



# Coimisiún na Scrúduithe Stáit State Examinations Commission

**LEAVING CERTIFICATE EXAMINATION, 2017**

**GEOGRAPHY – HIGHER LEVEL**

**FRIDAY 9 JUNE – MORNING 9:30 – 12:20**

**Examination Number**

**For the Examiner's Use Only**

<b>Part One</b> Short-Answer Questions	<b>Total Mark</b>	<b>Adv. Ex.</b>	<b>App. Ex.</b>	<b>App. Adv.</b>
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.**

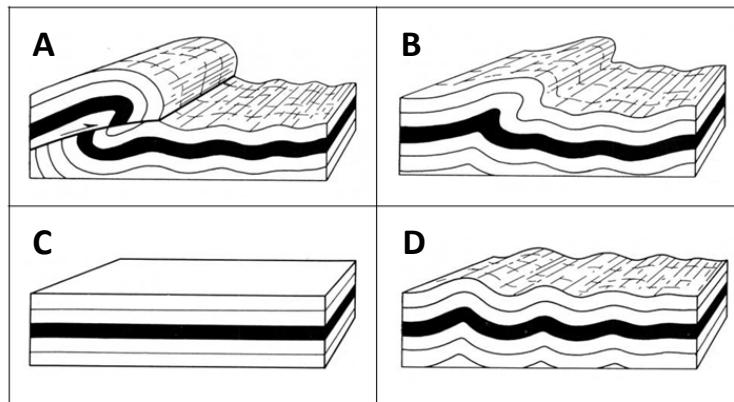
## PART ONE – SHORT-ANSWER QUESTIONS – 80 MARKS

Attempt any **TEN** questions.

All questions carry equal marks.

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

### 1. Folding



Amended from Texas State Library

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

- (i) Match each of the diagrams **A**, **B**, **C** and **D** with the type of fold that best matches it in the table below. One is completed for you.

Type of Fold	Letter
Asymmetrical fold	
Unfolded strata	<b>C</b>
Overthrust fold	
Symmetrical fold	

- (ii) Name **two** periods of Fold Mountain building that shaped the Irish landscape over the last 400 million years.

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

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

[8m]

## 2. The Physical Environment



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

- Match each of the photographs **A**, **B**, **C** and **D** with the type of lake that best matches it in the table below.
- Indicate, by ticking the correct box whether each of the types of lake named in the table below is most associated with glacial, fluvial or karst landscapes.

Q.2(i)	Type of Lake	Q.2(ii)		
		Glacial Landscape (✓)	Fluvial Landscape (✓)	Karst Landscape (✓)
	Pater noster lake			
	Ox-bow lake			
	Tarn			
	Turlough			

[8m]

### 3. Coastal Landscape



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

- (i) Match each of the aerial photographs **A**, **B**, **C** and **D** with the landform that best matches it in the table below.

Landform	Letter
Sand spit	
Tombolo	
Sand dunes	
Lagoon	

- (ii) Name **one** process of coastal transportation associated with the formation of sand spits, lagoons and tombolos.
- 

- (iii) Name the coastal defence structures shown at **X** in photograph **D**.
- 

[8m]

#### 4. Weathering



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

- Match each of the photographs **A**, **B**, **C** and **D** with the process of weathering that best matches it in the table below.
- Indicate, by ticking the correct box whether each of the processes of weathering named in the table below are most associated with chemical weathering or physical/mechanical weathering.

Q.4(i)	Process of Weathering	Q.4(ii)	
		Chemical Weathering (✓)	Physical/Mechanical Weathering (✓)
	Oxidation		
	Carbonation		
	Exfoliation/Onion weathering		
	Freeze-thaw action		

[8m]

## 5. Regions

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

**Example of Region:**

Wallonia

The Burren

Temperate Oceanic region

Waterford County Council

Islamic World

Rotterdam

Pas-de-Calais Département

Northern European Plain

Type of Region	Example of Region
Geomorphological	
Geomorphological	
Cultural (Language)	
Nodal	
Administrative	
Administrative	
Cultural (Religion)	
Climatic	

[8m]

## 6. Landscape Identification

- (i) Examine the 1:50 000 Ordnance Survey map and legend accompanying this paper.

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

- Plateau surface between 160 metres and 167 metres
- River braiding
- V-shaped valley
- Meander.

Grid Reference	Feature
W 29 69	
W 36 72	
W 34 72	
W 28 73	

- (ii) What is the aspect of the slope at W 308 652 on the Ordnance Survey map accompanying this paper?

---

- (iii) Name any **two** river drainage patterns.

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

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

[8m]

## **7. Ordnance Survey Map**

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 W 293 734.

---

- (ii) What does the Ordnance Survey map symbol at W 328 712 represent?

---

- (iii) Measure the length of the R618 road, in kilometres, from where it enters the map at W 370 718 to where it meets the N22 road at W 353 725.

---

- (iv) Calculate the approximate area of the map which is to the north and east of the N22 road and to the east of easting 31 (in square kilometres).

---

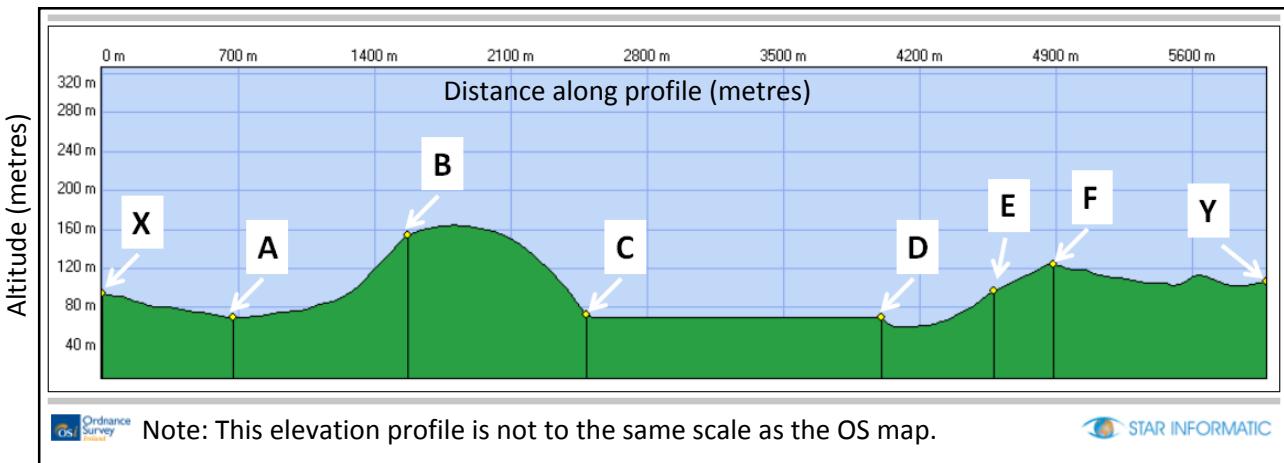
**[8m]**

## 8. Elevation profile

Locate point X, W 340 740, and point Y, W 340 680 on the 1:50 000 Ordnance Survey map accompanying this paper. Both points are on easting 34.

Figure 1 shows an elevation profile of the cross section of the line between point X and point Y.

*Figure 1: Elevation Profile of the Cross Section of a line between Point X and Point Y*



Using the 1:50 000 Ordnance Survey map and legend and the elevation profile above, indicate whether each of the following statements is true or false, by circling the correct option in each case.

- |   |      |       |
|---|------|-------|
| (i) The river Lee is located at A.                                | True | False |
| (ii) B is located in the Sleaveen West townland.                  | True | False |
| (iii) The R584 regional road is located at C.                     | True | False |
| (iv) The slope between B and C is concave.                        | True | False |
| (v) Part of the built up area of Macroom lies on a concave slope. | True | False |
| (vi) The slope of the cross section between C and D is zero.      | True | False |
| (vii) The height at F is 160 metres.                              | True | False |
| (viii) There is a constant or even slope between E and F.         | True | False |

[8m]

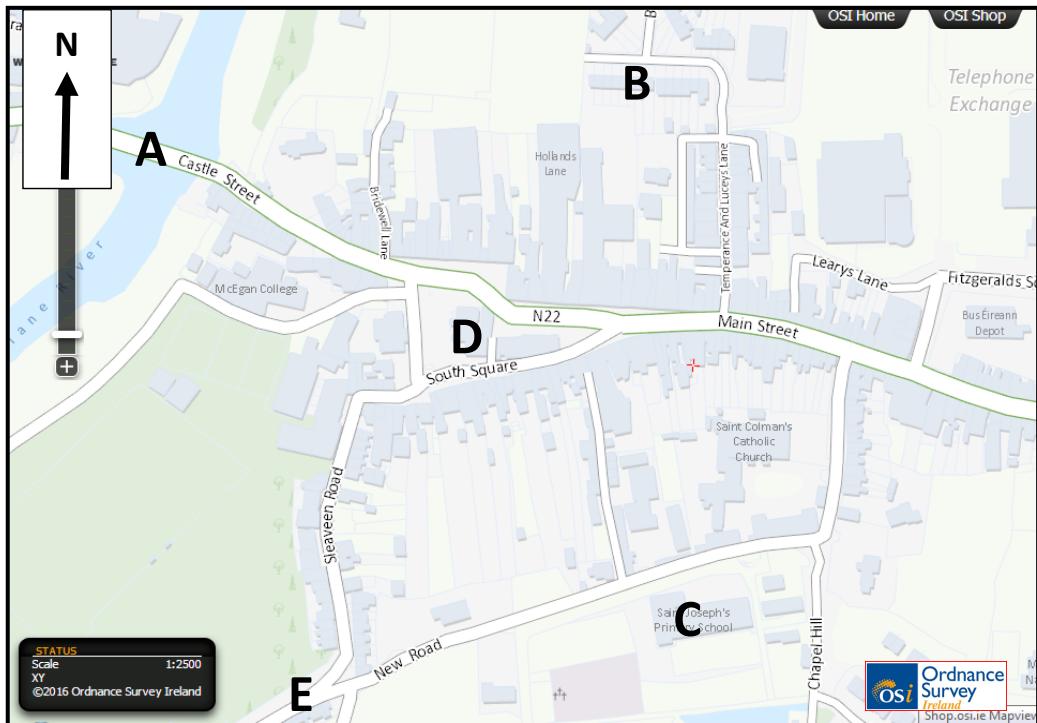
## 9. Aerial Photograph – Location

Examine the aerial photograph of Macroom 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.

Street Map



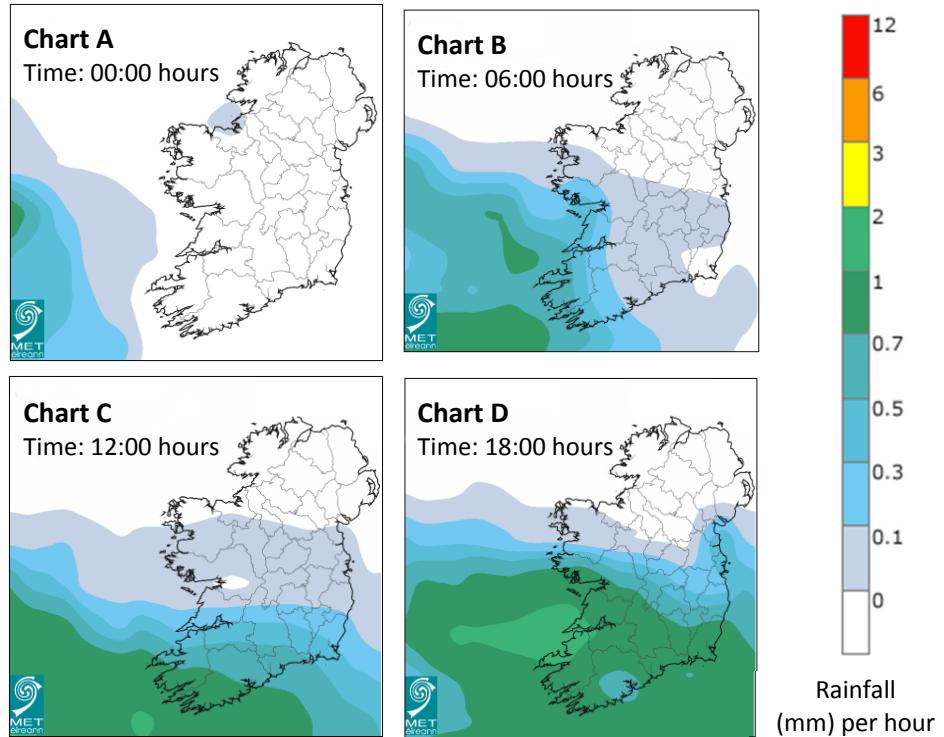
Locate each of the features labelled **A**, **B**, **C**, **D** and **E** above, on the aerial photograph accompanying this paper.

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> River bridge	Right middleground
<b>B</b> Terraced housing	
<b>C</b> St Joseph's Primary School	
<b>D</b> South Square	
<b>E</b> Road	

[8m]

## 10. Weather



Examine the rainfall forecast charts for a period from 00:00 hours to 18:00 hours and answer each of the following questions.

- (i) Which province is forecast to receive the least amount of rainfall over the period?

---

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

Rainfall is spreading from the south-east at 06:00 hours.

True

False

- (iii) Is rainfall most associated with anticyclones or depressions?

---

- (iv) What term is used to describe lines on a weather map joining places of equal rainfall?

---

[8m]

## 11. Statistical Interpretation

Internet Usage: Percentage of the Population Using the Internet

Region	2010 %	2012 %	2014 %	2015 %
Border	56	72	73	77
Midland	60	69	77	78
West	69	75	75	75
Dublin	75	82	87	86
Mid-East	73	84	83	82
South-East	61	73	75	76

Amended from CSO statistics

Examine the table above showing the percentage of the population in selected regions that use the internet and answer each of the following questions.

- (i) Which region had the lowest percentage of its population using the internet in 2010?

---

- (ii) In which region did the percentage of the population using the internet remain the same between 2012 and 2015?

---

- (iii) Which **two** regions had the highest percentage of their population using the internet in each of the years shown in the table above?

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

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

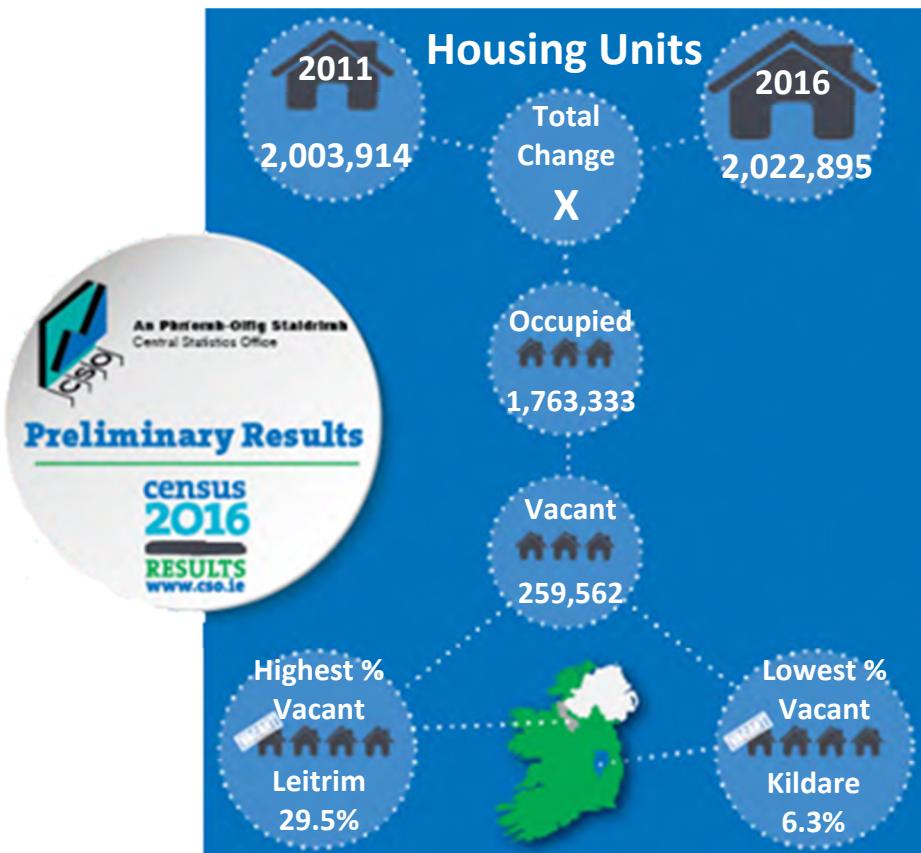
- (iv) Explain briefly **one** reason why the percentage of the population using the internet in these two regions was higher than the percentage of the population using the internet in the other regions.

---

---

[8m]

## 12. Housing Statistics – Ireland



Amended from CSO

Examine the statistics above from the preliminary results of the 2016 Census and answer each of the following questions.

- (i) What was the total number of housing units in 2016?
- 

- (ii) Calculate X, the total change in the number of housing units between 2011 and 2016.
- 

- (iii) What percentage of housing units were vacant in Kildare?
- 

- (iv) State **two** possible reasons why Leitrim had the highest percentage of vacant housing units.

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

[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**

**AND**

**ONE from Regional Geography**

## PATTERNS AND PROCESSES IN THE PHYSICAL ENVIRONMENT

### Questions 1 to 3

Attempt **ONE** question

#### Question 1

##### 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 to half scale.

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

- The area of the Reservoir west of Lee Bridge
- The course of the River Lee from W 250 667 to W 314 709
- The entire area of land above 200 metres at Cill na Martra
- The entire area of coniferous plantation at W 25 66.

[20m]

##### B. Volcanic Activity

Examine the influence of volcanic activity on the development of the Irish landscape with reference to **each** of the following:

- Intrusive features
- Extrusive features.

[30m]

##### C. Human Interaction with Surface Processes

Human activity impacts on surface processes.

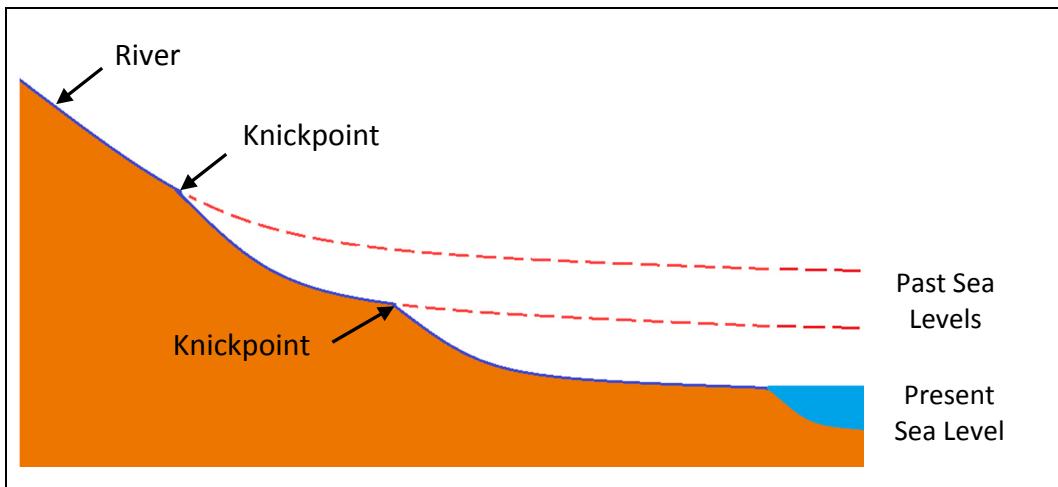
Examine this statement with reference to **one** of the following:

- The impact of flood control measures on river processes
- The impact of coastal defence measures on coastal processes
- The impact of human activities on mass movement processes.

[30m]

## Question 2

### A. Adjustment to Base Level



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

- (i) Explain briefly **two** reasons why river rejuvenation occurs.
- (ii) Explain briefly what is meant by the term *knickpoint*.
- (iii) Name **two** features of river rejuvenation not shown in the diagram above.
- (iv) How many times has river rejuvenation taken place in the diagram above?

[20m]

### B. Chemical Weathering

With the aid of a labelled diagram(s), explain how chemical weathering has shaped one of the following:

- The surface karst landscape **or**
- The underground karst landscape.

[30m]

### C. The Tectonic Cycle

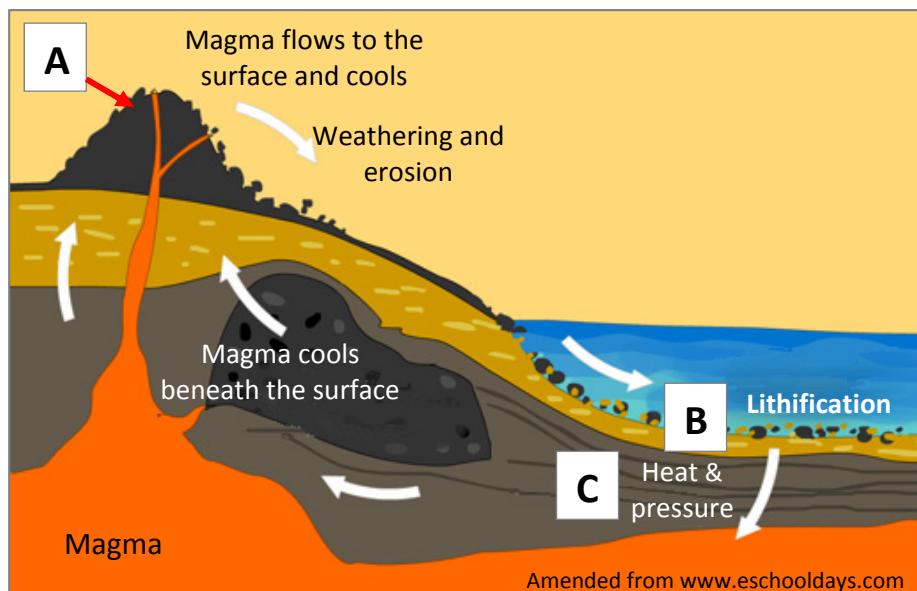
Examine how the tectonic cycle helps to explain the global distribution of **one** of the following:

- Volcanoes
- Earthquakes
- Fold Mountains.

[30m]

### Question 3

#### A. Rock Cycle



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

- (i) Name the category of rock formed at **A** and the category of rock formed at **B**.
- (ii) Name the category of rock formed at **C** and name **one** specific Irish location where this rock can be found.
- (iii) Explain briefly what is meant by the term *lithification*.
- (iv) Explain briefly what is meant by the term *plutonic rock*.
- (v) Explain briefly how rocks are changed by either *thermal metamorphism* or *regional metamorphism*.

[20m]

#### B. Surface Processes

Answer (i) or (ii).

- (i) Examine the impact of the **processes of erosion** on the formation of **one** fluvial landform, coastal landform or 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]

#### C. Seismic Activity

Explain how the occurrence of seismic activity can be predicted and its effects reduced.

[30m]

## **REGIONAL GEOGRAPHY**

### **Questions 4 to 6**

Attempt **ONE** question

#### **Question 4**

##### **A. Map Skills**

Draw an outline map of a **Continental / Sub-Continental** region (not in Europe) 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]**

##### **B. Tertiary Economic Activity – European Region**

Account for the development of **one** tertiary economic activity in a **European** region (not in Ireland), that you have studied.

**[30m]**

##### **C. Primary Economic Activity – Irish Region**

Examine the physical factors that influence the development of **one** primary economic activity in an **Irish** region that you have studied.

**[30m]**

## Question 5

### A. Overseas Travel

Overseas Travel – Trips into and out of Ireland

Year	Irish Residents Trips Overseas	Trips to Ireland	Trips to Ireland by Area of Residence			
			Great Britain	Other Europe	North America	Other Areas
2008	7,901,500	7,839,800	3,866,000	2,616,700	1,007,900	349,200
2009	7,066,900	6,963,600	3,274,900	2,402,300	979,500	306,900
2011	6,280,400	6,500,200	2,867,200	2,279,600	995,400	358,000
2013	6,298,800	6,974,700	2,917,400	2,465,800	1,158,600	432,900
2015	6,965,000	8,636,600	3,554,400	3,040,500	1,503,300	538,400

Amended from CSO statistics

Examine the table above showing the number of trips into and out of Ireland in selected years and answer each of the following questions.

- (i) In which year did trips into Ireland first exceed trips overseas by Irish residents?
- (ii) Which area of residence had the highest number of trips to Ireland for each of the selected years? State **two** reasons for this.
- (iii) What was the trend in the number of Irish residents' trips overseas between 2013 and 2015? State **one** reason for this trend.
- (iv) Explain briefly **two** factors that impact on overseas travel.

[20m]

### B. Population Distribution – Continental / Sub-Continental Region

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

[30m]

### C. The European Union

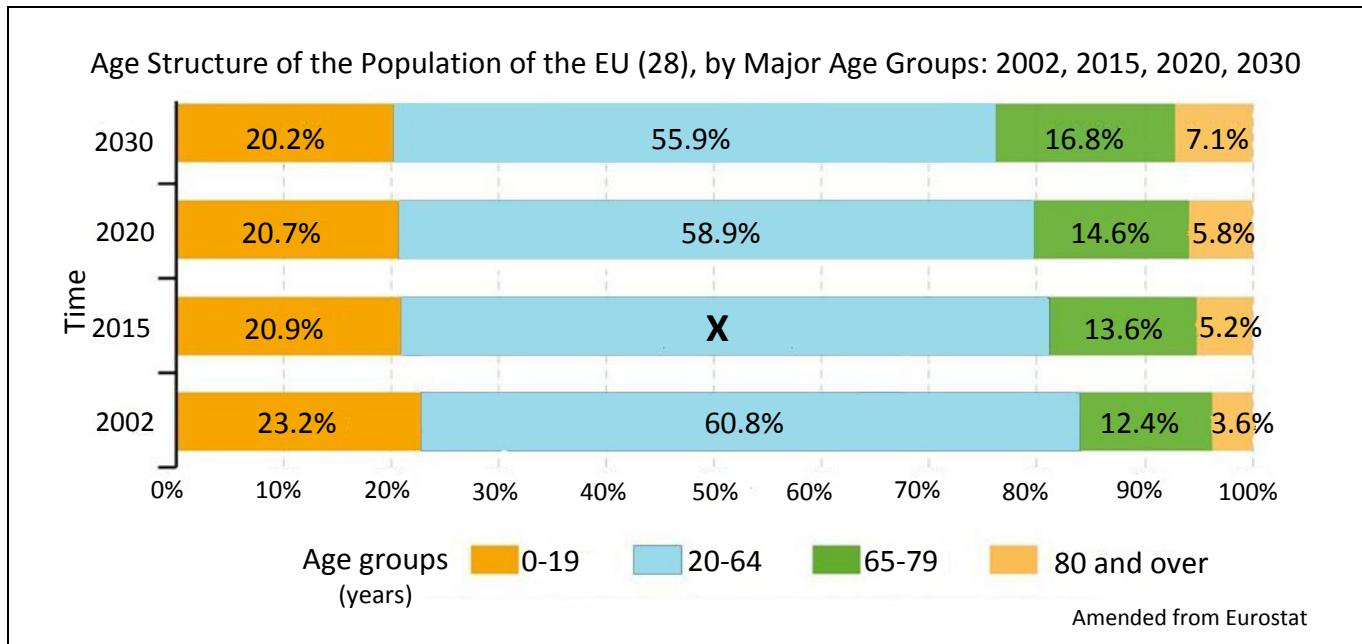
Explain **each** of the following challenges currently facing European Union member states:

- Social challenges
- Economic challenges.

[30m]

## Question 6

### A. European Union Population



Examine the chart above showing the age structure of the population of the European Union (EU 28) in 2002 and 2015 and the projected age structure of the population in 2020 and 2030 and answer each of the following questions.

- (i) Calculate **X**, the percentage of the EU (28) population aged between 20 and 64 years in 2015.
- (ii) In which age group is the percentage of the population projected to almost double, from 2002 to 2030? State **one** reason for this projected increase.
- (iii) In which **two** age groups is the percentage of the population projected to decline, from 2002 to 2030?
- (iv) Explain briefly **two** challenges presented by the projected decline in the percentage of the population in these two age groups.

[20m]

### B. Secondary Economic Activity – Continental / Sub-Continental Region

Examine the development of secondary economic activity in a **Continental / Sub-Continental** region (not in Europe) that you have studied, with reference to **two** of the following factors:

- Markets
- Infrastructure
- Government policy
- Raw materials.

[30m]

### C. Concept of a Region

Explain **three** differences between the characteristics of core regions and the characteristics of peripheral 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**

**OR**

**Patterns and Processes in the Human Environment**

## PATTERNS AND PROCESSES IN ECONOMIC ACTIVITIES

### Questions 7 to 9

#### Question 7

##### A. Energy Production

OECD Electricity Generation Mix 2015 (%)

Electricity Source	2015
Hydro	14%
Nuclear	18%
Gas	26%
Coal	30%
Oil	2%
Other	10%

Amended from www.iea.org

Examine the data above showing the electricity generation mix, for the Organisation for Economic Cooperation and Development (OECD) in 2015 and answer each of the following questions.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) Explain briefly **one** advantage of using energy sources other than fossil fuels.

[20m]

##### B. Location of Economic Activity

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

Explain **two** reasons why a multinational company might choose to locate in the area covered by the map **and** explain **one** reason why a multinational company might choose not to locate in this area.

Use evidence from the Ordnance Survey map to support each reason.

[30m]

##### C. Colonialism

Examine the challenges resulting from colonialism faced by a developing economy that you have studied.

[30m]

## **Question 8**

### **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 to half scale.

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

- The built up area of Macroom
- The entire route of the R584 road
- The entire route of the N22 road
- An electricity transmission line.

[20m]

### **B. Multinational Company and Globalisation**

Examine how globalisation impacts on world trade with reference to the operations of **one** multinational company that you have studied.

[30m]

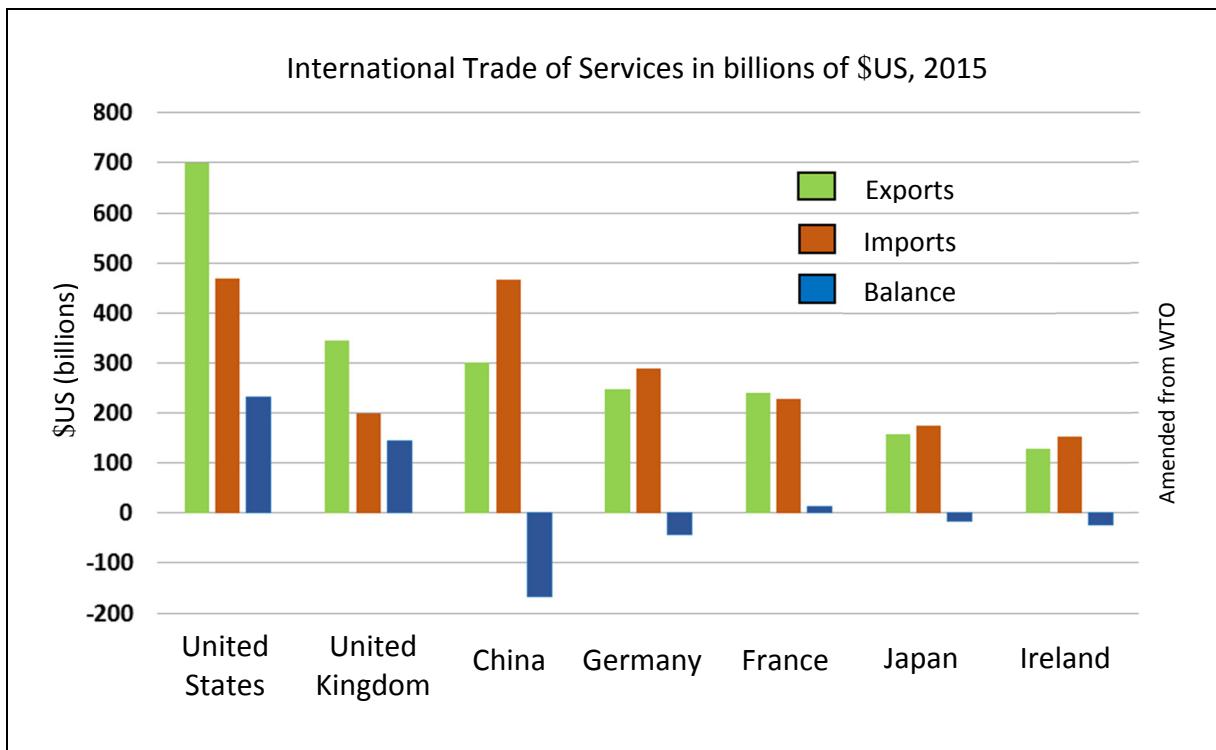
### **C. Economic Activity – Environmental Impact**

Discuss how the environmental impact of economic activity can be controlled by a sustainable approach to development.

[30m]

## Question 9

### A. International Trade



Examine the graph above showing information regarding international trade of services in 2015 and answer each of the following questions.

- Which **two** countries had the highest value of services exported?
- Calculate the difference (in \$US) between the value of services exported from China and the value of services exported from the United States.
- Name **two** countries with a trade surplus.
- Explain briefly **one** disadvantage of a trade deficit.
- Name **two** services exported from Ireland.

[20m]

### B. Economic Activity in a Developed Economy

Examine the development of **one** of the following with reference to a developed economy that you have studied:

- Footloose industries
- Financial services
- Mass tourism.

[30m]

### C. European Union Policy

Examine the impact of European Union policy on regional development in Ireland.

[30m]

## PATTERNS AND PROCESSES IN THE HUMAN ENVIRONMENT

### Questions 10 to 12

#### Question 10

##### A. Aerial Photograph

Draw a sketch map of the aerial photograph, half the length and half the breadth.

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

- The river
- A large sports field
- The triangular street pattern in the centre middleground
- An ecclesiastical building in the left middleground.

[20m]

##### B. Dynamics of Population

Examine how changing fertility and mortality rates impact on population structure with reference to example(s) that you have studied.

[30m]

##### C. Urban Issues

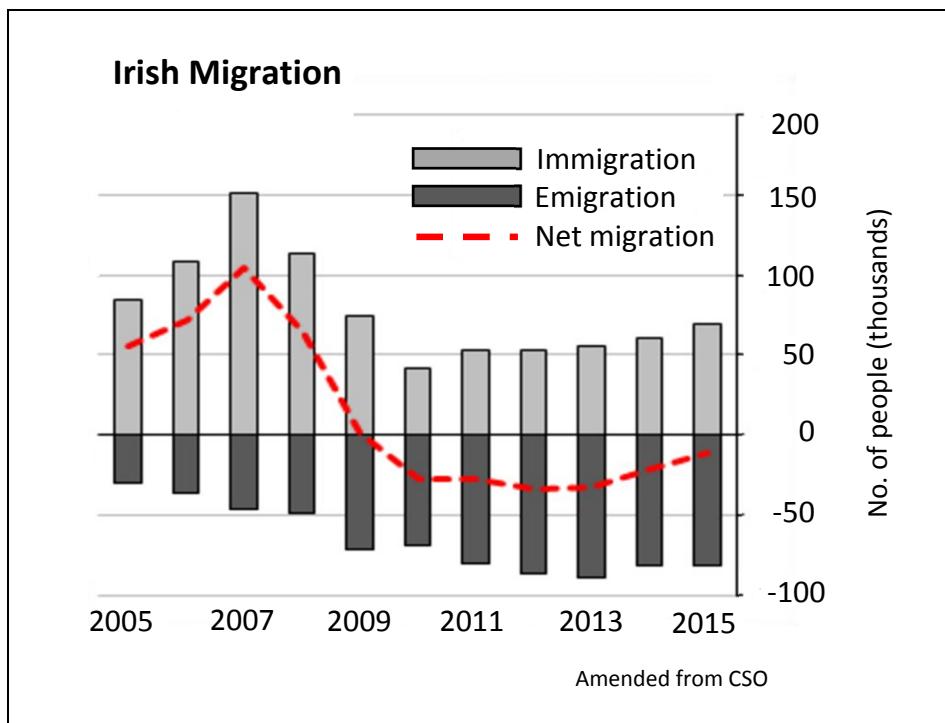
Discuss any **two** of the following issues that may arise from the growth of urban settlements:

- Heritage issues
- Planning issues
- Environmental issues.

[30m]

## Question 11

### A. Irish Migration



Examine the graph of Irish migration above and answer each of the following questions.

- (i) In which year was the number of people immigrating equal to the number of people emigrating?
- (ii) When did immigration exceed emigration by more than 100,000?
- (iii) In how many years was emigration greater than immigration?
- (iv) Explain briefly **one** reason why immigration declined between 2007 and 2010.
- (v) Explain briefly the term *net migration*.
- (vi) Name **two** barriers to migration.

[20m]

### B. Urban Land Use

Describe and explain the land-use zones in any city that you have studied.

[30m]

### C. Dynamics of Population

Examine the impact of any **one** of the following factors on levels of population growth, with reference to example(s) that you have studied:

- Development of resources
- Income levels
- Society and culture
- Technology.

[30m]

## **Question 12**

### **A. Population Dynamics**

Rural population (% of total population)

Region	1960	2015
Ireland	54%	37%
Japan	37%	7%
United States	30%	18%

Amended from The World Bank

Examine the data above showing rural population as a percentage of the total population in selected regions in 1960 and 2015.

- (i) Using graph paper, draw a suitable graph to illustrate this data.
- (ii) Explain briefly **one** reason for the trend in rural population indicated in the table above.

**[20m]**

### **B. Migration**

Examine how ethnic and religious issues can arise as a result of migration.

**[30m]**

### **C. Urban settlement**

Answer the following question using evidence from the aerial photograph **OR** from the 1:50 000 Ordnance Survey map and legend to support your answer. Do not refer to both in your answer.

Explain **three** reasons why the town of Macroom developed at its present location.

**[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.** Empowering people is a way of linking economic growth with human development.

Discuss this statement with reference to any **three** of the following:

- National debt
- Aid programmes
- Land ownership patterns
- Differing gender roles in society.

[80m]

**14.** Discuss the causes and impacts of **one** global environmental issue that you have studied.

[80m]

**15.** Examine the contribution that fair trade can make to sustainable development.

[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.** Discuss how soil development is influenced by any **three** of the following factors:

- Mineral matter
- Air
- Water
- Organic matter.

[80m]

**17.** Discuss how human activity can have both positive and negative impacts on soil characteristics.

[80m]

**18.** Examine how **each** of the following activities impact on biomes:

- 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 political structures and cultural groups.  
Discuss.

[80m]

20. Examine the importance of language as a cultural indicator.

[80m]

21. Examine how people express their culture and identity in everyday life.

[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 exchanges of water between oceans and atmosphere give rise to distinctive weather and climate regimes.

[80m]

23. Give an account of how atmosphere-ocean phenomena (e.g. pressure, temperature, wind and humidity) are measured and examine the importance of such measurements.

[80m]

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

[80m]

**Blank Page**