in a European Region**

Answer each of the following questions with reference to a **European** region
(**not in Ireland**) that you have studied.

(i)   Name **one** primary economic activity that contributes to the economy of this
         region.

(ii)   Explain the advantages that this region has for the development of the primary
         economic activity named in part (i) above.

(iii)   Describe **one** challenge faced by this primary economic activity in this region.

[40m]

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

Question 7

A. **Aerial Photograph**

Examine the aerial photograph of Westport accompanying this paper.

Draw a sketch map of the area shown on the aerial photograph.

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

- A bridge
- **Two** connecting streets
- A car park in the foreground
- An industrial area in the left middleground
- An area of waste ground in the background.

[30m]

B. **Environmental Impact - Fossil Fuels**

(i)   Name **two** examples of fossil fuels.

(ii)   Describe and explain the impact of burning fossil fuels on the environment.

[30m]

C. **Multinational Company (MNC)**

(i)   Name **one** multinational company located in Ireland that you have studied **and** name **one** product that it manufactures.

(ii)   State where this multinational company is located in Ireland **and** explain why it set up at this location.

(iii)   Explain **one** reason why this multinational company might decide to locate to another country.

[40m]

Question 8

A.   Economic Development

Human Development Index
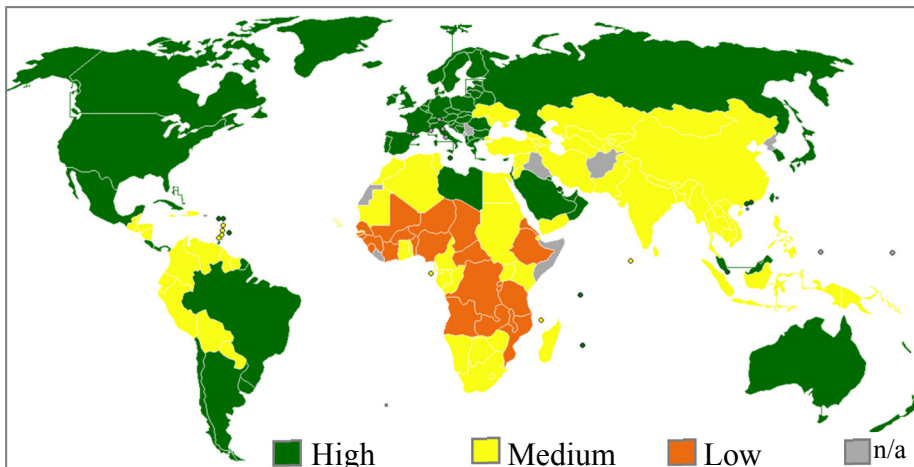
Country	Expected years of schooling	Gross National Income
Ethiopia	8.5	$1,428
Germany	16.5	$43,919
Ireland	18.6	$39,568
Mali	8.4	$1,583

High   Medium   Low   n/a

Amended from UNDP   n/a: data not available

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

(i)   Name **two** countries with a high Human Development Index.

(ii)   Which continent has the greatest number of countries with a low Human
         Development Index **and** state **one** reason for this.

(iii)   Name any **two** factors used to calculate the Human Development Index.

(iv)   Explain briefly **one** reason why the Human Development Index for some
         countries is higher than others.

(v)   Explain briefly **one** way that Human Development Index information is used.

[30m]

B.   Developed Economy

(i)   Name **one** developed economy where tourism **or** financial services contribute to
         that economy.

(ii)   Explain the reasons for the growth of tourism **or** financial services in the
         developed economy named in part (i) above.

(iii)   Explain **one** benefit that tourism **or** financial services bring to the economy of
         developed countries.

(iv)   Explain **one** problem caused by tourism **or** financial services.

[40m]

C.   Economic Activity and Conflict

(i)   Name **one** example of how the development of economic activities and the
         exploitation of natural resources can lead to conflict arising between people.

(ii)   Describe and explain this conflict.

[30m]

Question 9

A. Energy Consumption

Estimated Global Energy Consumption by 2030

Energy	Estimated Consumption (%)
Renewable Energy	13%
Nuclear/Electric Power	8%
Oil	34%
Coal	23%
Natural Gas	22%

Amended from www.petrotech.in

Examine the table above showing estimated global energy consumption by 2030 and answer each of the following questions.

(i)   Using graph paper, draw a suitable graph to illustrate this data.

(ii)   In your answer book, explain briefly what is meant by the term *renewable energy*.

[30m]

B. European Union Policy

Explain how European Union policies have impacted on the Irish economy.

[30m]

C. Ordnance Survey Map

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

Imagine you have been given the task of finding a suitable location for a new large hotel within the area covered by the map.

(i)   State, using a six-figure grid reference, where you would locate the hotel.
(ii)   Explain the reasons why you chose this location.
(iii)   Describe **one** disadvantage of locating the hotel at this location.

[40m]

Question 10

A.   Aerial Photograph

Examine the aerial photograph of Westport accompanying this paper.

Draw a sketch map of the area shown on the aerial photograph.

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

- A bridge
- **Two** churches
- **Two** connecting streets
- A large car park in the centre background.

[30m]

B.   Migration – Rural to Urban

(i)   Explain the *push factors* associated with migration from rural to urban areas.

(ii)   Explain the *pull factors* associated with migration from rural to urban areas.

[40m]

C.   Urban Functions

(i)   Name **one** urban area that you have studied **and** name any **two** functions of this urban area.

(ii)   Describe and explain how the functions of this urban area have changed over time.

[30m]

Question 11

A. Irish Emigration

Emigration from Ireland by Nationality, 2015

Nationality	Number of Emigrants
Irish	35 000
UK	38 000
EU (15)	16 000
EU (13)	9 000
Rest of World	18 000

Amended from www.cso.ie

Examine the table above showing information regarding emigration from Ireland by nationality in 2015 and answer each of the following questions.

(i)   Using graph paper, draw a suitable graph to illustrate this data.

(ii)   In your answer book, explain briefly **one** reason why people are emigrating from Ireland.

[30m]

B. Development of Urban Settlements

Examine the aerial photograph of Westport accompanying this paper.

Explain **three** reasons why the town of Westport developed at this location, using evidence from the aerial photograph to support each reason.

[30m]

C. Urban Growth - Developing World City

(i)   Name **one** city in the developing world that has grown rapidly.

(ii)   Explain why this city has grown rapidly **and** describe the problems associated with this rapid growth.

(iii)   Describe **one** solution to the problems experienced as a result of this rapid growth.

[40m]

Question 12

A. Urban Growth

> **Largest World Cities: 2014**
>
> The 10th edition of *Demographia World Urban Areas*, classified urban areas with more than 500,000 population as large cities. With a total population of 1.92 billion residents, these cities comprise approximately 51 per cent of the world urban population.
>
> The world's largest cities are increasingly concentrated in Asia, where 56 per cent are located. North America ranks second to Asia, with only 14 per cent of the largest cities. Only three high income world cities are ranked in the top ten (Tokyo, Seoul and New York) and with present growth rates, Tokyo will be the lone high-income representative by the middle 2020s.
>
> Amended from www.newgeography.com

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

(i)   What percentage of the world's urban population is resident in the world's largest cities?

(ii)   Where are the world's largest cities increasingly concentrated **and** what percentage of these cities are located in this area?

(iii) Name the **three** high income world cities ranked in the top ten of the world's largest cities.

(iv)   Explain briefly what is meant by the term *population density*.

(v)   Explain briefly **one** problem experienced in cities with high population densities.

[30m]

B. Overpopulation

(i)   Explain briefly what is meant by the term *overpopulation*.

(ii)   Describe and explain the causes **and** effects of overpopulation with reference to example(s) that you have studied.

[30m]

C. Rural Settlement Patterns

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

(i)   Name **three** different rural settlement patterns evident on the Ordnance Survey map **and** give a six-figure grid reference for the location of an example of each.

(ii)   Explain each of the **three** rural settlement patterns named in part (i) above.

[40m]

Blank Page

Blank Page

Blank Page

Blank Page