

LEAVING CERT

GEOGRAPHY SRPS

MODEL

ANSWER

BOOK

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PHYSICAL

GEOGRAPHY

Section

1

CHAPTER 1

THE RESTLESS EARTH

EXERCISE 1

Read the introduction and fill in the blanks to the restless earth page 10 and 11 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 12

SAMPLE QUESTION:

WITH THE AID OF LABELLED DIAGRAMS DISCUSS THE PROCESS OF GLOBAL CRUSTAL PLATE MOVEMENT?

SAMPLE MODEL ANSWER 1:

- The Theory of Continental Drift proposes that the original land surface of the earth fractured and drifted for over 200 million years across the earth's surface, forming the continents. **(1 SRP = 2 marks)**
- The Theory of Thermal Convection explains the process of Global Crustal Plate Movement. **(1 SRP = 2 marks)**
- Water that is boiled in a saucepan expands and rises. As it rises it cools, flows sideways and sinks only to be reheated, repeating the process over again. **(1 SRP = 2 marks)**
- Plates move in exactly the same way. Hot rock rises from within the earth to the surface. It cools, flows sideways and sinks. The lateral movement drags the lithosphere with it. This is the ***Theory of Thermal Convection***. **(1 SRP = 2 marks)**
- The Theory was put forward by Alfred Wegner, a German meteorologist in 1915 who noted the following:

1) Matching Fossils

- Fossils of animals that could not have swam across oceans have been found in different continents, indicating that the continents were once all joined together and that the animals could walk from one continent to another. **(1 SRP = 2 marks)**
- The species dispersed when the continents were connected and later carried to their present positions when the continents drifted. A fern, glossopteris, was found on the continents of South America, Africa, India and Australia. If the continents are reassembled into Pangaea, the distribution of glossopteris can be accounted for over a much smaller geographic area. **(1 SRP = 2 marks)**

2) Continental Fit

- Wegner argued that the similarities in the shapes of the continents particularly the shapes of the African and South American coastlines were proof of his theory. **(1 SRP = 2 marks)**

3) Matching Rocks and Mountain Ranges

- Many mountain ranges on the different continents are of comparable age, similar structure and rock type e.g. the Appalachian mountains of the USA and the Caledonian mountains of Ireland, Britain and Scandinavia (Fold Mountains). **(1 SRP = 2 marks)**
- Using this evidence he argued that the continents as we know them were all joined together forming a super continent, called **Pangaea** which was surrounded by an ocean, the **Iapetus Ocean**. **(1 SRP = 2m)**

- 180m years Pangaea broke into two pieces – **Laurasia** which carried Europe, North America and Asia and **Gondwanaland** which carried South America, Africa, India, Australia and the Antarctica. (1 SRP = 2m)
- Laurasia and Gondwanaland drifted across the earth's surface moving between **2cms and 20cms per year**. Overtime they broke up into continental **landmasses that exist today**. (1 SRP = 2 m)
- It was not until **1963** that the **Theory of Continental Drift** was **accepted** with the discovery of the **Mid Atlantic Ridge**. The existence of the Ridge proved that **the oceans were spreading**, pushing the continents around the globe. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on divergent plate boundaries on pages 13 and 14 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on pages 14 & 15

SAMPLE QUESTION:

WITH THE AID OF DIAGRAMS EXPLAIN WHAT HAPPENS AT A CONVERGENT PLATE BOUNDARY. IN YOUR ANSWER REFER TO ASSOCIATED LANDFORMS

SAMPLE MODEL ANSWER 2:

Convergent Plate Boundaries (Boundaries of Destruction)

- At convergent plate boundaries **plates collide**. (1 SRP = 2m)
- When two plates collide the heavier plate is pulled downwards along the **Benioff Zone** beneath the other. (1 SRP = 2m)
- This process is called **subduction**. The **subduction zone** is the point at which subduction occurs.(1 SRP = 2m)
- **There are 3 types of Convergence:** (1 SRP = 2m)

1) Oceanic Plate to Oceanic Plate

- When two oceanic plates collides e.g. the Pacific Plate and the Philippines Plate the heavier plate is subducted under the other. (1 SRP = 2m)
- The collision destroys the crust forming **long deep narrow oceanic trenches**. As the heavier plate is pulled downwards it heats up and melts forming magma. The magma rises to the ocean surface in the form of a volcanic eruption forming **offshore islands or island arches** e.g. Japan. (1 SRP = 2m)
- The **Mariana Trench** has formed where the Pacific Plate collides with the Philippines Plate. The Mariana Trench is 11kms deep – so deep that Mount Everest (8kms+) would fit comfortably into the Mariana Trench. (1 SRP = 2m)

2) Oceanic Plate to Continental Plate

- When an oceanic plate collides with a continental plate **the heavier oceanic plate subducts beneath the lighter continental plate in a process called 'Subduction'**. The continental plate is buckled and deformed. (1 SRP = 2m)
- The subduction zone is usually marked by a '**deep ocean trench**'. (1 SRP = 2m)
- The subducting oceanic plate begins to melt and disintegrate along the '**benioff zone**' and eventually merges with the underlying magma. (1 SRP = 2m)
- The collision forms **volcanic mountains**. The **Andes** were formed when the **Nazca Plate** was **subducted** under the **South American Plate**. (1 SRP = 2m)

- The collision of an oceanic plate and continental plate may also result in **faulting** – rocks are shunted forward and horizontally. **The Gweebarra Fault** in Donegal was formed in this way. **(1 SRP = 2m)**

3) Continental Plate to Continental Plate

- When two continental plates collide **Fold Mountains** are formed. **(1 SRP = 2m)**
- When the **Indian Plate** collided with the **Eurasian Plate** the **Himalayas** were formed. The Himalayas lay under the sea but were forced upwards due to the collision. Consequently, they contain the fossilised remains of dead marine organisms. **(1 SRP = 2m)**
- The Fold Mountains of **North West Ireland, Scotland and Scandinavia** were formed when two continental plates collided. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 5

Read the answer to the question on three types of plate boundaries on pages 15 of the workbook and fill in the appropriate blanks.

CHAPTER 2

EARTHQUAKES

EXERCISE 1

Read the introduction and fill in the blanks to earthquakes on page 16 and 17 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 18 & 19

SAMPLE QUESTION:

LIST AND EXPLAIN THE CAUSES OF EARTHQUAKES?

SAMPLE MODEL ANSWER 3:

Causes of earthquakes:

1. Along Convergent Plate Boundaries

- When plates collide one plate may sink beneath the other – **subduction**. These earthquakes may occur as deep as 750km (400 miles) below the surface. **(1 SRP = 2m)**
- **The Kobe earthquake in Japan, 1995** was due to subduction. South Japan sits on the Eastern edge of the Eurasian Plate where the Philippine Plate is being subducted along the Nankai Trough. It had a magnitude of 6.8. Over 5000 died. **(1 SRP = 2m)**
- **The San Francisco earthquake in October 1989** occurred when the Pacific Plate moved a further six to ten feet on its journey into the Pacific Ocean. **(1 SRP = 2m)**
- The Peru – Chile Trench along the West coast of South America is a convergent plate boundary. **(1 SRP = 2m)**

2. Along Divergent Plate Boundaries

- This is where plates move apart. This is the process of sea floor spreading. **(1 SRP = 2m)**
- **There are many earthquakes along the Mid- Atlantic Ridge** but their movements often go unnoticed. No lives are lost and no property is damaged. The Mid Atlantic Ridge was formed by the separation of the Eurasian and North American Plates over 100 million years ago, moving no faster than 2.5cms per year. **(1 SRP = 2m)**

3. Along Transform Faults

- This is where two plates slide past each other without the destruction or creation of crust e.g. the San Andreas Fault in California. **(1 SRP = 2m)**
- The average rate of motion across the san Andreas Fault zone during the past 3m years is 56mm per year. It is predicted that Los Angeles and San Francisco will meet in 15m years. **(1 SRP = 2m)**
- The San Andreas system is 1300km long (800 miles) and as deep as 16km (10 miles) **(1 SRP = 2m)**
- **The Los Angeles earthquake of January 1994** was caused by a movement in the tectonic plates that run along the US West coast. This is a transform plate boundary where the Pacific plate slides past the North American plate. While measuring 6.6 on the Richter scale it was not the big one that the Americans had been dreading for years. **(1 SRP = 2m)**
- **The death toll was low** because it struck at 4.31 a.m. local time when schools and shopping centres were deserted. However, it did damage major transport arteries and caused over 100 fires. Thousands were left

homeless. Up to twenty aftershocks, some measuring 5 on the Richter Scale, were felt, following the initial quake. (1 SRP = 2m)

4. In the interior of plates

- This is where tensional forces have caused a block of land to sink between parallel faults, forming Rift Valleys. (1 SRP = 2m)
- Rift Valleys are blocks of land that have dropped vertically downwards compared with the surrounding regions due to horizontal extension and normal faulting. (1 SRP = 2m)
- The Great Rift Valley extending from the southern Red Sea through East Africa to Mozambique. (1 SRP = 2m)
- The East African Rift System is a 50km – 60km wide zone of active volcanoes and faulting. It extends N – S in East Africa for more than 3000km from Ethiopia in the N to Zambezi in the S. It is an active continental rift zone where a continental plate is trying to split into two plates which are moving away from each other. (1 SRP = 2m)
- The Gulf of Aden, the Red Sea and The East African valley threatens to split Africa in two. As a result of the first two, the Arabian Peninsula has split from Africa and moved north eastwards forming the Red Sea and the Gulf of Aden. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on earthquake prediction on pages 19 and 20 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on pages 20 & 21

SAMPLE QUESTION:

EXAMINE THE TYPE OF DAMAGE CAUSED BY AN EARTHQUAKE?

SAMPLE MODEL ANSWER 4:

1) **Ground vibrations**

- The ground shakes, causing buildings to fall. (1 SRP = 2m)
- The more poorly built the more damage caused. In the Izmit earthquake, Turkey, 1999, over 200,000 poorly built buildings were destroyed. (1 SRP = 2m)
- In the San Francisco earthquake of October 1989 six people were killed when Buildings toppled onto their cars and one person was killed when part of the Bay Bridge collapsed. (1 SRP = 2m)

2) **Liquefaction**

- When soil, silt and sand are saturated with water they become a thick liquid removing buildings, bridges and everything else in their path.(1 SRP = 2m)
- Mexico City is built on a lakebed and if an earthquake occurs sections of the city will suffer from liquefaction, increasing the damage done by earthquakes (1 SRP = 2m)

3) **Avalanches & landslides** are caused by earthquakes e.g. the Kashmir Earthquake,

2005, North China, 1927 and Anchorage, Alaska, 1927. (1 SRP = 2m)

1) **Fire** ⇒

- Often more dangerous than the earthquake itself. (1 SRP = 2m)
- Gas mains are ruptured, power lines are damaged. (1 SRP = 2m)

- The Great San Francisco earthquake occurred in 1906 measuring 8.25 on the Richter Scale. **(1 SRP = 2m)**
- It is the largest earthquake to occur along the San Andreas Fault in the last 200 years. **(1 SRP = 2m)**
- Shaking only lasted 45 - 60 seconds resulting in fires that lasted over 12 hours destroying large parts of the city. **(1 SRP = 2m)**
- The fire caused more damage than the earthquake itself. Over 700 died. **(1 SRP = 2m)**
- Following the San Francisco earthquake of 1989, the nuclear plant at San Diablo was placed on alert. **(1 SRP = 2m)**

5) **Tsunamis**

- **A very large and destructive sea wave produced by earthquakes that have their focus under the sea.** **(1 SRP = 2m)**
- During an earthquake huge amounts of water are set in motion as the seafloor moves up and down. **(1 SRP = 2m)**
- These waves travel outwards in all directions from the earthquake site. **(1 SRP = 2m)**
- The sea wave can be as high as 65m and travel at speeds of up to 800kms per hour (the speed of a jet). **(1 SRP = 2m)**
- With typical waves water flows in circles but with a tsunami water flows straight. This is why tsunamis cause so much damage. e.g. the Indian Tsunami. **(1 SRP = 2m)**
- The Pacific Basin is the world's most tsunami prone region. **(1 SRP = 2m)**
- Tokyo in Japan and Bangladesh are both low lying regions in an earthquake zone making them prone to tsunamis. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 5

Read the answer to the question on reducing earthquake damage on pages 21 - 23 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the answer to the question the Indian Ocean tsunami on pages 23 & 24 of the workbook and fill in the appropriate blanks.

CHAPTER 3

VOLCANOES

EXERCISE 1

Read the introduction to volcanoes and fill in the appropriate blanks on page 25 and 26 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on pages 26 & 27

SAMPLE QUESTION:

EXPLAIN WHERE VOLCANOES OCCUR ON THE EARTH'S SURFACE?

SAMPLE MODEL ANSWER 5:

- Most volcanoes, but not all, occur in the **Pacific Ring of Fire** where plates converge and diverge. Some volcanoes also occur at hot spots. (1 SRP = 2m)
- **Divergent Plate Boundaries** - at divergent plate boundaries plates **separate**. (1 SRP = 2m)
- This is the theory of **Sea Floor Spreading** proposed by **Harry Hess** in **1960**. (1 SRP = 2m)
- When two plates separate **cracks form** on the ocean floor. These cracks are **filled by magma** which forces its way upwards from the **mantle**. (1 SRP = 2m)
- The Magma cools forming a **new ocean floor**. Along the **Mid Atlantic Ridge** volcanic islands have formed – **Iceland**. (1 SRP = 2m)
- **Convergent Plate Boundaries** – when two plates **collide** the **heavier older plate will sink beneath the other**. This process is called **Subduction**. (1 SRP = 2m)
- As the heavier plate sinks it **heats up** and **melts** forming **magma**. (1 SRP = 2m)
- The magma often rises to the surface through a **vent** reaching the **surface** as a **volcano** – **Mount St. Helen, Washington**. (1 SRP = 2m)
- **Mount St. Helen's** is situated in the **Rockie Mountains**. The Rockie Mountains were formed where the **Pacific Plate (oceanic plate) subducts beneath the North American Plate (continental plate)**. As the Pacific Plate is pulled downwards into the mantle it **heats up and forms magma**. (1 SRP = 2m)
- The magma **rises to the surface forming volcanoes** such as **Mount St. Helens**. Mount St. Helens last erupted on **May 18th 1980**, having been **dormant** for **over 120 years**. The 1980 eruption was accompanied by an **earthquake** which measured 5 on the Richter Scale. Earthquakes also occur at **convergent plate boundaries**. (1 SRP = 2m)
- **Hot Spots:** Not all volcanoes occur at plate boundaries. Some volcanoes occur at Hot Spots. (1 SRP = 2m)
- **Hot spots are warm areas deep within the earth's mantle**. **Plumes** (columns) of hot magma **rise** from the **mantle** to the **surface** forming **volcanoes**. (1 SRP = 2m)
- The most famous hot spot is **under the Pacific Plate** which formed the **Hawaiian Island chain**. The Pacific Plate is moving in a North West direction over the hot spots. **Mauna Loa**, a shield volcano (4170m), is on the island of Hawaii. It is the world's largest active volcano. (1 SRP = 2m)
- **The Hawaiian Islands** are the tops of volcanoes that formed above a hot spot in the earth's interior. As the volcanoes grew, they moved away from the hot spot as the Pacific Plate moves north westwards at 3.5 inches per year. The fixed spot is currently under the south eastern part of the Big Island of Hawaii. (1 SRP = 2m)

- Hot spots also lie under **Yellowstone National Forest Park** and the **islands of Iceland and Reunion**. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on types of volcanic material on pages 27 and 28 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on page 29

SAMPLE QUESTION:

WRITE AN ACCOUNT OF VOLCANIC EXTRUSIVE LANDFORMS?

SAMPLE MODEL ANSWER 6:

Extrusive Landforms

1) Shield Volcanoes

- Shield volcanoes are associated with **basic lava flows**. Basic lava is low in silica, flows easily, not explosive as gases are released continuously and is usually found at constructive plate boundaries (1 SRP = 2m)
- They have a **broad base** and the **sides are not steep**. (1 SRP = 2m)
- As the **fluid lava flows out** onto the **surface** it fans out and on cooling forms a **broad low angled slope**. (1 SRP = 2m)
- **Shield volcanoes resemble a warrior's shield with the outer side facing the sky**. (1 SRP = 2m)
- **Mauna Loa** on the Hawaii Islands is a shield volcano. (1 SRP = 2m)

2) Lava Plateaux

- Lava plateau's are also associated with **basic lava flows**. Lava plateaux are **elevated areas** associated with **divergent plate boundaries**. (1 SRP = 2m)
- When **two plates separate magma fills the gap, cooling** on reaching the **surface**. (1 SRP = 2m)
- **The Antrim Plateau** is a basaltic lava plateau composed of basaltic lava due to volcanic activity. (1 SRP = 2m)
- **Formation began 65m years ago** when the Eurasian and American Plates diverged forming cracks through which lava flowed. The process of formation lasted 15m years.

(1 SRP = 2m)

3) Dome Volcanoes

- Dome volcanoes are associated with **acidic lava flows**. Acidic lava is high in silica, thick or viscous, highly explosive as gases are trapped in the lava until the pressure becomes too great and is suddenly released and is usually found at destructive plate boundaries. (1 SRP = 2m)
- They are **high with very steep sides**. **Eruptions are explosive**. (1 SRP = 2m)
- **Mt. St. Helens** is a dome volcano. (1 SRP=2m)

4) Composite Volcanoes

- Composite volcanoes are associated with **acid lava flows** producing **explosive eruptions**. (1 SRP = 2m)
- They are composed of **alternating layers of pyroclastic material and lava**. (1 SRP = 2m)
- They are often associated with **convergent plate boundaries**. (1 SRP = 2m)

- They are the **tallest volcanoes** in the world. **Mount Fuji, Mount Vesuvius, Mount Etna & Stromboli** are composite volcanoes. (1 SRP = 2m)

EDCO: Insert diagram similar to Fig. 3.3 on page 19 of Today's World

(15 SRPs = 30m)

EXERCISE 5

Read the following sample answer and fill in the key points to your workbook on page 29

SAMPLE QUESTION:

EXAMINE VOLCANIC EXTRUSIVE AND INTRUSIVE LANDFORMS?

SAMPLE MODEL ANSWER 7:

(NOTE: In this question you have to write 7 – 8 SRPs from the previous question on extrusive landforms and 7 – 8 SRPs on volcanic intrusive landforms from below)

Volcanic Intrusive Landforms

- Sometimes magma may fail to reach the surface.
 - This magma cools within the earth's crust, forming intrusive igneous rocks or plutons. (1 SRP = 2m)
 - These plutonic structures eventually reach the surface due to the processes of weathering and erosion. Three features result:
 - Batholiths, Dykes, Sills (1 SRP = 2m)
1. Batholiths
 - A batholith is a dome shaped mass of igneous rocks mainly granite formed by intrusion of magma into cavities as it forces its way upwards into the crust. (1 SRP = 2m)
 - Batholiths are the largest of the plutonic structures. The Leinster Batholith extends for 120 kms from Killiney in Co. Dublin to Thomastown in Co. Kilkenny. (1 SRP = 2m)
 2. Dykes
 - Dykes are vertical sheets of igneous rocks formed when magma, making its way upwards to the surface through a crack, cools and solidifies. (1 SRP = 2m)
 3. Sills
 - Sills are horizontal sheets of igneous rocks which form when magma forced its way upwards and settled between two layers of sedimentary rock where it cooled and solidified (1 SRP = 2m)
 - If the layers of sedimentary rock are arched upwards over the intrusion of magma a dome shaped feature called a laccolith is formed. (1 SRP = 2m)
 - If the layers of sedimentary rocks are arched downwards a large saucer shaped shallow basin called a lopolith is formed (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 6

Read the following sample answer and fill in the key points to your workbook on pages 31 & 32

SAMPLE QUESTION:

LIST AND EXPLAIN THE ADVANTAGES AND DISADVANTAGES OF VOLCANOES?

SAMPLE MODEL ANSWER 8:

The Advantages of Volcanoes

1. **Fertile Soils**

- Volcanoes eject minerals, dust, ash and cinders from deep in the earth's crust which create fertile soil. In Sicily the lower slopes of Mount Etna have been formed for thousands of years. (1 SRP = 2m)
- On the Indonesian island of Java volcanic soils support one of the densest populations on earth. (1 SRP = 2m)

2. **Formation of precious stones and minerals**

- Gold, silver and lead all result from volcanic eruptions. Diamonds formed in the earth's crust over 36m years ago were brought to the surface by volcanic eruptions. South Africa is the world's greatest diamond producer. (1 SRP = 2m)
- Sulphur, used in the making of dyes, insecticides and fertilisers, is released in large quantities in volcanic eruptions. (1 SRP = 2m)

3. **Geothermal Energy**

- Geothermal energy is the production of electricity using natural steam. (1 SRP = 2m)
- Hot Springs are used to generate electricity for industry and agriculture and to provide heat – Iceland. They were first used to heat houses in Roman times. (1 SRP = 2m)
- The largest geothermal power plant is in Northern California. It provides enough energy to power half a million homes. (1 SRP = 2m)

4. **Tourism**

- Mount Vesuvius and Mount Etna in Italy attract tourists every year. Tourism income is vital for the local economy to provide employment and to reduce out migration from the Mezzogiorno. (1 SRP = 2m)
- Piton de la Fournaise on the French Island of Reunion in the Indian Ocean is one of the biggest and most active volcanoes in the world. 300,000 tourists come to the island every year to visit the volcano. Hiking paths have been formed and look out points have been built. (1 SRP = 2m)

The Disadvantages of Volcanoes

1. **Loss of Life**

- The eruption of Krakatoa in 1883 ejected a column of pyroclastic material 25 miles into the atmosphere. The material travelled 40 kms across the sea destroying coastal communities in Sumatra. The caldera collapsed displacing huge amounts of seawater which generated a series of tsunamis killing more than 36,000 people. (1 SRP = 2m)
- El Chichon in South East Mexico erupted in 1982. Nine villages were destroyed and over 2,000 people were killed. (see also Nevado del Ruin 1985 – Lahar) (1 SRP = 2m)

2. **Damage to property**

- In AD79 Vesuvius, on the East coast of Naples erupted, destroying Pompeii and Herculaneum. People were smothered by fast moving high temperatures and pyroclastic surges. Pompeii, a town of 20,000, was buried under 3m of materials that fossilised both inhabitants and buildings. (1 SRP = 2m)
- On the 18th May 1980 Mount St. Helen's erupted causing an avalanche which travelled 25 kms, filling a surrounding valley with debris up to 195m deep. The avalanche was accompanied by an explosive blast of hot gases and magma destroying more than 10 million trees over 600 sq kms. (1 SRP = 2m)

3. **Environmental Damage**

- The eruption of Mount Pinatubo in 1991 had major effects on the environment. The ash darkened the sky for many days. One month after the eruption fine aerosol particles were still circling the earth reducing global temperatures by 5 C. (1 SRP = 2m)
 - Following the eruption of Krakatoa in 1883, pyroclastic material blotted out sunlight for two days. Dust from the volcanic eruption filled the sky for months across the world creating wonderful sunsets. (1 SRP = 2m)
- (15 SRPs = 30m)**

EXERCISE 7

Read the answer to the question on the Giants Causeway on pages 32 & 33 of the workbook and fill in the appropriate blanks.

CHAPTER 4

FOLDING & FAULTING

EXERCISE 1

Read the introduction and fill in the blanks to folding and faulting on pages 34 – 36 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 36 & 37

SAMPLE QUESTION:

EXPLAIN THE FORMATION OF THE THREE TYPES OF FOLD MOUNTAINS?

SAMPLE MODEL ANSWER 9:

Folding results in the formation of **Fold Mountains** of which there are three types:

- Caledonian
- Armorican
- Alpine (1 SRP = 2m)

Caledonian Foldings

- Occurred **450m years ago** when the **North American & Eurasian Plates** converged during the **Silurian** geological period. During the folding, magma intruded into the upfolds to form granite. (1 SRP = 2m)
- The name comes from **Caledonia**, the Roman name for Scotland. (1 SRP = 2m)
- When formed they were higher than today's Alps but they have been **reduced by weathering and erosion**. (1 SRP = 2m)
- They form the mountainous backbone of Norway, Sweden, Scotland, the Appalachians of North America, the West & North West of Ireland (Mweelrea, the Twelve Bens, the Maamturks, the Derryveagh, Bluestack) the East of Ireland (the mountains of Leinster). (1 SRP = 2m)

Armorican Foldings

- Occurred **270m years ago** when the **Eurasian Plate and African Plate** converged during the Permian geological period. (1 SRP = 2m)
- Named after **the Armorican region of North West France (1 SRP = 2m)**
- They include the Vosges Mountains of Eastern France, the Black Forest in Germany, the Magillicuddy's Reeks, the Caha Mountains and the Comeragh Mountains in Ireland. (1 SRP = 2m)
- Armorican Foldings formed the **"Munster Ridge – Valley" province** which extends east – westwards from the Comeraghs in Co. Waterford to the Caha (See case study page ???) (1 SRP = 2m)
- Mountains in West Cork and the Magillicuddy's Reeks in Co. Kerry. The carboniferous limestone deposits were removed leaving anticlines of old red sandstone and synclines of limestone and shale. (1 SRP = 2m)
- Extending from the Comeragh Mountains to the sea near Skibereen a plateau like landscape – a **plantation surface or peneplain** has formed, varying in height from 180m to 245m. The plantation may have been formed by wave erosion when sea level was higher than at present. (1 SRP = 2m)
- The Armorican Folding also uplifted **the karst landscape of the Burren**, Co. Clare. These foldings also formed the high plateaux from Co. Sligo to Co. Cavan – Ben Bulbin and King's Mountain. The plateau have

steep slopes (escarpments) separated from each other by steep glens, e.g. Glencar, whose valley floors are 300m below the plateau surface. (1 SRP = 2m)

Alpine Foldings

- These occurred **30m years ago**. They are the youngest fold mountains. (1 SRP = 2m)
- **The African Plate** moved northwards and **collided with the Eurasian Plate**. The plates were uplifted to form the mountains of the Alps and the Apennines. (1 SRP = 2m)
- Alpine Foldings are also responsible for the formation of the Himalayas, Rockies and Andes. (1 SRP = 2m)
- Alpine fold mountains are high and more rugged than the older mountains because they have had **less time to be weathered and eroded**. (1 SRP = 2m)
- Alpine Foldings did **not affect Ireland**. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on the Munster ridge and valley on pages 37 & 38 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on pages 38 & 39

SAMPLE QUESTION:

WITH THE AID OF DIAGRAMS EXPLAIN THE THREE TYPES OF FAULTS?

SAMPLE MODEL ANSWER 10:

There are three types of fault: 1) Normal Fault 2) Tear Fault 3) Reverse and Thrust Faults (1 SRP = 2m)

1) Normal Faults;

- These faults occur when **plates move apart**. (1SRP = 2m)
- The movement is **vertical** - one block slips vertically down past another. Normal faulting forms **Rift Valleys (graben)** and **Block Mountains (horst)**. (1SRP = 2m)
- **Rift Valleys form when a section of the earth's surface slips downwards, under the influence of gravity, between two parallel faults**. (1 SRP = 2m)
- Rift Valleys or Graben are **long and narrow with steep sides** e.g. the Rhine Rift Valley, which was formed when **a block of crust between the Vosges Mountains in France and the Black Forest in Germany collapsed** forming the Rhine Rift Valley. (1 SRP = 2m)
- Glenmore (Scotland), the Dead Sea, the East African Rift Valleys which extend for 4800 kms (3000 miles) from Syria to the River Zambesi in East Africa, the Death Valley in California, Lough Neagh. (1 SRP = 2m)
- **Block Mountains form when either two plates converge a block of land is uplifted or the surface on both sides of the fault may sink down leaving the central block standing**. (1 SRP = 2m)
- The Ox Mountains, Co. Sligo, The Vosges Mountains, France, the Harz Mountains, The Black Forest and the Rhine Highlands, Germany are block mountains. (1 SRP = 2m)

2) Tear Faults:

- These faults form when **plates move horizontally along the fault line but in opposite directions** e.g. **the San Andreas Fault and the Leannan Tear Fault in Donegal**. (1 SRP = 2m)
- The rocks on either sides of the fault contain crushed rocks due to both horizontal movement and weathering and erosion. (1 SRP = 2m)
- Killary Harbour and the Eriff Valley (Co. Mayo) lie along a fault zone and they were deeply eroded by ice during the ice age. (1 SRP = 2m)

3) Reverse and Thrust Faults

- Reverse faults occur due to compression. (1 SRP = 2m)
- As a result a block of land is forced or thrust upwards over another (1 SRP = 2m)

- A Reverse and Thrust fault is found in the South of Ireland from Killarney to Mallow. (1 SRP = 2m)
(15 SRPs = 30m)

CHAPTER 5

ROCKS

EXERCISE 1

Fill in the different types of rocks onto the Ireland map on page 40 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 40 & 41

SAMPLE QUESTION:

EXPLAIN HOW IGNEOUS ROCKS ARE FORMED. IN YOUR ANSWER REFER TO TWO TYPES OF IGNEOUS ROCKS?

OR

EXPLAIN THE DIFFERENCE BETWEEN INTRUSIVE AND EXTRUSIVE ROCKS?

SAMPLE MODEL ANSWER 11:

Igneous Rocks

- The word igneous comes from the **Latin word ignis** which means **fire**. Igneous rocks are formed **when magma cools and solidifies on or beneath the surface**. (1 SRP = 2m)
- On reaching the **surface** the **lava cools** and **solidifies** quickly forming **volcanic** or **extrusive rocks**, e.g. **basalt**, Giant's Causeway, Co. Antrim. (1 SRP = 2m)
- If the **magma cools below** the surface it **cools slowly** forming **plutonic** or **intrusive** rocks e.g. **granite**, Co. Wicklow. (1 SRP = 2m)

Basalt (Extrusive)

- Basalt is an **extrusive volcanic rock** that is formed at **divergent plate boundaries**. The **magma**, which on coming to the **surface** through cracks or pressures, which is called lava, **cools and hardens** rapidly often forming **four, five or six sided columns of basalt**. (1 SRP = 2m)
- It often contains **quartz**. It is **black to dark grey** in colour. It is a **hard rock** used in **building materials** and also for **road chippings**. (1 SRP = 2m)
- Unlike limestone, **hydrochloric acid will not fizz when dripped onto its surface** (1 SRP = 2m)
- It is found in the **Giant's Causeway** which is part of the Antrim Derry Plateau. The Giant's Causeway is **60 million years old**. (1 SRP = 2m)

Focus on the Antrim Plateaux:

- Around **65 million years ago** the **Eurasian and North American plates began pulling apart** to create the Atlantic and this movement created many cracks in the earth's crust which allowed lava to pour out onto the land surface such as occurred in county Antrim. (1 SRP = 2m)
- This **lava poured out of a fissure repeatedly for over two million years** to create the raised flat surface of the Antrim plateaux and each eruption of lava cooled quickly to form a layer of basaltic rock. (1SRP = 2m)

Granite (Intrusive)

- Granite is a **plutonic (intrusive) rock** that is formed at **convergent plate boundaries**. The **magma cools and hardens underground**. However, it is **found** at the **surface** when the **overlying material** has been **removed** by **weathering** and **erosion**. (1 SRP = 2m)
- It has a **different chemical composition to Basalt**. (1 SRP = 2m)
- It is **grey** in colour containing **quartz, feldspar** and other minerals making it a very **hard and durable** rock. (1 SRP = 2m)
- It is used in **buildings** (the GPO in Dublin), **bridges** and **breakwaters** (Dun Laoghaire Pier). (1 SRP = 2m)
- It is found in the **Donegal and Wicklow mountains**. These mountains were formed during the **Caledonian mountains building period 400 million years ago**. (1 SRP = 2m)

Focus on the Leinster Batholith:

- During the **Caladonian folding around 400 - 450 million years ago** the Wicklow mountains were being formed due to the collision between the North American and Eurasian plates. (1 SRP = 2m)
- **Molten magma intruded into the upfolds** underneath the Wicklow mountains and cooled slowly to form large domed masses of granite such as the Leinster batholith. (1SRP = 2m)
- **Millions of years of weathering and erosion have worn down the overlying rock layers** to expose the granite batholith which stretches from Killiney in Dublin to Thomastown in Kilkenny. (1SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on sedimentary rocks on pages 42 & 43 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on page 44

SAMPLE QUESTION:

EXPLAIN THE FORMATION OF METAMORPHIC ROCKS. IN YOUR ANSWER REFER TO THE FORMATION OF ONE TYPE OF METAMORPHIC ROCK?

SAMPLE MODEL ANSWER 12:

Metamorphic rocks

- Metamorphic rocks were **once igneous or sedimentary rocks which were changed both physically and chemically by great heat or pressure**. (1 SRP = 2m)
- **Examples of Metamorphism**

Limestone changes to marble

Sandstone changes to quartzite

Granite changes to gneiss

Shale changes to slate (1 SRP = 2m)

- **There are three types of metamorphism**

1) Thermal metamorphism

2) Regional metamorphism

3) Dynamic metamorphism (1 SRP = 2m)

- **Thermal metamorphism** occurs when the change in rock type is due to intense heat due to **volcanic activity**. (1 SRP = 2m)
- **Regional metamorphism** occurs when the change in rock type is due to pressure as a result of **folding** over a large area. (1 SRP = 2m)
- **Dynamic metamorphism** occurs when pieces of crust slip past each other in **opposite directions**. It is metamorphism resulting from deformation. (1 SRP = 2m)

Thermal Metamorphism

- Marble is formed due to the **thermal metamorphism of limestone at convergent plate boundaries**. (1 SRP = 2m)
- When the plates collide **limestone is subducted** and on **entering the mantle** it **melts** forming **magma**. The **magma then rises cooling the surrounding limestone changing it into marble**. (1 SRP = 2m)
- Marble comes in **different colours** - the green marble of Connemara or the white marble of Rathlin Island, Co. Donegal. Marble is also quarried at Carrara in Tuscany, Italy. (1 SRP = 2m)
- It is a **highly valued rock with a smooth texture, ideal for building and sculpture** but it may be damaged by **acid rain**. The **Taj Mahal** in India was built of white marble. (1 SRP = 2m)

Regional Metamorphism

- **Gneiss** is formed from another metamorphic rock, **schist**. The **schist** formed from fine grained sedimentary rock, shale and can also be formed from **granite**.
- It is formed due to **great pressure caused as a result of moving plates**.
- It is a tough hard rock comprising of **feldspars, quartz and mica** and is found in Belmullet, Co. Mayo.

Dynamic Metamorphism

- **Slate** forms due to the **dynamic metamorphism of shale**
- At **converging plate boundaries shale is put under immense pressure**. This pressure **compresses the shale** into different layers or **strata**, forming **slate**.
- Slate is **waterproof and it splits easily into thin sheets** making it ideal for **roofing**. but trade in slate has **declined** due to the greater use of tiles. Slate is found in Valentia, Co. Kerry and Kilaloe, Co. Clare
(15 SRPs = 30m)

EXERCISE 6

Read the answer to the question on the rock cycle on pages 45 & 46 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the following sample answer and fill in the key points to your workbook on page 47

SAMPLE QUESTION:

WITH THE AID OF A CASE STUDY EXPLAIN ONE WAY IN WHICH HUMANS INTERACT WITH THE ROCK CYCLE?

SAMPLE MODEL ANSWER 13:

Case study – NATURAL GAS IN IRELAND (A fossil fuel)

- Natural gas accounts for **25% of total primary energy demand in Ireland**. It is **colourless** and **odourless**. It is **clean burning** and emits **lower levels of harmful by-products** into the air, making it **one of the lowest polluting fossil fuels** available. (1 SRP = 2m)

The Corrib Gas Project

- The gas in the Corrib field is **250 million years old**. It was formed due to the **decay of dead organic marine material**. It is found in **sedimentary rocks** which are subjected to **high temperatures** and **pressure** forming, over millions of years, **oil and gas**. (1 SRP = 2m)
- The gas is trapped in geological formations known as **anticlines** and **fault traps**.

- **An Anticline trap** is an **upward fold** in sedimentary rocks. The **gas migrates** to the **surface** through **loose shale type rock** and **other material** and **remains there** when it encounters a **layer of impermeable rock**. (1 SRP = 2m)
- **A fault trap** occurs when **layers of sedimentary rock fracture** and are **displaced**. Impermeable rock moves down trapping natural gas in the permeable layers of sandstone or limestone. (1 SRP = 2m)
- Natural gas is **brought to the surface by drilling a hole through the impermeable rock**. The gas is **held under pressure** and **once released** moves to the **surface** on its own. (1 SRP = 2m)

Ireland has 3 natural gas fields:

1. **Kinsale Head** –
 - The Kinsale Head is located **50kms off the coast of Cork**. It was discovered in 1971 and has been producing gas since 1976. (1 SRP = 2m)
 - The gas platform stands in a **100m of water** and the gas is extracted from **1000m below the sea bed**. The field is operated by **Marathon Petroleum**. By **2010** the **Kinsale Gas Field** will no longer be producing large amounts of natural gas. (1 SRP = 2m)
2. **Seven Heads Gas Field**
 - This is located **30kms away from Kinsale Head**. It has been in **production since 2003**. (1 SRP = 2m)
3. **The Corrib Gas Field** –
 - This field is located **70kms off the coast of Mayo**. The gas lies in **over 3000m below the sea bed**. (1 SRP = 2m)
 - The gas will be brought from the reservoir to the surface via **wells** drilled using high technology drilling equipment. (1 SRP = 2m)
 - The gas will then be treated with **an anti-corrosion agent and anti-freeze** before being sent to the shore. The gas will then travel by a **pipeline** constructed on the seabed to the shore, at **Broadhaven Bay**. It will then travel to a **gas processing terminal** at **Bellanaboy**. (1 SRP = 2m)
 - The gas is being **processed on shore to reduce the dangers involved with working on and travelling to an off shore platform**. An offshore platform would be serviced from a **large commercial port such as Galway** and would be of **little benefit to the Mayo economy**. (1 SRP = 2m)
 - While the field is operated by **Shell** it is owned by a **consortium** including **Shell, Statoil and Marathon Petroleum**. These companies are attracted by **tax breaks and low rates of corporation tax**. (1 SRP = 2m)

Advantages of the Corrib Gas Project.

1. It will **boost Ireland's GDP by €3 billion** over the lifespan of the project. **Over 800 jobs will be created** during the construction phase with approximately 130 high quality permanent jobs, reducing emigration and rural areas. (1 SRP = 2m)
2. It **will provide 60% of Ireland's natural gas needs reducing our dependence on imports helping to improve our balance of payments**. Successful completion of the Corrib project will encourage **investment by other firms in energy exploration of the west coast**. (1 SRP = 2m)
3. The project **will increase the availability of natural gas to twelve towns in Co. Mayo and Co. Galway, making the west more attractive for investment**. The project will **provide funds for local community investments**. (1 SRP = 2m)

Bord Gais is responsible for the distribution of natural gas.

- Gas is also imported by **two interconnector sub-sea pipelines between Dublin and Scotland**. However, once production commences at Corrib and a second producer Shannon LPG starts distributing gas from 2012 there will be less gas imported via the sub sea pipelines. Shannon LPG will import liquefied gas into Ireland restoring it to its gaseous state before distributing it throughout Ireland. (1 SRP = 2m)
- Natural gas is used for **residential, commercial and industrial functions**. It is used to **manufacture fertiliser** and by **the E.S.B. to produce electricity**. (1 SRP = 2m)

CHAPTER 6

WEATHERING

EXERCISE 1

Read and learn the definitions of weathering and erosion on page 48 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 48 & 49

SAMPLE QUESTION:

DEFINE THE TERM MECHANICAL WEATHERING AND WITH THE AID OF DIAGRAMS EXPLAIN TWO TYPES OF MECHANICAL WEATHERING?

SAMPLE MODEL ANSWER 14:

Mechanical Weathering

- Mechanical Weathering refers to the physical disintegration of rocks brought about by sun and frost. It does not alter the chemical composition of rocks. (1 SRP = 2m)
- Mechanical weathering occurs in areas that have little or no vegetation cover – deserts and mountains. (1 SRP = 2m)
- There are two types of Mechanical Weathering, Exfoliation or Onion Weathering and Freeze-thaw action. (1 SRP = 2m)

Exfoliation/Onion Weathering

- In **deserts** where the **daily range of temperature is great**, rocks **expand** during the **day** and **contract** at **night** when temperatures fall (0C to 50C). (1 SRP = 2m)
- This **expansion** and **contraction** causes the rock to weaken leading to its eventual destruction. (1 SRP = 2m)
- Furthermore, the **outer layer or skin of rock absorbs more heat than the inner layer**. (1 SRP = 2m)
- **The outer layer will expand more than the inner one**, causing it to **peel off**. (1 SRP = 2m)
- This process is called **exfoliation or onion weathering**. It is very common in the Sahara and Atacama Deserts
- Exfoliation requires the presence of **moisture**. **Moisture** manifests itself in the form of heavy dews, showers or capillary action – the process by which water is drawn up from the bedrock pores due to high temperatures. (1 SRP = 2m)

Freeze – thaw Action

- Freeze-thaw action (frost shattering) occurs in **mountainous zones**. (1 SRP = 2m)
- **Rain** enters **cracks** (fissures/joints) in **rocks**. When this **rainwater freezes**, its **volume expands** by 10% and the **cracks are widened**.

When **temperatures rise** the **water thaws**. (1 SRP = 2m)

- Rain falls again and **this process of freeze thaw action continues until the rock is completely broken down.** (1 SRP = 2m)
- Freeze thaw action produces **rock fragments**, which can be seen on mountain sides. (1 SRP = 2m)
- These rock fragments **move downslope due to gravity.** This process is termed **mass movement.** (1 SRP = 2m)
- These rock fragments are called **talus or scree.** (1 SRP = 2m)
- Scree accumulations can be seen on
 1. Croagh Patrick, Co. Mayo
 2. The Great Sugarloaf, Co. Wicklow
 3. Carraunthoohil, Co. Kerry
 4. Slieve League, Co. Donegal (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on chemical weathering from page 49 - 51 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on page 51

SAMPLE QUESTION:

NAME AND EXPLAIN THREE DIFFERENT TYPES OF WEATHERING?

SAMPLE MODEL ANSWER 15:

(Note: In this question you have to include 5- 6 SRPs from each of the previous two questions i.e. physical and chemical weathering and 5 – 6 SRPs from biological weathering below)

Biological Weathering

- The disintegration of rocks as a result of the actions of a) plants, b) animals and c) humans allowing water to penetrate accelerating the weathering processes.

a) Plants

- **Roots** widen cracks, **forcing rocks apart.** **Rainwater and air** can then **penetrate** deep within the **bedrock** to cause **chemical weathering** by **carbonation** and **oxidation.** (1 SRP = 2m)
- **Lichens and mosses** contain **acids** in their **roots** which **break down rocks** even further.
- The **water** contained in **plant roots** contains **bacteria and chemicals** which also **attack the roots.** **Dead organic matter** attacks the rocks too. (1 SRP = 2m)

b) Animals

- The actions of **rodents and earthworms** **loosen the soil or regolith** which is then subject to **attack by the wind or water or the processes of chemical weathering.** (1 SRP = 2m)
- **Regolith is the layer of loose material that covers the surface of bedrock.** (1 SRP = 2m)

c) Humans

- **Deforestation, overgrazing, over-cropping and mining** all contribute to the breakdown of rocks. (1 SRP = 2m)
- These processes **open the soil to the processes of mechanical and chemical weathering.** (1 SRP = 2m)

EXERCISE 5

Read the answer to the question on the factors that control the weathering process on pages 52 & 53 of the workbook and fill in the appropriate blanks.

CHAPTER 7

KARST

EXERCISE 1

Read the introduction and fill in the blanks on karst on pages 54 - 57 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 57

SAMPLE QUESTION:

EXPLAIN HOW THE BURREN WAS FORMED?

SAMPLE MODEL ANSWER 16:

The Burren

- **The Burren is a very distinctive landscape. It resembles a desert environment because of its lack of vegetation and surface water.** (1 SRP = 2m)
- **Its lacks vegetation and surface water due to the nature of it's underlying rock which is limestone. It is permeable and soluble and easily weathered by the process of carbonation.**
- **The Burren extends over 360 sq kms, rising to a height of 340m, extending across Clare and Galway.** (1 SRP = 2m)
- It has **unique surface features** such as limestone pavements and **underground features** such as caves, stalactites and stalagmites.
- It was formed during the **Carboniferous Geological Period** at the bottom of a warm shallow sea, 350m years ago, due to the actions of river, glacial and solutional processes. (1 SRP = 2m)
- **Skeletons** of marine life, corals + seashells were deposited in **strata** on the bed of a **tropical sea**. (1 SRP = 2m)
- The top layers **compressed** the bottom layers into hard rock. (1 SRP = 2m)
- As a result limestone is laid down in **layers** which are separated by bedding planes. It is a **well stratified rock**. (1 SRP = 2m)
- **Calcium Carbonate** from the bones of the decayed marine life **cemented** the deposits into **limestone**. (1 SRP = 2m)
- **During the Armorican Mountain building period the sedimentary rocks, mostly limestone, were uplifted and fractured to form joints.** (1SRP = 2m)
- The Burren **lacks surface drainage** because **limestone is permeable** – the only surface drainage is **the Caher River** in the NW which flows over **impermeable till (boulder clay)** deposited by **the glaciers** during the last ice age. (1SRP = 2m)

- The highest point is **Slieve Elva** – 340m. The limestone on Slieve Elva is **capped by shale and sandstone** indicating that the Burren was, in the past, covered by these rocks which were **removed by glacial erosion**. (1 SRP = 2m)
- The granite **erratics** indicate that glacial deposition was active in the area. (1 SRP = 2m)
- In the past the Burren was covered in **forests**. The forests were removed by early settlers causing **soil erosion**. (1 SRP = 2m)
- There is evidence of folding at **Mullaghmore**. (1SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on surface features on page 58 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the answer to the question on underground features on pages 59 and 60 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer and fill in the key points to your workbook on page 51

SAMPLE QUESTION:

WITH THE AID OF DIAGRAMS EXPLAIN THE CYCLE OF EROSION IN A KARST AREA

SAMPLE MODEL ANSWER 17:

The Cycle Of Erosion In Karst Areas

- **A Cycle of Erosion explains the evolution of a Karst Landscape**. There are **three stages** in the cycle: **the youthful stage, the mature stage and the old age stage**. (1 SRP = 2m)
- **The major processes involved are River Erosion, Carbonation and collapse**. (1 SRP = 2m)

Youthful Stage

- **Rivers flow normally**, forming **river valleys** on the **overlying impermeable rocks** which are eventually **eroded to reveal limestone**. (1 SRP = 2m)
- The rivers are **superimposed** onto **the underlying limestone**. (1 SRP = 2m)
- Overtime, due to the process of **carbonation**, **joints** and **bedding planes are opened up**. (1 SRP = 2m)

Mature Stage

- All the **rivers have disappeared underground** via **swallow holes**. (1 SRP = 2m)
- **Caves** are formed under the surface and overtime **the roof of the caves may collapse**. (1 SRP = 2m)
- Large hollows, **dolines**, (a serbo croat word meaning valley/hollow) may form. Poulawallan, near the Glen of Clab, is a doline.(1 SRP 2m)
- The dolines may unite forming **uvalas** (slav word_) and **poljes**. (1 SRP = 2m)

Old Age Stage

- All the **limestone has now been eroded** by carbonation revealing the **underlying layer of impermeable rock** beneath the limestone. (1 SRP = 2m)
- The whole **surface has been lowered** with only **small hills – Hums** – remaining. (1 SRP = 2m)
- **The cycle of erosion recommences** on the underlying impermeable rocks. (1 SRP = 2m)

Focus on Old Age Karst in Guilin, China:

- **Tower karst** in Guilin consists of isolated tower like hills **up to 200 metres high** separated by flat low-lying plains. (1 SRP = 2m)
- These tower like hillocks called '**hums**' represent the old age stage of karst development. (1 SRP = 2m)
- The **heavy monsoon rains** have led to the rapid erosion by rivers e.g. Li river and coupled with **high sub-tropical temperatures** encouraged **high levels of chemical weathering** to create this unique picturesque landscape. (1 SRP = 2m)
- The Burren in Co. Clare is between the youthful stage and mature stage in the Cycle of Erosion. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 6

Read the answer to the question on human interaction with the Burren on pages 62 & 63 of the workbook and fill in the appropriate blanks.

CHAPTER 8

RIVERS

EXERCISE 1

Read the introduction and fill in the blanks to rivers from pages 64 - 67 of the workbook

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 68

SAMPLE QUESTION:

WITH THE AID OF A DIAGRAM DISCUSS THE FORMATION OF ANY FEATURE FOUND IN THE UPPER COURSE OF A RIVER?

SAMPLE MODEL ANSWER 18:

Feature/landform of fluvial erosion (V-shaped valley and Interlocking spurs)

- Rivers are an important erosive agent shaping the Irish landscape. One features found along a river's youthful stage is a **V Shaped Valley with Interlocking Spurs**. (1 SRP = 2m)
- **The major processes** involved in the formation of these features are **Vertical erosion, Hydraulic Action, Attrition and Abrasion**. (1 SRP = 2m)
- In the upper course youthful rivers contain **little water** because they are only starting their life cycle. They also have a **small load**. (1 SRP = 2m)
- Their power is used to overcome the friction of the banks. Erosion is **vertical** and consequently the bed and sides of the river valley are very steep, forming a V Shaped Valley. (1 SRP = 2m)
- Rivers erode their beds and sides by **hydraulic action, attrition and abrasion**. (1 SRP = 2m)
- As the river comes down the mountain it loosens material by **hydraulic action**. (1 SRP = 2m)
- **Hydraulic action** is the process whereby the weight and speed of the river opens cracks and loosens rocks from the sides and bed of the valley. (1 SRP = 2m)
- The loosened rocks are further eroded by **attrition** – friction within the load itself and friction between the load and the river bed. (1 SRP = 2m)
- Some of this loose material is used to erode the bed and sides by **abrasion**. Abrasion is the wearing away of the bed and sides by the scouring action of the load. (1 SRP = 2m)
- The River Liffey, near its source at Kippure Mountain, Co. Wicklow flows through a V shaped valley.(1 SRP = 2m)

- Youthful rivers **lack the power to go through obstacles** and instead **swing around them**. (1 SRP = 2m)
- Erosion, in the form of **hydraulic action** and **attrition** is powerful on the **concave banks** of the bends causing **spurs** which alternate on each side of the river to interlock (like jigsaw pieces) forming **Interlocking Spurs**. (1 SRP = 2m)
- Interlocking spurs are found on the River Shannon, near its source, Co. Cavan. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on a lower course feature on pages 68 & 69 of the workbook and fill in the appropriate blanks.

CHAPTER 9

COASTAL PROCESSES

EXERCISE 1

Read the introduction and fill in the blanks to coastal processes from pages 70 - 74 of the workbook

EXERCISE 2

Read the answer to the question on a landform of erosion on pages 74 & 75 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer and fill in the key points to your workbook on pages 75 & 76

SAMPLE QUESTION:

WITH THE AID OF A DIAGRAM EXPLAIN THE FORMATION OF ONE FEATURE FORMED BY MARINE DEPOSITION?

SAMPLE MODEL ANSWER 19:

Feature/landform of Marine Deposition (Sand spit)

- **Sand spits are a feature of marine deposition.** (1 SRP = 2m)
- **The major processes involved in their formation are Longshore Drift and Constructive Waves** (1 SRP = 2m)
- **A spit is a long narrow ridge of sand joined at one end to the land with the other end terminating in the sea.** (1 SRP = 2m)
- It is formed due to a **sharp change in the direction of the coastline** such as **at river mouths** and **bays**. It is **also formed** by **human interaction** with the coastline – the building of jetties or piers. (1 SRP = 2m)
- At these places **longshore drift deposits eroded material faster than it is removed** and over time a **ridge of material forms**. (1 SRP = 2m)
- It may be **curved or hooked** due to the **waves swinging into the bay obliquely**. However, the **curved nature may change in the direction of the prevailing wind**. (1 SRP = 2m)

- Spits contain **beaches** which often have **sand dunes**. **Vegetation** often colonises the sand dunes. These sand dunes are **stabilised by planting marram grass**. (1 SRP = 2m)
- **Bertra Beach in Co. Mayo** and the **Bull Island in Co. Dublin** are sand spits. (1 SRP = 2m)
- Sometimes a spit may connect two headlands and a **bar** is formed. (1 SRP = 2m)
- Over time the area of water behind the bar will be infilled by sand blown by wind or deposited by waves in stormy weather forming a **lagoon**. (1 SRP = 2m)
- Bars and lagoons are formed along **the Wexford coast**. (1 SRP = 2m)
- Spits **will continue to grow until deposition stops**. (1 SRP = 2m)
- **Deposition** of material may be **halted if the rate of removal of material is greater than the rate of deposition** – where a river enters the sea. (1 SRP = 2m)
- **Tombolos** form when a spit or a bar joins an island with the mainland e.g. the Sutton Tombolo links Howth with Co. Dublin. (1 SRP = 2m)

EDCO: Insert diagram similar to Fig 6.7 on page 31 of Revise Wise Geo for Junior Cert

CHAPTER 10

GLACIAL PROCESSES

EXERCISE 1

Read the introduction and fill in the blanks to glacial processes from pages 77 - 80 of the workbook

EXERCISE 2

Read the answer to the question on a landform of erosion on pages 81 & 82 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer and fill in the key points to your workbook on pages 82 & 83

SAMPLE QUESTION:

WITH THE AID OF A DIAGRAM EXPLAIN THE FORMATION OF ONE LANDFORM FORMED BY GLACIAL DEPOSITION?

SAMPLE MODEL ANSWER 20:

Feature/landform of Glacial Deposition (**Moraines**)

- When **ablation** is **greater than accumulation** the **ice deposits** material. Material deposited by the ice is called **Drift**. (1 SRP = 2m)
- **Moraines are a feature of glacial deposition**. (1 SRP = 2m)
- **The major processes involved in their formation are Melting and Deposition**. (1 SRP = 2m)
- Unlike rivers **glaciers do not sort out material when they deposit it** – large and small boulders are deposited simultaneously. (1 SRP = 2m)
- This mixture of deposited material is a **Moraine** which may be seen after the ice retreats. (1 SRP = 2m)
- As a glacier moves along this dumped material is pushed to either side forming a **Lateral Moraine**. (1 SRP = 2m)
- When two glaciers unite the lateral moraines of both join up forming a **Medial Moraine**. (1 SRP = 2m)
- When the glacier finally rests the material dumped in front forms a **Terminal Moraine**. The terminal moraine marks the furthest advance of the ice sheet. (1 SRP = 2m)

- Behind the terminal moraine is the **Recessional Moraine** – material deposited when the ice sheet receded and stopped for a period of time. (1 SRP = 2m)
- The material dumped underneath forms a **Ground Moraine** e.g. the **Central Plain of Ireland** comprises a ground moraine. (1 SRP = 2m)
- Sometimes as temperatures steadily increased the ice melted rapidly and deposited material in an apron like manner across the area, forming **Drift**. (1 SRP = 2m)
- Drift is composed of glacial till and **fluvio – glacial material**. (1 SRP = 2m)
- Often the terminal moraines may be so large that they block valleys damming rivers forming **moraine – dammed lakes**. (1 SRP = 2m)
- Upper and Lower Lakes in Glendalough, the lakes of Killarney and Lake Como in Italy are moraine – dammed lakes. (1 SRP = 2m)
- Moraines can be found in Glendalough, Co. Wicklow and Coomshingaun Lake, Co. Waterford. (1 SRP = 2m)

(15 SRPs = 30m)

CHAPTER 11

MASS MOVEMENT

EXERCISE 1

Read the introduction and fill in the blanks to the processes of mass movement from pages 84 - 86 of the workbook

EXERCISE 2

Read the answer to the question on slow and rapid mass movement on pages 86 & 88 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer and fill in the key points to your workbook on pages 88 & 89

SAMPLE QUESTION:

WITH THE AID OF DIAGRAMS DISCUSS VARIOUS TYPES OF RAPID MASS MOVEMENT?

SAMPLE MODEL ANSWER 21:

a) Earthflows

- **The downslope movement of water-saturated soil in areas where the saturated water is unable to penetrate the underlying rock.** (1 SRP = 2m)
- It occurs in **humid regions** where there is an abundant supply of **moisture** and where the **rocks** are **weathered**. (1 SRP = 2m)
- After heavy rainfall these soils become saturated and begin to move downslope, leaving a **curved shaped scar** where the material that moved downslope was. (1 SRP = 2m)
- This material is **deposited at the bottom** of the slope. (1 SRP = 2m)

b) Rotational Slumping:

- Slumping occurs when **the base of a slope is undercut by weathering and erosion or by human activities.** (1 SRP = 2m)
- The upper part of the slope falls down or slumps. (1 SRP = 2m)
- It is very **common along fault lines or bedding planes.** If these lines of weakness are **spoon shaped or curved** the falling material may **rotate** as it moves down hill and its **upper surface** may **tilt back towards the newly exposed hill side** .e.g. the North Antrim coast. (1 SRP = 2m)

c) Rockslides and Rockfalls

- **Rockslides** involve the collapse of large quantities of **bedrock** while **Rockfalls** involve the collapse of **loose boulders.** (1 SRP = 2m)
- They occur in **mountainous areas** which have been **subjected to glaciation** and **river action** and along **cliffs** subject to **coastal action.** (1 SRP = 2m)
- **Human activity** can also cause rockslides and rockfalls. (1 SRP = 2m)
- The **dumped material** may often **block rivers forming lakes.** (1 SRP = 2m)
- There are often rockslides in the Scalp in Co. Wicklow. (1 SRP = 2m)

d) Subsidence

- Vertical downward movement of the earth's surface brought about by removal of material from under the surface of the ground by mechanical or chemical weathering. (1 SRP = 2m)
- Coal mining may lead to subsidence. (1 SRP = 2m)
- The collapse of underground caves in limestone regions such as the Burren is often due to subsidence. (1 SRP = 2m)

(15 SRPs = 30m)

CHAPTER 12

ISOSTACY AND FLUVIAL ADJUSTMENT

EXERCISE 1

Fill in the blanks to the diagram on river rejuvenation on page 90 of the workbook

EXERCISE 2

Read the answer to the question on river rejuvenation on pages 90 - 92 of the workbook and fill in the appropriate blanks.

CHAPTER 13

HUMAN INTERACTION WITH SURFACE PROCESSES

EXERCISE 1

Read the following sample answer and fill in the key points to your workbook on pages 93 & 94

SAMPLE QUESTION:

DISCUSS REFERRING TO A CASE STUDY OF YOUR CHOICE, HOW HUMANS INTERACT WITH RIVERS?

SAMPLE MODEL ANSWER 22:

Case study: THE THREE GORGES DAM

- The Three Gorges Dam is a hydroelectric dam that spans the Yangtze River, China. The Yangtze is the third largest river in the world. When the project is completed it will be the world's largest hydroelectric power station when fully operational in 2011. The dam is 600 feet high, 1.5 miles across and will cost \$24 billion. (1 SRP = 2m)
- The project is intended to end centuries of floods along the basin of the Yangtze and to provide energy to fuel the country's economic boom. The project aims to alleviate poverty in China by attracting investment to soak up surplus agricultural labour. (1 SRP = 2m)
- The project involves transportation of more than 10 billion cubic metres of rock and earth and the displacement of millions of people. 60,000 ha will be flooded by the 640 km long reservoir. For more than

600kms (372 miles) upstream, the Yangtze will become more lake than river. It was designed to supply 10% of China's electricity needs but will only supply 3% when completed due to China's rapidly increasing demand for energy. (1 SRP = 2m)

Advantages Of The Project

1) Flood Control

- The Yangtze is prone to overflow its banks with serious consequences. Millions of people live downstream of the dam and many large cities like Shanghai are built on the river. Farm land, used to grow the rice crop, borders the river. Many industrial areas have also been built on the banks of the river. (1 SRP = 2m)
- The river flooded in 1954 drowning 33,000 and forcing the evacuation of almost 20 million people. The river flooded again in 1998. To reduce further flooding the reservoir was built to hold 22 cubic metres of water which will reduce the frequency of flooding from once every ten years to once every one hundred years. (1 SRP = 2m)

2) Improved air quality

- Consumption of coal will fall by one third on completion of the project reducing carbon dioxide emission into the atmosphere. (1 SRP = 2m)

3) Improved navigation along the river

- The number of ships passing through the Three Gorges Dam has increased and will continue to increase as will the volume of cargo. This increase in the freight handling capacity of the Yangtze will also reduce global warming through reduced CO2 emissions. Fewer goods will now travel by road reducing greenhouse emissions even more. (1 SRP = 2m)

4) Aforestation

- Increased planting of trees upstream of the dam will reduce the impact of flooding. The trees will absorb precipitation and hold the soil in place. The trees will also absorb harmful CO2 emissions. (1 SRP = 2m)

5) Waste Management

- New waste water treatment plants have been constructed to reduce the water pollution from the city of Chongqing and the surrounding area. Almost 70% of the waste water is treated before being pumped into the Three Gorges reservoir. (1 SRP = 2m)

Disadvantages of the project

1) Displacement of millions of people

- The dam has set records for the number of people forced to leave their homes. 1.4 billion people will have been displaced by the time the project has been completed. Thirteen cities will have been flooded along with 140 towns and over 1300 villages. There is evidence of human rights violations and resettlement difficulties. (1 SRP = 2m)

2) Water quality has declined

- The submergence of mines, waste dumps and industrial areas are creating major environmental problems. The presence of industrial estates upstream is adding to the problem. The dam is preventing the dispersal of pollutants, algal blooms have increased and the quality of water for domestic consumption has deteriorated. (1 SRP = 2m)

3) Wildlife is being affected

- The future of the Siberian Crane is threatened. Its winter wetland will be destroyed by the Three Gorges Dam. The future of the Yangtze river dolphin is under threat. (1 SRP = 2m)

4) River bank erosion

- Erosion of the reservoir and downstream riverbanks is causing landslides and threatening one of the world's biggest fisheries in the East China Sea. Annual catches may be reduced by one million tons due to the decline in freshwater and sediment reaching the sea. (1 SRP = 2m)
- Landslides have triggered 50 metre high waves on the reservoir behind the dam. The banks of the reservoir have collapsed in 91 places. (1 SRP = 2m)
- The dam is located on a seismic fault. The combined weight of the reservoir and the dam could cause quakes as happened in the Boulder Dam in the USA. (1 SRP = 2m)

5) Sedimentation

- The area devoted to forestation has been reduced. Consequently, soil erosion is increasing. Millions of tons of sediment are deposited in the river on a yearly basis. The forced displacement of millions will increase deforestation increasing sedimentation. Silt accumulating behind the dam could effect the proper functioning of the dam and reduce the amount of silt transported by the river to its delta leading to increased erosion in the Yangtze delta. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 95

SAMPLE QUESTION:

DISCUSS REFERRING TO A CASE STUDY OF YOUR CHOICE, HOW HUMANS INTERACT WITH THE COAST?

SAMPLE MODEL ANSWER 23

Human interaction with coastal processes: Bull Island, Co. Dublin

- *Human interaction* with coastal processes was directly responsible for the formation of Bull Island. (1 SRP = 2 marks)
- Bull Island is an island that is almost *200 years old*. It is located on the north side of Dublin between Clontarf and Sutton. (1 SRP = 2 marks)
- The *Great South Wall* was constructed in the 1700s to reduce silting in Dublin Bay, which was caused by the process of longshore drift. However, its construction failed to deepen the river channels in the bay. (1 SRP = 2 marks)
- In 1801, Captain William Bligh suggested that a *wall* should be constructed on the *north* side of the river parallel to the Great South Wall. Construction began in 1819 and was completed in 1824. It was made of granite and limestone. (1 SRP = 2 marks)
- The wall was *2.81 km long*. The construction was a success. Material was prevented from entering and building up in the bay. (1 SRP = 2 marks)
- However, this material was now being deposited north of the Bull Wall, almost half a kilometre off the shore. The Bull Wall had led to the *creation* of a *spit*, which over a 190-year period formed the North Bull Island. Today the island is 5 km long and almost 1 km wide. (1 SRP = 2 marks)
- As a consequence of *wave refraction*, sediment has been deposited at the northern end of the island, giving the island a curved or banana-shaped appearance. (1 SRP = 2 marks)
- Today, the island has an extensive system of *sand dunes* that run along the seaward side of the island. The dunes are prevented from migrating inland by marram grass. (1 SRP = 2 marks)
- The island is home to two golf links and a beach. The beach is almost 5 km long. It provides a great *recreational amenity* for Dubliners. (1 SRP = 2 marks)
- Furthermore, the presence of a salt marsh and tidal mud has turned the island into a major *bird sanctuary*. Birds from the Arctic migrate to the island every winter. (1 SRP = 2 marks)

- Dublin City Council opened the Bull Island *Interpretative Centre* in 1986. The purpose of the centre is to aid the understanding of the unique flora and fauna that inhabit the island. The centre also studies the specialised habitats of the sand dunes and salt marshes. (1 SRP = 2 marks)
- Bull Island was declared a *UNESCO Biosphere* in 1981 and a National Nature Reserve in 1988. It was declared a Special Amenity Area in 1994. (1 SRP = 2 marks)
- Thousands of people are attracted to the island every year to avail of the recreational amenities the island has to offer. It is also used by *kite surfers* and *walkers*. (1 SRP = 2 marks)
- As a consequence of these recreational amenities, the dunes and the *marram grass* that is *planted* to stop inward movement of the dunes have been damaged. (1 SRP = 2 marks)

15 SRPs = 30 marks

CHAPTER 14

WEATHER & WEATHER MAPS

EXERCISE 1

Read and fill in the blanks to weather and weather maps for the short questions from pages 96 - 101 of the workbook

REGIONAL
GEOGRAPHY
Section
2

CHAPTER 15

REGIONAL INTRODUCTION

EXERCISE 1

Read and fill in the blanks to the regional introduction for the short questions from pages 103 - 105 of the workbook

CHAPTER 16

REGION 1: PERIPHERAL IRISH REGION

The Border, Midlands & West of Ireland

EXERCISE 1

Draw and map of Ireland to include your peripheral Irish region into your copybook similar to the map in the workbook page 106

EXERCISE 2

Read the answer to the question on physical processes on pages 107 - 109 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer and fill in the key points to your workbook on page 109 & 110

SAMPLE QUESTION:

OUTLINE THE DEVELOPMENT OF AGRICULTURE (PRIMARY ECONOMIC ACTIVITY) IN A PERIPHERAL IRISH REGION YOU HAVE STUDIED?

PROBLEMS WITH AGRICULTURE:

SAMPLE MODEL ANSWER 24:

PROBLEMS WITH AGRICULTURE

- The environmental conditions in the region are not conducive to modern capital intensive agricultural production due to a combination of physical and social-economic factors: (1 SRP =2m)

PHYSICAL PROBLEMS:

- The high levels of precipitation, poor shallow infertile soils and difficult topography limit farming to predominantly pastoral dry stock farming on the lowlands areas and sheep farming on upland areas which are not very profitable. . (1 SRP =2m)
- The peripheral geographical location from big urban markets increases the cost of transporting goods. (1 SRP =2m)

SOCIO-ECONOMIC PROBLEMS:

- Farms in the region are smaller than the national average.

Statistic:

NATIONAL AVERAGE FARM SIZE = 20 HECTARES
--

FARMS IN THE REGION UNDER 10 HECTARES = 30%

- The age profile of farmers is older than the national average as 50% of all farmers are over 55 years of age and 30% are over 65 years of age. This results in more conservative farmers who are not as willing as young to change to more profitable work practices. (1 SRP =2m)

CONSEQUENCES OF THESE PROBLEMS:

- Only a small minority of farms (14%) in the B.M.W. are making an adequate standard of living and most farmers have off farm jobs to supplement their farm income. (1 SRP =2m)
- Poor future prospects in the agricultural sector have resulted in a trend of out-migration and rural depopulation.

AGRICULTURAL ACTIVITIES IN THE REGION:

- The mild wet and windy cool temperate climate coupled with poor shallow infertile soils and a rugged relief favours grass growth for grazing and for fodder. (1 SRP =2m)

Definition:

FODDER: This is any type of feed for animals e.g. when grass is cut and baled into silage where it is used to feed cattle during the winter months.

- Livestock rearing dominates and most cattle are sold on as stores (young cattle between 1 – 2 years old) to bigger farmers in the South and east region where they are fattened. (1 SRP =2m)
- Market gardening is unsuitable as the domestic market for perishable goods is very small and tillage farming is not practiced as precipitation levels are too high. (1 SRP =2m)
- Dairying is limited and confined to farms on well-drained lowlands. Sheep farming is very popular on mountain slopes and on the limestone lowlands. (1 SRP =2m)
- Farming is the most dominant economic activity in the region but income levels are only 50% of those in the South and East region. . (1 SRP =2m)

Statistic:

63% of farms in the Republic of Ireland are located in the region

IMPACT OF THE E.U.'S COMMON AGRICULTURAL POLICY:

- The Common Agricultural Policy has a profound impact on the development of farming in Ireland since 1973. Larger farmers in the East and South of Ireland have benefited disproportionately in comparison to the smaller farmers in the B.M.W. region. Today farmers in the B.M.W. region are still heavily dependant on income support through subsidies from the E.U. (1 SRP =2m)
- Through the 'Guarantee Fund' the E.U. bought up all the surplus farm produce that could not be sold and this guaranteed a high price for farmers called the 'Intervention Price'. (1 SRP =2m)

- This coupled with the 'Guidance Fund' which allocated capital grants to farmers for improvements in machinery and farm buildings increased productivity substantially but benefited the larger commercial farms of the South and East rather than the poorer farmers of the B.M.W.. (1 SRP =2m)
- In 1984 a 'quota system' for milk was introduced benefiting the larger farmers and many small scale farmers switched from dairy to sheep. This was due primarily to the introduction of 'headage payments' which guaranteed a set price for every head of sheep on your farm. This led to a doubling of sheep numbers in the 15 years up to 1995 resulting in overgrazing. Headage payments have now been replaced by the 'Single Farm Subsidy' which aims to reduce overgrazing. (1 SRP =2m)
- The 2003 C.A.P. reforms i.e. the single farm subsidy and the 'Rural Environmental Protection Scheme' (REPS) have increased income levels substantially but farmers in the region are still heavily dependant on income support through subsidies from the E.U. (1 SRP =2m)

(15 SRP's = 30 marks)

Definition:

REPS: The rural environmental protection scheme provides direct payments to farmers in return for the implementation of environmental conservation schemes.

EXERCISE 4

Read the answer to the question on fishing and fish farming (primary economic activity) on pages 110 and 112 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the answer to the question on secondary economic activities on pages 113 - 115 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the following sample answer and fill in the key points to your workbook on page 116

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF TRANSPORT, TOURISM AND SERVICES (TERTIARY ECONOMIC ACTIVITIES) IN A PERIPHERAL IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 25:

TRANSPORT:

- The transport infrastructure highlights the peripherality of the B.M.W. region as the road and rail system are on the fringes of a radial national network focused on Dublin. (1 SRP =2m)
- Up till 2000 there was a serious deficit in transport infrastructure as roads in the region were narrow, poorly aligned and had poor surfaces. There was a complete absence of a quality North-South national primary road network and the 'Western rail corridor' from Limerick to Sligo had been closed for decades. (1 SRP =2m)

GOVERNMENT STRATEGY TO DEVELOP TRANSPORT

- Part of the Irish Governments National Development Plan (N.D.P.) 2000-2006 was to upgrade transport systems e.g. roads in line with the National Spatial Strategy 2002. (1 SRP =2m)

Explanation:

NATIONAL DEVELOPMENT PLANS (N.D.P.): These were designed to transform Ireland to create a better quality of life for all its people by:

N.D.P. 1: 2000 – 2006

N.D.P. 2: 2007 – 2013

1. Improving infrastructure and promoting balanced and sustainable regional development
2. Promote skills and education for high value employment
3. Redistribution of wealth to foster an inclusive society

- In the B.M.W. region this focused primarily on the development of Strategic road corridors (motorways) linking major urban centres of the region to Dublin city:
 1. M4 (Sligo Town to Dublin)
 2. M5 (Castlebar Town to Dublin)
 3. M6 (Galway city to Dublin) **(1 SRP =2m)**

Definition:

National Spatial Strategy 2002: This is a government plan to reduce Dublin's dominance and encourage dispersal of the population away from the Greater Dublin Area (G.D.A.). See page -----

IMPACT OF THE 'TRANSPORT 21 PLAN' ON THE REGION

- The governments 'Transport 21 Plan' (2005-2015) will envisage spending 33 billion euros under the National Development Plan (N.D.P.:2) 2007-2013.
- 1. This will include the development of an 'Atlantic Corridor' (motorway) which will run from Donegal in the North to Waterford in the South linking all major urban centres in the B.M.W. region along the Western seaboard including Letterkenny, Sligo, Castlebar, Knock airport and Galway city. **(1 SRP =2m)**
- 2. It is planned to reopen sections of the 'Western rail corridor' such as the railway line between Ennis and Limerick. There are plans to open up the Galway to Athenry line in 2009 and the Tuam to Sligo via Claremorris and Knock airport line at a later date. **(1 SRP =2m)**
- The growth of business and tourism in the region has been aided by the development of Ireland West airport in Knock Co. Mayo and Galway airport. All these improvements under the N.D.P. in upgrading the transport infrastructure will significantly reduce the peripherality of the B.M.W. region. **(1 SRP =2m)**

TOURISM:

- Tourism is the most valuable tertiary activity in the region but it is not evenly spread throughout it. The western seaboard is much more popular with tourists than inland areas. **(1 SRP =2m)**
- The region attracts over 3.5m tourists per annum due to the following attractions:
 1. Scenic Beauty: The unspoilt quiet blue flag beaches, rugged coastlines and mountain scenery along the Western seaboard.
 2. Cultural Towns: All towns in the region e.g. Bundoran Co. Donegal, Cliften Co. Galway and Westport Co. Mayo are steeped in Irish culture and tradition with many music and dance festivals.
 3. Outdoor Activities: The region has many outdoor sports and activities such as angling, horse-riding, surfing, golf and hill-walking. **(1 SRP =2m)**

PROBLEMS WITH TOURISM:

- The key problems in the development of tourism in the region are:
 1. The lack of infrastructure limits direct access to the region and makes it more expensive to visit.
 2. Tourists are less likely to visit the region since the abolition of the Shannon stopover i.e. the loss of its gateway status whereby all flights from the U.S.A. originally had to land in Shannon first. Aerlingus also closed its Shannon to Heathrow route further worsening the problem. However from April 2009 passengers to the U.S.A. will clear customs at Shannon and this should increase tourist numbers. Currently the most popular point of entry into the country is Dublin and therefore tourists are less likely to visit the region.
 3. Tourism in the region is mainly seasonal being principally confined to the summer months of July and August and this creates the problem of only part-time jobs.

4. Visiting Ireland has become increasingly expensive as we have become more economically developed leading to a high cost of living and this along with the weakening dollar vis-a-vis the euro has deterred many U.S. tourists. (2 SRPs =2m + 2m)

FUTURE STRATEGY:

- To invest in specific tourist attractions most notably those that generate a year round industry to create full-time jobs e.g. sports such as Golf and angling and cultural events in towns particularly in the off season. (1 SRP =2m)
- To continually improve the transport infrastructure and to invest in tourist accommodation to suit all budgets e.g. from high class hotels to caravan, camping and self-catering accommodation. (1 SRP =2m)
- To upgrade the marketing and advertising of the region at home and abroad focusing on the ease of accessibility and the key attractions i.e. scenic beauty, cultural towns and outdoor activities. (1 SRP =2m)

SERVICES:

- A small regional market and a large trend of out-migration particularly to the Greater Dublin Area (G.D.A.) has made the region less attractive for large scale development of services. (1 SRP =2m)
- It is hoped that improvements in communications and infrastructure will attract high value inward investment creating jobs in the services sector and thus stem the flow of out-migration. (1 SRP =2m)
- The region has been successful in attracting public services i.e. government departments due to the government decentralisation scheme. (1 SRP =2m)

(15 SRP's = 30 marks)

EXERCISE 7

Read the following sample answer and fill in the key points to your workbook on page 117

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF HUMAN PROCESSES IN A PERIPHERAL IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 26:

POPULATION:

- The B.M.W. region covers just under half of the land area of the country but only has 27% of the population. The distribution of the population is related to the topography of the region. Along the Atlantic seaboard farming, fishing and tourism support a high density rural population of 160 per square kilometre while in contrast further inland the mountainous areas and poorly drained lowlands are sparsely populated. (1 SRP =2m)
- The region suffered from rural depopulation due to emigration up till 1990 and migration to the G.D.A. (Greater Dublin Area) from 1992 onwards. A number of physical and socio-economic factors led to a 70% decrease in the regions population during the 20th century. (1 SRP =2m)

Physical factors:

1. Marginal geographic location
2. Difficult physical environment
3. Poor infertile soils (1 SRP =2m)

Socio-economic factors

1. Poor infrastructure
2. Poorly developed agricultural based economy
3. Small unprofitable farm holdings (1 SRP =2m)

- Up till 1990 unemployment in the region forced people to emigrate in search of employment and a better quality of life and this impacted on the region by reducing marriage rates and birth rates resulting in an overall natural decrease in population. **(1 SRP =2m)**
- During the Celtic Tiger era young people from the region are more skilled and educated but a lack of inward investment in the high value sector led to a 'brain drain' of skilled graduates to the G.D.A. (Greater Dublin Area) where high value jobs were more plentiful. (only 13% of graduates from the region find employment there) **(1 SRP =2m)**
- Outward migration increases the 'Dependency Ratio' as those leaving are predominantly in the 16 – 35 age category. This puts pressure on the working population of the region to provide for those who don't work i.e. the very young and very old **(1 SRP =2m)**

SOLUTIONS TO STIMULATE REGIONAL DEVELOPMENT

- The E.U. and the Irish government have focused on balancing regional development to stem the flow of out-migration from the B.M.W. region. **(1 SRP =2m)**
- The European Union has helped the economic development of the region by classifying it as an 'Objective 1 status' region thus receiving the maximum grant aid through the 'Cohesion Fund' (see page _____). **(1 SRP =2m)**

Definition:

Objective 1 status: This is the maximum funding given by the E.U. to help develop regions whose G.D.P. is less than 75% of the E.U. average

1. The European Regional Development Fund (E.R.D.F.) which assisted with education and training.
 2. European Structural Funds to develop transport and communications in the region. **(1 SRP =2m)**
- The Irish government's response was to introduce 'National Development Plan's to integrate strategic development frameworks for regional development.
 1. Plan 1: 2000-2006 = Budget of 57 billion
 2. Plan 2: 2007-2013 = Budget of 184 billion **(1 SRP =2m)**

HOW THE N.D.P. WILL DEVELOP THE B.M.W. REGION

1. Improving access to the region through the 'Transport 21 Plan' e.g. the Western rail corridor and the Atlantic road corridor to encourage inward investment.
2. Attract industries based on high value technology.
3. Improve services and quality of life to keep people in the region.
4. To decentralise government departments to more rural areas and provide jobs in small towns e.g. Ballina.
5. To target investment in Gateways and Hubs as part of the National Spatial Strategy. The government also allocated 300million (2008-2010) to a 'Gateway Innovation Fund' (G.I.F.) to help stimulate gateway development in the B.M.W region. **(2 SRPs =2m + 2m)**

Explanation:

NATIONAL SPATIAL STRATEGY 2002

This involves the large scale development of the following:

- GATEWAYS: The development of other large urban centres e.g. Galway to counteract the dominance of Dublin.
- HUBS: Smaller urban centres that help to disperse development away from the gateways e.g. Tuam from Galway city.
- STRATEGIC ROAD CORRIDORS: To provide efficient links i.e. motorways between gateways, hubs and Dublin.

URBANISATION

- The 2006 census showed a significant increase in the population of large urban centres such as Galway city, the nodal centre of the region along with other county towns e.g. Castlebar Co. Mayo and Sligo town Co. Sligo and Letterkenny Co. Donegal. **(1 SRP =2m)**
- Galway city (population 72,000) has managed to attract large scale high value investment and has become the administrative, financial, commercial, educational and industrial capital of the B.M.W. region. **(1 SRP =2m)**
- These large multi-functional settlements (over 5,000 people) have managed to replace the traditional industries which have closed down with new industrial enterprises particularly in the services sector. **(1 SRP =2m)**
- Smaller towns (under 5,000 people) have not been able to replace the declining traditional industries and have consequently declined in population. This is highlighted by the 'Western Development Commission' who favour evenly spread development throughout the region. **(1 SRP =2m)**

(15 SRP's = 30 marks)

CHAPTER 17

REGION 2: CORE IRISH REGION

The South & East

EXERCISE 1

Draw and map of Ireland to include your core Irish region into your copybook similar to the map in the workbook page 118

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 119

SAMPLE QUESTION:

OUTLINE THE PHYSICAL PROCESSES ASSOCIATED WITH A CORE IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 27:

RELIEF & DRAINAGE

- The East and South region has a low lying undulating topography or a landscape of low lying gently rolling hills. **(1 SRP =2m)**
- The only exception to this is on the South West coast where the MacGillycuddy's Reeks run in an East to West direction to the Atlantic Ocean. **(1 SRP =2m)**

- The region is very well drained by a series of large rivers which flow into the Celtic (south coast) and Irish (east coast) seas:
 1. In the South the rivers Lee, Bandon and Blackwater
 2. In the South East the rivers Suir, Nore, Barrow and Slaney
 3. In the East the rivers Liffey, Boyne and Vartry **(1 SRP =2m)**

SOILS

- The region consists of predominantly brown earth soils derived from limestone glacial drift which are deep, fertile, well-drained mineral soils ideal for capital intensive farming. **(1 SRP =2m)**
- Fertile alluvial soils are also found along the many large river floodplains as silt is deposited annually by laden-debris floodwaters. **(1 SRP =2m)**
- Some peat soils can be found on upland areas along the South-Western seaboard where precipitation levels are high. These soils have a poor mineral content, are shallow due to glacial erosion and are primarily suited to forestry. **(1 SRP =2m)**

CLIMATE

- The region has a cool temperate oceanic or maritime climate characteristic of Western Europe.
 1. Factors which influence this type of climate are:
 - a. The prevailing South West winds
 - b. Altitude
 - c. Distance from the Atlantic ocean
 - d. The North Atlantic current
 - e. Latitude **(2 SRPs =2m + 2m)**

TEMPERATURE:

- Temperatures are warm in summer averaging 15 – 17 degrees and winter temperatures are colder but yet mild averaging 4 – 5 degrees. **(1 SRP =2m)**
- Temperatures in the South of the region are fractionally warmer in winter and cooler in summer than the East of the region due to the influence of the North Atlantic current. **(1 SRP =2m)**
- This current regulates the temperature range i.e. the annual difference between the average highest temperature and the average lowest temperature in the South is small at only 11 degrees which is slightly lower than the East which is 13 degrees. **(1 SRP =2m)**

PRECIPITATION:

- Precipitation is predominantly in the form of rain that falls throughout the year with a winter maximum. Total rain ranges from 3,000mm per annum in the South of the region to under 700mm per annum in the East of the region. **(1 SRP =2m)**
- Frontal / Cyclonic rainfall occurs throughout the region due to belts of low pressure created out in the Atlantic and brought onshore by the South Westerly winds. **(1 SRP =2m)**
- Rainfall level decreases with distance from the Atlantic Ocean i.e. from 3,000mm per annum on the West coast to 650mm per annum on the East coast. **(1 SRP =2m)**
- Relief rainfall occurs on the mountains of the South-West coast, resulting in high levels of precipitation while the East of the region is in the rainshadow and receives much lower rainfall levels. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 3

Read the answer to the question on the development of agriculture (primary economic activity) on pages 120 and 121 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on page 116

SAMPLE QUESTION:

SAMPLE QUESTION: OUTLINE THE DEVELOPMENT OF MANUFACTURING INDUSTRY IN A CORE IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 28:

- The south and east region has many advantages for the location of industry:
 1. Modern high-tech industries prefer to locate in urban centres most of which are found in the South and East region i.e. Dublin, Cork, Limerick, Waterford and Kilkenny. **(1 SRP =2m)**
 2. The South and East of Ireland has a favourable geographical location in accessing other countries of Europe and this has led to the development of key trading ports i.e. Dublin port (Co. Dublin), Rosslare (Co. Wexford) and Ringaskiddy (Co. Cork). **(1 SRP =2m)**
 3. The city of Dublin has the main concentration of manufacturing in the South and East region due to its status as the political capital with a large consumer market, well developed communications system and large pool of workers. **(1 SRP =2m)**

CHANGING DEVELOPMENTS IN MANUFACTURING:

Stage 1: 1922 – 1960 (Native manufacturing)

- During this period over 1/3 of all traditional industry was located in Dublin and its growth was due to its proximity to the U.K., our biggest export market in areas such as brewing e.g. Guinness's, distilling e.g. Jameson, and food processing e.g. Cadburys. Native or traditional industries were protected from cheaper imports by tariffs. **(1 SRP =2m)**

Stage 2: 1960 – 1980 (Low value manufacturing from foreign M.N.C.'s)

- During the 1960's and 1970's there was rapid growth in manufacturing employment as branch plants of predominantly American multinational companies (M.N.C.'s) located in smaller urban areas of the region outside Dublin city where they mass produced basic industrial goods. **(1 SRP =2m)**
- Initial reasons for the influx of M.N.C.'s to the region were:
 1. Government grants
 2. Low corporation tax (12.5%)
 3. Cheap land
 4. Cheap labour
 5. Ready to occupy factories were provided.
 6. Support in recruiting and training workers by the I.D.A. (Industrial Development Authority)
 7. Easy access to E.U. markets after 1973. **(2 SRPs =2m + 2m)**

Stage 3: 1980 – 1990 (Economic recession)

- During the 1980's an international recession had a profound affect on the region's economy as many low cost branch plants of M.N.C.'s closed or downsized. **(1 SRP =2m)**
- The opening up of the Irish market to foreign competition from low cost producers in Eastern Europe and South-East Asia led to the closure of many native industries and branch plants resulting in massive job losses. **(1 SRP =2m)**

Stage 4: 1990 – 2008 (High value manufacturing from foreign M.N.C.'s)

- During the Celtic Tiger era from the 1990's until recently the Government promoted the region as a location for high-tech industry and this led to a new wave of foreign direct investment (F.D.I.). **(1 SRP =2m)**

- All urban centres i.e. cities managed to attract high tech knowledge based industry but none developed more than Dublin city. **(1 SRP =2m)**
- Advantages of Dublin for the location of knowledge based industry:
 1. Dublin is the region’s capital and it has become a nodal centre and focus of routeways for road, rail, sea and air transport networks.
 2. Dublin port is the country’s main port with over 1 million trucks passing through each year and Dublin airport is the country’s main airport with over 22 million passengers in 2007.
 3. The city has an ultra-modern communications network including infrastructure and modern serviced industrial estates e.g. Sandyford which are located on the cities ring motorway the M50.
 4. It is the country’s national education centre and its universities (Trinity, U.C.D. and D.C.U.) along with many institutes of technology provide thousands of skilled graduates needed for high-tech knowledge based industry especially I.C.T. **(2 SRPs =2m + 2m)**
- Focus on I.C.T. in Dublin and Pharmaceuticals in Cork **(2 SRPs =2m + 2m)**

(15 SRP’s = 30 marks)

Facts:

FOCUS ON: ICT (GDA) AND PHARMACEUTICALS (CORK): INCLUDING LOCATION AND NUMBER OF JOBS CREATED

ICT IN THE Greater Dublin Area	PHARMACEUTICALS IN CORK
<ul style="list-style-type: none"> • European headquarters of 5 of the world’s top 10 software companies including: <ol style="list-style-type: none"> 1. IBM (Blanchardstown) – 3,700 2. Hewlett Packard (Leixlip) – 400 3. Intel (Leixlip) – 5,000 4. Microsoft (Sandyford) – 1,600 5. Dell.(Cherrywood) - 1500 • Dublin produces 60% of business applications and 40% of P.C. software sold in Europe 	<ul style="list-style-type: none"> • Cork is Ireland’s centre for the production of pharmaceuticals with exports worth in excess of 13 billion per year. • The industry is the biggest manufacturing employer in Cork with companies such as: <ol style="list-style-type: none"> 1. Pfizer (Ringaskiddy & Little Island) – 460 2. Eli Lilly (Kinsale) – 450 3. GlaxoSmithKline (Currabinny) - 750 4. Schering-Plough (Brinny) - 540 5. Novartis (Ringaskiddy) – 400

EXERCISE 5

Read the answer to the question on the development of transport (tertiary economic activity) on pages 123 and 125 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the following sample answer and fill in the key points to your workbook on pages 125 & 126

SAMPLE QUESTION:

OUTLINE THE DEVELOPMENT OF SERVICES AND TOURISM IN A CORE IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 29:

SERVICES:

- More than 2/3 of the population of the South & East region are employed in the services sector and as the demand for services such as transportation, tourism and entertainment have increased so have income levels. **(1 SRP =2m)**

- Services are attracted to urban centres due to their large consumer markets, well developed communications and large pool of workers. Five out of six key urban centres or cities in Ireland are located in the South & East region. **(1 SRP =2m)**
- The bigger the urban centre the more services provided and thus Dublin's primacy has resulted in it becoming the services centre of the region especially quaternary services such as finance, insurance, marketing and accounting. **(1 SRP =2m)**

Definition:

Quaternary services require the processing and transmission of information and knowledge and therefore require a well educated workforce in area such as financial services, legal services, fund management, marketing and R & D.

- Dublin is the political and administrative capital of the country and has become a magnet for commercial, educational, communications and financial services.

FOCUS ON FINANCIAL SERVICES IN DUBLIN

- The 'International Financial Services Centre' (I.F.S.C.) was set up in 1986 in the docklands area of the city centre to attract internationally traded services in the financial sector. **(1 SRP =2m)**
- The I.F.S.C. has over 450 financial services companies employing over 6,000 people directly and 11,000 indirectly most of whom are skilled graduates who manage funds exceeding 360 billion euros per year. **(1 SRP =2m)**

FACTORS WHICH LED TO THE GROWTH OF FINANCIAL SERVICES IN DUBLIN:

1. A low corporation tax rate of only 10% was initially applied to companies who located in the I.F.S.C. and this was essential in attracting F.D.I. to build a world class financial services centre.
 2. The Dublin region is the country's national education centre and its universities (T.C.D., U.C.D. and D.C.U.) along with many institutes of technology (D.I.T., I.A.D.T., Tallaght I.T., Blanchardstown I.T.) provide thousands of skilled graduates needed for quaternary services for the I.F.S.C. jobs market.
 3. The communications network was improved, particularly the upgrading of the telecommunications network, essential for international financial trading and transport infrastructure such as the D.A.R.T. and L.U.A.S. lines for the large number of employees. **(1 SRP =2m)**
- The area around the I.F.S.C. stretching further down towards Dublin port has become one of the world's fastest growing financial and business services districts employing over 120,000 people and has spawned many support services or spin-off services such as hotels, catering and leisure facilities. **(1 SRP =2m)**
 - The district has attracted business from over half the worlds banks and has become the European headquarters of many high profile internet service companies such as Google, eBay, Yahoo and Facebook. **(1 SRP =2m)**

TOURISM

- The South & East region is the most popular tourist region in Ireland and accounts for over 75% of all tourist revenue.

TOURISM IN THE DUBLIN REGION

- Tourism is a thriving industry in the city of Dublin with an increase in tourist numbers year on year. It was Europe's third most popular city break destination in 2003 only after Paris and London. **(1 SRP =2m)**

Statistics:

Tourists visiting Dublin in 2004 (Foreign & Domestic): 4.8 million

Tourists visiting Dublin in 2006 (Foreign & Domestic): 6 million

- Part of the reason for Dublin cities popularity among foreign tourists is that Dublin airport is the most popular point of entry and accounts for 90% of all scheduled flights into Ireland. **(1 SRP =2m)**
- Attractions for tourists in Dublin include:
 1. Historic churches and buildings e.g. Christchurch Cathedral, Dublin castle and the Four Courts.
 2. A well designed beautiful city with characteristic Georgian architecture and parks such as St. Stephens green and the Phoenix Park
 3. Museums and historic attractions such as the National museum, the Guinness Storehouse, Kilmainham Gaol and the Book of Kells in Trinity college.
 4. An extensive range of high quality shops particularly along the Grafton street area.
 5. A cultural quarter around the Temple bar district with numerous restaurants, pubs and quirky shops. **(2 SRPs =2m + 2m)**
- The tourist industry in the region provides over 150,000 jobs directly along with many spin-off industries and is worth over 3.5 billion euros per year to the economy of the region. **(1 SRP =2m)**

TOURISM IN THE REST OF THE REGION

The rest of the regions tourism focuses on attractions such as those associated with 1. Scenic Beauty, 2. Cultural towns and 3. Outdoor activities.

- Examples of **areas of scenic beauty** in the region would be the Cliffs of Moher in Co. Clare and the rugged unspoilt landscape of the Munster ridge and valley landscape in the southwest. **(1 SRP =2m)**
- Some **cultural towns** like Miltown-Malbay in Co. Clare would be very popular for Irish traditional music and other towns like Killarney Co. Kerry would be culturally linked to the past with Jaunting car trips around the Lakes of Killarney. Most towns and cities of the region have cultural events and festivals throughout the year such as the Jazz festival in Cork city. **(1 SRP =2m)**
- **Outdoor activities** would be varied from golfing in the K-Club in Co. Kildare to golfing on links courses such as Ballybunion Co. Kerry and surfing the waves on the beaches of the South and East coast to hill-walking in Glendalough in the Wicklow mountains. **(1 SRP =2m)**
- Tourism numbers to the Republic of Ireland have decreased in 2008 as a result of the global economic downturn and the strengthening euro against the dollar and sterling. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 7

Read the answer to the question on the development of population dynamics (human processes) on pages 126 - 128 of the workbook and fill in the appropriate blanks.

EXERCISE 8

Read the following sample answer and fill in the key points to your workbook on page 129

SAMPLE QUESTION:

OUTLINE THE DEVELOPMENT OF HUMAN PROCESSES IN A CORE IRISH REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 30:

(In this question you need to discuss population (previous question) and urbanisation (below) i.e. you will need to write 8 S.R.P.'s on each section)

URBANISATION

FOCUS ON RENEWAL AND REDEVELOPMENT OF DUBLIN:

- By the early 1990's Dublin city had many old inner city residential districts and run-down suburbs which were in need of renewal or redevelopment.

Definitions:

URBAN RENEWAL: This is when people living in a decayed inner city residential area are temporarily rehoused while their own houses are being repaired or rebuilt. The people are then brought back into their old neighbourhood where efforts are made to improve community services.

URBAN REDEVELOPMENT: This is when the people of a decayed inner city residential area are rehoused in the suburbs or new overspill towns. The inner city sites are then used for the building of shops offices or high quality apartments.

FOCUS ON URBAN REDEVELOPMENT:

THE DUBLIN DOCKLANDS

- During the 1950's the roll-on roll-off ferry services, the decline of imported coal and the decrease in the need for manual labour due to mechanisation led to severe unemployment and thus social deprivation. In 1997 the 'Dublin Docklands Development Authority' (D.D.D.A.) was established to oversee the economic, physical and social redevelopment of the 520 hectare docklands site. **(1 SRP =2m)**
- At an economic level the project has been very successful as the area has become Ireland's centre for quaternary services employing over 35,000 people. The docklands area now houses one of the largest office complexes in Europe around the I.F.S.C. consisting of many European headquarters of global financial institutions. **(1 SRP =2m)**

Definition:

Quaternary services: High value financial services

- At a physical level the area has attracted much interest as the modern office complexes give a new lease of life to the docklands area including the proposed 'U2 Tower', the 'National College of Ireland' and the 'Grand Canal Theatre'. **(1 SRP =2m)**
- At a social level the D.D.D.A. has been involved in the local community actively addressing problems of social deprivation while building over 2,000 affordable houses as part of the redevelopment. **(1 SRP =2m)**
- New apartments have been built in the area and have been bought up by young professionals 'Yuppi's' who work in the high value services sector and this 'Infill Development' has reduced commuting problems in the city. **(1 SRP =2m)**

FOCUS ON URBAN RENEWAL:

THE BALLYMUN REGENERATION PROJECT

- During the 1960's as a result of a housing shortage in inner city Dublin the Dublin city council decided to develop tower blocks in Ballymun, a suburb on the north side of the city as a means of accommodating those on the corporation housing list. The towers were fraught with problems from the start such as: a lack of insulation, broken down lifts and a complete lack of services and consequently Ballymun became a neglected and deprived area with numerous social problems i.e. unemployment, drug abuse and crime. **(1 SRP =2m)**

- In 1997 the 'Ballymun Regeneration Ltd' (B.R.L.) was established to draw up a masterplan for Ireland's biggest urban renewal project. One of the key aspects of the masterplan was that the local community was consulted allowing them an input into the future of the town. **(1 SRP =2m)**

Key aspects of the urban renewal scheme are as follows:

- A. The demolition of the tower blocks and the construction of houses.
- B. The building of a town centre along the main street with all necessary commercial activities and businesses starting with the furniture giant IKEA.
- C. The construction of parks, playgrounds, sports grounds and programmes to encourage participation in the local community.
- D. To provide social services such as training and education to increase job opportunities. **(1 SRP =2m)**

(15 SRP's = 30 marks)

CHAPTER 18

REGION 3: PERIPHERAL EUROPEAN REGION

The Mezzogiorno

EXERCISE 1

Draw the map of Italy and include your peripheral European region into your copybook similar to the map in the workbook page 130

EXERCISE 2

Read the answer to the question on physical processes on pages 130 - 132 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer and fill in the key points to your workbook on page 119

SAMPLE QUESTION:

OUTLINE THE PROBLEMS IN THE DEVELOPMENT OF AGRICULTURE IN A PERIPHERAL EUROPEAN REGION?

SAMPLE MODEL ANSWER 31:

PROBLEMS WITH AGRICULTURE:

PHYSICAL PROBLEMS:

- The region has a marginal geographical location on the periphery of Europe and difficult physical environment due to the Apennines mountains.
- It has difficulty in accessing markets due to poor infrastructure.
- A low population density as a result of out-migration **(1 SRP =2m)**

HISTORICAL PROBLEMS:

- Prior to 1950 the region was composed of large poorly run landlord estates called 'Latifundia' whose landlords were 'absentee landlords' as most lived in Northern Italy and therefore they had little interest in improving their land. **(1 SRP =2m)**
- Tenants farmers cared for the land and as part of their agreement they were allocated small plots of land of around 3 – 6 hectares called Minifundia. Over time they overcropped and overgrazed these minifundia as there was no incentive to sustaining and improving the soil because they could be easily evicted by their landlord at any time. **(1 SRP =2m)**
- These tenants had extremely poor landless labourers called 'Braccianti' to work the land for them. **(1 SRP =2m)**
- Many tenants paid their rent with a share of their minifundia produce in a system called 'sharecropping'. **(2m)**
- The results of this system were:
 1. In general the latifundia system as a whole was an inefficient system of 'extensive farming' that resulted in low productivity levels per hectare.
 2. This resulted in very low income leading to poverty, unemployment and a tide of emigration.
 3. The land cultivated as minifundia were overcropped and overgrazed land leading to soil erosion and a serious decline in soil fertility. **(1 SRP =2m)**

SOLUTIONS TO AGRICULTURAL PROBLEMS:

- The Italian government set up the CASSA PER IL MEZZOGIORNO or Southern Italian development fund in 1950 and this was replaced by the European Regional Development Fund (E.R.D.F.). **(1 SRP =2m)**
- The Cassa Plan and E.R.D.F. improved agriculture in the region by:
 1. The government bought up the Latifundia and subdivided it between the tenants and the Braccianti.
 2. Hillsides were re-afforested to reduce soil erosion.
 3. Marches on coastal lowlands were drained e.g. Metaponto.
 4. Irrigation schemes and reservoirs were developed e.g. the Apulian aqueduct irrigates the province of Apulia.
 5. Farmers were trained to use more intensive production methods i.e. a shift from low value traditional crops to high value cash crops.
 6. The Autostrada Del Sole (motorway to the sun i.e. to the South) was constructed linking the Mezzogiorno region to Northern Italy and mainland Europe and this allowed high value perishable crops to gain access to these markets.
 7. Co-operatives were set up to process farm produce. **(3 SRPs =2m + 2m + 2m)**

MODERN ARABLE FARMING:

- Campania is the most productive agricultural area of the region focusing on the intensive production of high value crops such as:
 1. Cereal crops e.g. wheat and maize
 2. Tree crops e.g. grapes and pears
 3. salad crops e.g. lettuce and tomatoes.

Since the 1950's most of these of these crops have increased by over 200% **(1 SRP =2m)**

- Wine and olives are grown intensively on all lowland areas of the region particularly in the Southern provinces. **(1 SRP =2m)**
- Citrus fruits are grown in Calabria and Sicily due to the intense heat and longer growing season with long hours of summer sunshine and Sicily alone produces 60% of all Italian citrus fruits. **(1 SRP =2m)**

MODERN PASTORAL FARMING:

- This is poorly developed except for the extensive grazing of sheep and goats on the poor vegetation or scrub (maquis) on the lower slopes of the Apennines. **(1 SRP =2m)**
- The high cost of water for irrigation needed during the summer droughts makes large scale commercial pastoral farming unprofitable. The only pastoral farming is that of rearing buffalo in Campania to provide milk used to make mozzarella cheese. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 4

Read the answer to the question on the development of manufacturing industry (secondary economic activity) on pages 133 and 134 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer and fill in the key points to your workbook on page 135

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF TRANSPORT AND TOURISM IN A PERIPHERAL EUROPEAN REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 32:

TRANSPORT:

- During the Cassa Plan years (1950 – 1984) over 2.5 billion euros was spent upgrading the infrastructure to allow the region become more accessible. **(1 SRP =2m)**
- The key development was the construction of the Autostrada Del Sole motorway which links the city of Milan in the north to the Mezzogiorno in the south along the Western seaboard and in recent years into Sicily across the straits of Messina. **(1 SRP =2m)**
- Another motorway as part of the Autostrada system or motorway network was built along the East coast of peninsular Italy and together they have increased the accessibility of the region. **(1 SRP =2m)**

TOURISM:

- The accessibility of the region due to the Autostrada network has increased the number of tourists from Northern Italy to 11 million in 2008 along with another 6 million from outside Italy. **(1 SRP =2m)**

Attractions of the Mezzogiorno:

- Large areas of scenic beauty such as unspoiled and unpolluted beaches such as Amalfi and fast-flowing rivers down through steep gorges in and around the Apennines mountains. **(1 SRP =2m)**
- It has the hot dry sunny summers associated with a warm temperate oceanic or Mediterranean climate with temperatures reaching 30 degrees while the winters are mild and mountains are snow covered. This allows tourism all year round from the sun worshipers in summer to the skiers in winter. **(1 SRP =2m)**
- There are many cultural attractions and historical sites such as the ancient ruins of Pompeii and volcanoes such as Mt. Vesuvius and Mt. Etna. **(1 SRP =2m)**

Government strategy to develop tourism:

1. Preservation of all historical buildings and cultural sites.
2. More international advertising to attract more international tourists.
3. Improving infrastructure to increase levels of accessibility to all the attractions of the region. **(1 SRP =2m)**

Positive and negative effects of tourism:

Positive impacts:

- Tourism revenues have increased the standard of living of people involved with the tourist trade in the region and provided tax revenue to help fund continued development. **(1 SRP =2m)**
- Tourism provides jobs directly such as restaurants and transport and also provides spin-off jobs in areas such as banking. **(1 SRP =2m)**
- Tourism also supplements farm income and most farmers have part-time jobs involved directly or indirectly in tourism. **(1 SRP =2m)**

Negative impacts:

- A massive influx of tourists hikes up prices e.g. house prices that increase cost of living for the local people who are not involved in the tourist trade. **(1 SRP =2m)**
- It puts pressure on the environment e.g. on local public utilities such as water and sanitation and also increases pollution. **(1 SRP =2m)**
- The construction of beach resorts with hotels and apartments can spoil the natural beauty of the area. **(1 SRP =2m)**
- The benefits of tourism for the region outweigh its disadvantages and therefore is a central part of the Italian governments plan to help develop the economy of this peripheral region. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 6

Read the answer to the question on the development of human processes on pages 136 & 137 of the workbook and fill in the appropriate blanks.

CHAPTER 19

REGION 4: CORE EUROPEAN REGION

The Paris Basin

EXERCISE 1

Draw the map of France and include your core European region into your copybook similar to the map in the workbook page 138

EXERCISE 2

Read the following sample answer and fill in the key points to your workbook on page 139

SAMPLE QUESTION:

OUTLINE THE PHYSICAL PROCESSES ASSOCIATED WITH A CORE EUROPEAN REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 33:

RELIEF:

- The Paris Basin is composed of a **series of saucers of sedimentary rock** stacked inside each other created by tectonic folding. **(1 SRP =2m)**

- The uppermost layer of the low-lying and gently undulating saucer is called the **Ile De France**. (1 SRP =2m)
- As you travel away from the Ile De France most notably in an Easterly direction the edges of other saucers (layers) appear on the surface as a series of Scarps or Cotes. (1 SRP =2m)
- A **Scarp or Cote** is a steep sided ridge or steep cliff-like slope. (1 SRP =2m)

DRAINAGE:

- The centre of the basin is drained by the **river Seine** and its tributaries the **Marne, Yonne and Oise**. (1 SRP =2m)
- These form natural routeways linking Paris and other areas of the basin to the deep water port of **Le Harve**. (1 SRP =2m)
- The North of the basin is drained by the **Somme river** and the South of the basin is drained by the **Loire river** indicating that overall the basin is very well drained and therefore conducive to intensive agricultural practices. (1 SRP =2m)

SOILS:

- The soils of the Paris basin vary widely:
 1. **Beauce** has fertile limon (loess) soils which are conducive to intensive agricultural practices.

Definition:

Limon soils are a wind blown soil from the retreating ice sheets at the end of the last glaciation and are deep, fertile and easily farmed.

2. **Brie** has clay soils which are heavy and prone to waterlogging.
3. The **champagne** region has chalk soils which are permeable and therefore very dry.

Definition:

Permeable means that water can pass down through it.

4. The soils on the scarp slopes such as the Falaise are fertile and well drained. (2 SRPs =2m + 2m).

CLIMATE:

There are two distinctive climatic zones in the region:

1. The coastal area along the **North-West** of the basin has a **cool temperate oceanic (maritime)** climate due to the moderating influence of the North Atlantic drift and Gulf Stream. (Similar to Ireland). (1 SRP =2m)
 - Winters are moist and mild with an average of 5 degrees while summers are cool with an average of 16 degrees and rainfall is distributed throughout the year with an average of 800 mm per annum. (1 SRP =2m)
2. Further inland i.e. the **South and East** has a more **transitional** type of climate due to the continental influence. (1 SRP =2m)

Definition:

A **transitional type of climate** is one that has influences of both a cool temperate oceanic climate and a continental climate.

- Winters are colder than on the coast by an average of 2 degrees while summers are warmer with an average of 20 degrees. (1 SRP =2m)
- Rainfall levels are below 700mm per annum. Summer rainfall is convectional in nature due to the high temperatures. (1 SRP =2m)

Note: The **Atlantic ocean regulates the temperature range** and increases the annual precipitation level.

Definition:

The **temperature range** is the difference between the highest and lowest annual temperature

(15 SRP's = 30 marks)

EXERCISE 3

Read the answer to the question on the development of agriculture (primary economic activity) on pages 140 and 141 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer and fill in the key points to your workbook on page 142

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF MANUFACTURING INDUSTRY IN A CORE EUROPEAN REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 34:

- The city of Paris itself has the main concentration of manufacturing in the basin due to:
 1. The greater Paris metropolitan area provides a very large consumer market with over 12 million people.
 2. Paris is the dominant hub of the French road, rail, sea and air transport networks.
 3. Paris has large supply of workers for labour intensive industries e.g. textiles. (2 SRPs =2m + 2m)

HEAVY INDUSTRY:

- The accessibility of Paris to deep barge traffic on the river Seine allows for the development of heavy engineering e.g. along Canal St. Denis. (1 SRP =2m)
- The Seine is navigable to the river Rhine and Rhone aswell as the deep-water port of Le Harve. (1 SRP =2m)
- This allows for the efficient and low cost import of raw materials and export of manufactured products to European and world markets. (1 SRP =2m)
- Car assembly such as Citroen and Renault have large assembly plants in the city. (1 SRP =2m)

LIGHT INDUSTRY:

- Greater Paris has 17 universities which produce skilled graduates capable of working in modern light high-tech industries such as electronics and the aerospace industry in Technopoles e.g. Cite Des Sciences (1 SRP =2m)
- Explanation of Technopoles and/or footloose industries. (1 SRP =2m)

Definitions:

Technopoles: These are the French version of science and technology parks in Ireland where footloose industries locate on the outskirts of towns or cities and are accessible via ring roads.

Footloose industries: Factories that are not restricted to where they can locate i.e. they can locate anywhere that suits them.

Paris is considered to be the **centre of the fashion industry** due to a tradition that originated to supply the needs of its royal family. Paris has the highest G.D.P. of any city in Europe and therefore a large market exists for luxury goods. (1 SRP =2m)

- Paris has a long tradition as a centre of learning (Sorbonne in the Latin quarter is Europe's oldest university) and has become a magnet for the **printing and publishing industry**. (1 SRP =2m)
- Suburbs of Paris are also major centres of manufacturing as they contain footloose industry in many **modern industrial estates** and technology parks e.g. pharmaceuticals. (1 SRP =2m)
- The **cosmetics and perfume industry** (e.g. companies such as Paco Rabanne) are located in the region of **Chartres** consists of over 70 factories and employ over 3,000 people in what has become known as **cosmetic valley**. (1 SRP =2m)

DE-INDUSTRIALISATION:

- Since 1995 nearly **250,000 jobs have been lost** in the region. Many low cost manufacturing industries have relocated to more peripheral locations elsewhere in France and also outside France e.g. South-East Asia where the costs of production are a lot lower. (1 SRP =2m)

Reasons for de-industrialisation are:

1. Government policy to **decentralise industry** to more peripheral areas.
 2. The increasing cost of **land/sites** and **labour** in the basin.
 3. An increasingly globalised economy with more open trade. (1 SRP =2m)
- To counteract this trend of de-industrialisation the French government has been very successful in attracting **high value manufacturing** to the region. (1 SRP =2m)

(15 SRP's = 30 marks)

EXERCISE 5

Read the answer to the question on the development of services, transport and tourism (tertiary economic activities) on pages 143 & 144 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the following sample answer and fill in the key points to your workbook on page 144 & 145

SAMPLE QUESTION:

OUTLINE THE DEVELOPMENT OF HUMAN PROCESSES IN A CORE EUROPEAN REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 35:

POPULATION

- The total population of the **Paris Basin** is **21 million with over 11 million living in greater Paris**. (1 SRP =2m)
- Economic development has led to a **rural to urban migratory trend** and hence to **rural depopulation** in other areas of the basin. (1 SRP =2m)
- The French **birth rate** is **1.9 children per mother** and is therefore **below the replacement level of 2.1**. This is a surprising trend considering the state provides generous benefits to mothers e.g. subsidising creche facilities. (1 SRP =2m)

Definition:

Replacement level: This is the number of children born per couple to sustain the population at its current level. i.e. 2.1 children per couple.

Statistics:

Maternity leave in Ireland 40 weeks	Maternity leave in France 170 weeks
--	--

- The Paris Basin is a **multi-racial society** with the influx of the following:
 - (A) Portuguese, Spanish and Italians in the post first world war era.
 - (B) Algerians, Tunisians and people from other **former French colonies** in North & West Africa. **(1 SRP =2m)**
- Currently there are just over **1.5 million immigrants** living in the region. **(1 SRP =2m)**
- Many immigrants live in **poor quality high-rise suburban** areas with very few services provided and some have not managed to assimilate into French society most notably those of the North African Muslim community. **(1 SRP =2m)**
- Social problems among immigrants such as poverty, unemployment and youth boredom have increased **racial tension** in Paris from time to time e.g. 2005 where widespread violence and riots engulfed suburban Paris. **(1 SRP =2m)**

URBANISATION

FOCUS ON THE REDEVELOPMENT OF PARIS:

- By 1964 Paris had many old residential districts in the inner city which were in need of **renewal or redevelopment**. **(1 SRP =2m)**

Definitions:

<p>URBAN RENEWAL: This is when people living in a decayed inner city residential area are temporarily rehoused while their own houses are being repaired or rebuilt. The people are then brought back into their old neighbourhood where efforts are made to improve community services.</p>
<p>URBAN REDEVELOPMENT: This is when the people of a decayed inner city residential area are rehoused in the suburbs or new overspill towns. The inner city sites are then used for the building of shops, offices or high quality apartments.</p>

- There were also problems with chronic **traffic congestion** and uncontrolled **urban sprawl**. **(1 SRP =2m)**
- The French government set up the **'Scheme Directeur'** to solve the inner city problems in the following ways:
 - (A) **The conservation of historic buildings** and pedestrianising the city streets.
 - (B) The **development of eight growth centres** in the inner suburbs which were to include shops and offices such as La Defense.
 - (C) **Building of five planned overspill satellite towns** outside the city to limit urban sprawl.
 - (D) Improvement in **urban transport** focusing on public transportation **(2 SRPs =2m + 2m)**
- The scheme has transformed Paris from an old rundown city to a city that is ultra-modern. Old derelict city townhouses have been modernised and bought up by young professionals **'Yuppi's'** who work in the city centre. **(1 SRP =2m)**
- An example of these developments is **'La Defense'** which now houses one of the largest office complexes in the world consisting of many headquarters of global financial institutions. **(1 SRP =2m)**
- The **planned overspill towns** outside Paris were created as residential and employment centres to stem the flow of commuters in and out of the city centre and these new towns e.g. Evry and Marne-La-Vallee have populations well in excess of 100,000 people. **(1 SRP =2m)**
- Today Paris has become a beautiful modern city with a modern infrastructure and an agreeable lifestyle. **(1 SRP =2m)**

(15 SRP's = 30 marks)

CHAPTER 20

REGION 5(A):

CONTINENTAL/SUBCONTINENTAL REGION

The South-West U.S.A.

EXERCISE 1

Draw the map of the South-West USA i.e. your continental/sub-continental region into your copybook similar to the map in the workbook page 146

EXERCISE 2

Read the following sample answer on physical processes and fill in the key points to your workbook on page 147

SAMPLE QUESTION:

DISCUSS THE RELIEF, DRAINAGE AND CLIMATE ASSOCIATED WITH A CONTINENTAL / SUB-CONTINENTAL REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 36:

RELIEF:

- The region has three key mountain ranges:
 1. The Coastal range on the West coast.
 2. The Sierra Nevada range further inland.
 3. The Rocky mountain range further inland again (1 SRP =2m)
- These mountain ranges are separated by valley's, basin's, plateaux's and plain's. (1 SRP =2m)
- The coastal range is separated from the Sierra Nevada range by valleys such as the Sacramento valley in Northern California and Central valley in central and Southern California. (1 SRP =2m)
- The Sierra Nevada range is separated from the Rocky mountain range by intermontane basins such as The Great basin and valleys such as Death Valley. East of the Rocky mountains are the high plains. (1 SRP =2m)

Definitions:

BASIN: An area of land drained by its rivers and their tributaries.

INTERMONTANE BASIN: a large basin/depression surrounded by mountains.

PLATEAUX: a raised flat surface with very steep sides called scarps.

DRAINAGE:

- The most influential river in the region is the Colorado river which flows through the Grand Canyon and provides fresh water to over 22 million people in the region. (1 SRP =2m)
- Five dams have been built along the Colorado river including the infamous Hoover Dam. The reservoir upstream of the dam called lake Mead irrigates over 400,000 hectares of farm land. (1 SRP =2m)
- Apart from the Colorado and Rio Grande rivers most other rivers are small in scale. (1 SRP =2m)
- The Great basin is the largest basin of internal drainage in the U.S.A. and it takes over 35 small rivers to drain it, none of which enter the sea. (1 SRP =2m)

CLIMATE:

- Much of the South West region is semi-arid or arid e.g. Southern California, Arizona and New Mexico. (1 SRP =2m)

Definition:

ARID: an arid region is a desert like region.

- The overall annual precipitation is less than 250mm, but this is distributed unevenly throughout the basin. **(1 SRP =2m)**
- Factors which influence climate and modify temperature in different parts of the region are:
 1. Distance from the sea
 2. Altitude
 3. Local winds **(1 SRP =2m)**
- Five distinctive climates which exist within the region are:
 1. Warm temperate oceanic climate due to the influence of the Pacific ocean.
 2. Mountainous climate in the Sierra Nevada and Rocky mountains.
 3. Continental climate in the interior above the sunbelt zone.
 4. Desert or arid climate in the interior within the sunbelt zone.
 5. Sub-tropical climate due to the influence of the Gulf of Mexico. **(2 SRPs =2m + 2m)**
- Death Valley records the highest temperature in the western hemisphere. The majority of the region lies within the sunbelt of the U.S.A. **(1 SRP =2m)**

Definition:

THE SUNBELT: This is the area within the South West region that experiences sunny days with mild winters and warm summers.

(15 SRP's = 30 marks)

EXERCISE 3

Read the answer to the question on the development of primary economic activities on pages 148 - 150 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer on secondary economic activities and fill in the key points to your workbook on pages 150 & 151

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF MANUFACTURING INDUSTRY IN SUB-CONTINENTAL REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 37:

Since world war two there has been unprecedented growth and development in manufacturing in the South West.

FACTORS FAVOURING INDUSTRIAL DEVELOPMENT:

1. There is a positive enterprising and innovative spirit among the people of the region.
2. The region has a low population density which reduces the cost of land for both house buyers and for the building of factories. This in turn reduces the cost of living, provides jobs and increases the overall quality of life.
3. It has a favourable geographical location on the Pacific rim close to the ever expanding South East Asian markets.
4. It has an abundance of cheap labour with migrants from Mexico and from the maquiladoras.
5. It has an abundance of raw materials (see mineral resources) and also an excellent communications network, most notably the interstate, for transporting goods to other urban markets.
6. The region has a strong military presence which has encouraged the establishment of aerospace and other spin-off Industries. **(3 SRPs =2m + 2m + 2m)**

HEAVY INDUSTRY:CASE STUDY 1: FOCUS ON MANUFACTURING IN TEXAS:

- Heavy industry in Texas was established due to the large reserves of oil and gas especially along the Gulf of Mexico which has become known as 'The Chemical Crescent'. This title is due to the abundance of over 30 oil refineries as well as numerous petrochemical plants and fertiliser industries. **(1 SRP =2m)**
- A big economic boost was given to the Texas area in 1961 with N.A.S.A. locating its manned spacecraft centre in Houston and this created many spin-off industries such as space station components and satellite equipment. **(1 SRP =2m)**
- Fortworth became a centre for Research & Development and the manufacturing of military defence equipment including fighter jets and the infamous stealth bomber. This also attracted spin-off industries such as military surveillance technology. **(1 SRP =2m)**
- An industrial triangle was created between the cities of Houston, Forthworth and Austin focusing on high technology based manufacturing as dual use goods. **(1 SRP =2m)**

Definition:

DUEL USE GOODS: These are goods that can be used in both civilian and defence manufacturing. Guidance system technology used in fighter jets have been used by commercial airliners e.g, Airbus A380

LIGHT INDUSTRY:CASE STUDY 2: FOCUS ON MANUFACTURING IN SILICON VALLEY, CALIFORNIA

- Silicon valley is a 675 square kilometres of hi-tech light industry located below the city of San Francisco and is the worlds leading centre for the manufacture of information technology. **(1 SRP =2m)**
- It came to prominence during the second world war and continued to develop during the Korean, Vietnam and cold wars due to strong support and heavy investment from the U.S. government. Today the eight largest companies together directly employ over 250,000 people. **(1 SRP =2m)**

Facts:

<u>COMPANY NAME:</u>	EXAMPLE OF PRODUCT
1. Microsoft	Computer software e.g. windows
2. Hewlett Packard	P.C. 's and printers
3. Apple	Ipods
4. Cisco systems	Networking and communications technology
5. Intel	Processor chips
6. Sun Microsystems	Server applications e.g. mail server
7. National Semiconductor	Electronics instruments
8. I.B.M.	Computer components

- It success is strongly linked to Stanford university which has a tradition in the engineering and science faculties. Over half of all hi-tech equipment made in the U.S. is manufactured in Silicon Valley and today thousands of engineers are developing, testing, refining and marketing a range of new products. **(1 SRP =2m)**

PROBLEMS WITH MANUFACTURING IN SILICON VALLEY

1. Increased competition from South-East Asia e.g. Japan.
2. The industry has a history of booms and recessions e.g. at the end of the cold war lucrative defence contracts were cancelled leading to recession until the industry boomed with the internet.
3. Products suffer from rapid obsolescence and their lifecycles may be as short as three years. **(1 SRP =2m)**

CASE STUDY 3: MAQUILADORAS:

- The existence of twin cities at either side of the U.S. and Mexican border is an unusual urban structure. Recent growth of maquiladoras has resulted in rapid economic growth and urban development on both sides of the border. **(1 SRP =2m)**

Facts:

EXAMPLES OF TWIN CITIES
1. U.S.A. (El Paso city) = Mexico (Ciudad Juarez city)
2. U.S.A. (Loredo city) = Mexico (Nuevo-Loredo city)

Definition:

MAQUILADORAS: These are low cost factories located just inside the Mexican border that supply the U.S. market.

REASONS FOR THEIR SUCCESS:

- The North American free trade agreement (NAFTA) allowed for the free movement of goods between the U.S. and Mexico. **(1 SRP =2m)**

Point to Note:

NAFTA does not allow the free movement of people across the border and 'Operation Gateway' is used to prevent their entry.

- Most companies have a factory on both sides of the border and the labour is divided so that low paid physical work is done on the Mexican side while the well paid work in sales, marketing and R & D is done on the U.S. side. **(1 SRP =2m)**
- Advantages of locating production facilities in Mexico:
 1. Cheap labour
 2. There are no safety standards that companies need to meet.
 3. Workers have no legal rights and attempts to unionise will result in dismissal
 4. Workers are paid in Peso's which is a much weaker currency than the dollar. **(2 SRPs =2m + 2m)**Combined these advantages substantially reduce the costs of production for U.S. multi-national companies. By 2007 over 25% of the value of all Mexican manufacturing came from the maquiladoras. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 5

Read the following sample answer on tertiary economic activities and fill in the key points to your workbook on page 150 & 151

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF TOURISM AND TRANSPORT IN CONTINENTAL/SUB-CONTINENTAL REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 38:

TOURISM: The region attracts tourists from all over the world with three key attractions:

1. AREAS OF NATURAL BEAUTY

- The region has world famous canyon or gorges such as the Bryce and Grand canyons. **(1 SRP =2m)**
- It has world famous parks in Yosemite and Zion national parks. **(1 SRP =2m)**
- It has the Carlsbad Caverns which is one of the largest and most commercialised limestone caves in the world. **(1 SRP =2m)**

2. CITIES

- San Francisco is a major tourist city with popular attractions such as the Golden Gate Bridge and Alcatraz island. **(1 SRP =2m)**
- Los Angeles is home to Hollywood with its film studios such as Universal which are a massive tourist attraction. **(1 SRP =2m)**
- Las Vegas has become the gambling capital of the world with its neon lights, slot machines, poker games and large casinos that have become a mecca for gamblers. **(1 SRP =2m)**

3. BEACH TOURISTS

- Beach tourism has become very popular in the region as it is located in the Sunbelt and it has a relaxed atmosphere. **(1 SRP =2m)**
- The beaches around the San Diego and Santa Barbara areas along the Pacific seaboard are very popular with sun worshippers. **(1 SRP =2m)**

TRANSPORT:

- The car culture in the South – West epitomises to the American Dream and nowhere is this more apparent than California and Texas where a vast expensive network of roads and freeways have been constructed especially in urban areas. **(1 SRP =2m)**
- Extensive suburbs were built to accommodate the rural to urban migratory trend into the cities leading to an extensive commuter culture. **(1 SRP =2m)**

- Prioritising resources for the construction of such a vast expensive road network resulted in a lack of investment in public transport and also high pollution levels. Los Angeles with over 8 million cars has become the most polluted city in the U.S. **(1 SRP =2m)**
- Increasing the problem in Los Angeles is the temperature inversion which traps pollutants close to the ground. **(1 SRP =2m)**

Definition:

TEMPERATURE INVERSION: This occurs in low lying areas on calm winter nights when cold air sinks down to the valley floor and a lid of hot air traps pollutants close to the ground.

STEPS TAKEN TO COUNTERACT THE CAR POLLUTION PROBLEM ARE:

- Tolling roads, the expansion of public transport, carpooling, fast track lanes for low emission vehicles and cars with four or more people and the cleanest emission technology for car exhausts being mandatory. **(2 SRPs =2m + 2m)**
- The main ports of the region are Los Angeles port on the Pacific ocean and Houston port on the Gulf of Mexico. **(1 SRP =2m)**
- All major cities have airports and San Francisco, Los Angeles, Dallas and Houston are all well developed international hubs. **(1 SRP =2m)**

(15 SRP's = 30 marks)

EXERCISE 6

Read the answer to the question on the human processes on pages 152 & 154 of the workbook and fill in the appropriate blanks.

CHAPTER 21

REGION 5(B):

CONTINENTAL/SUBCONTINENTAL REGION

INDIA

EXERCISE 1

Draw the map of India i.e. your continental/sub-continental region into your copybook similar to the map in the workbook page 155

EXERCISE 2

Read the answer to the question on physical processes on pages 156 - 159 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on primary economic activities and fill in the key points to your workbook on page 159 & 160

SAMPLE QUESTION:

EXAMINE THE DEVELOPMENT OF PRIMARY ECONOMIC ACTIVITIES IN A CONTINENTAL OR SUB-CONTINENTAL REGION YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 39:

1. Types of agriculture

- Agriculture employs 60 per cent of the labour force and *contributes 18 per cent to GDP*. Over half of India's land area, or 170 million hectares, is devoted to agriculture. (1 SRP = 2 marks)
- *Farms are small family plots*, most of which are less than 2 hectares (or half an acre). Agriculture is intensive subsistence, where farmers only grow enough to feed themselves and there is rarely anything left over to sell. (1 SRP = 2 marks)
- India is *dependent on the monsoons* for the success of its agriculture, as they provide water for the irrigation system that is essential during the dry season. Failure of the monsoon results in water and food shortages. (1 SRP = 2 marks)
- Almost *half of the cultivated land is devoted to arable crops*, especially rice. With the exception of China, India grows more rice than any other country. (1 SRP = 2 marks)
- Most of the *rice* is cultivated in the Ganges Plain, Assam and the east and south-west coasts. All the planting, weeding and harvesting is done by hand. (1 SRP = 2 marks)
- India has a very large number of animals, especially cattle, which provide milk and their manure is used for fertilizer. Indian people eat little meat because cattle are regarded as sacred animals in the *Hindu religion*. (1 SRP = 2 marks)

2. The role of government investment

- The Indian government has invested heavily to develop agriculture:
 - *Land reform* has been introduced.
 - *New irrigation* systems have been developed to support farming in the dry season.
 - *Rural infrastructure has improved* to bring any excess output to market as quickly as possible. (1 SRP = 2 marks)
- Much of India was forested in the past. However, due to population increase and the need for more land for farming and settlement, much of India suffers from *deforestation*. (1 SRP = 2 marks)
- Forests now only *cover one-fifth of the country*. Most forestry occurs in the Himalayas, the Western Ghats and on the Deccan Plateau. Teak and rosewood are the dominant species. (1 SRP = 2 marks)

3. The Green Revolution

- The Green Revolution was introduced to increase farm output to feed an expanding population. It introduced the idea of *double cropping* and farmers now plant two crops per year, one in the wet season and one in the dry. (1 SRP = 2 marks)
- Output of rice and wheat increased as a result of the Green Revolution, particularly due to new *high-yielding* strains of rice. However, these seeds required massive amounts of fertilizers and pesticides, which increased pollution in rivers and lakes. (1 SRP = 2 marks)
- Due to the *rapid population increase*, the Green Revolution has still not made India completely self-sufficient in the production of food. (1 SRP = 2 marks)

- India is one of the *major producers of commercial crops*, including tea, cotton, sugar cane, peanuts and tobacco. These goods are exported, earning huge amounts of foreign income for the country. (1 SRP = 2 marks)
- *Fishing* is not a major economic activity despite a long coastline along the east and west coasts. Shrimp, however, are cultivated for the European market. (1 SRP = 2 marks)

15 SRPs = 30 marks

EXERCISE 4

Read the following sample answer on secondary economic activities and fill in the key points to your workbook on pages 160 & 161

SAMPLE QUESTION:

EXAMINE THE DEVELOPMENT OF MANUFACTURING INDUSTRY IN SUB-CONTINENTAL REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 40:

Introduction

- *Industry* employs 12 per cent of the labour force and *accounts for 29.4 per cent* of GDP. (1 SRP = 2 marks)
- *Prior to independence* in 1947, industry was *underdeveloped*. (1 SRP = 2 marks)
- Following independence, India had to turn to industry in order to absorb its growing population. *Agriculture was of a subsistence nature*, and coupled with small farms (less than 2 hectares) could not support a rapidly growing population. (1 SRP = 2 marks)
- *Industry* was viewed as a means to *increase the country's GDP*. India was determined to use its abundant natural resources to achieve this. (1 SRP = 2 marks)

Natural resources

- *Coal* is mined in the eastern states of West Bengal, Madhya Pradesh and Bihar. Seventy-eight per cent of the mined coal is used to *generate electric power*. (1 SRP = 2 marks)
- India also has *vast reserves of iron ore*. The iron ore deposits near Kolkata have attracted many *iron and steel* companies. Most of the iron and steel plants are government owned, while some are privately owned. (1 SRP = 2 marks)
- India has many *oil wells*, including the Assam and the Gulf of Cambay, which is part of the Arabian Sea. The oil wells support refining and the production of chemicals and fertilizers, but only meet 40 per cent of India's oil requirements. (1 SRP = 2 marks)
- The Himalayas and the Western Ghats are ideal for the production of hydroelectric power due to their altitude and gradient. The *cirques, or corries, of the Himalayas act as reservoirs* for the hydroelectric dams. (1 SRP = 2 marks)

Industry

- There are *four major zones* of industry: Mumbai (Bombay), Kolkata (Calcutta), the industrial triangle of Chennai, Bangalore and Madurai, which contains India's Silicon Valley, and Ahmadabad in the north-west. (1 SRP = 2 marks)
- *Food processing* is a growing industry due to surplus agricultural output as a result of the Green Revolution. India is renowned for sugar refining and many factories produce vegetable oils. Commercial crops such as tea, coffee and rubber are also processed. (1 SRP = 2 marks)
- However, the *largest industry* in India is the *production of textiles*. India is a leading producer of cotton, wool, silk and synthetic goods. While some textiles are produced by cottage industries, many are produced in high-tech mills. (1 SRP = 2 marks)

- The *government supports* small family-run businesses, i.e. *cottage industries* that are based at home, which help to reduce out-migration of young people from rural areas. (1 SRP = 2 marks)
- In recent years India has become dependent on *MNCs* to boost exports and earn foreign income. Many of these *MNCs*, like IBM, attracted by low wages and an educated workforce, produce high-tech electronic and precision equipment. (1 SRP = 2 marks)
- Bangalore, Chennai and Hyderabad are some of the world's *fastest-growing high-tech centres*. Most of the world's major IT companies now have offices in India. (1 SRP = 2 marks)
- By 2035, India is predicted to be the *third biggest economical power* of the world, falling just behind the US and China. India's large market will make it ideal for expanding *MNCs*. (1 SRP = 2 marks)

15 SRPs = 30 marks

EXERCISE 5

Read the following sample answer on tertiary economic activities and fill in the key points to your workbook on page 161 & 161

SAMPLE QUESTION:

ASSESS THE DEVELOPMENT OF SERVICES, TOURISM AND TRANSPORT IN CONTINENTAL/SUB-CONTINENTAL REGION OF YOUR CHOICE?

SAMPLE MODEL ANSWER 41:

Services

- In *rural areas*, tertiary economic activities are *underdeveloped* and farmers practise subsistence agriculture (they only grow enough to feed themselves and no more). There is little money left over to invest in services such as schools, hospitals and proper road transport. (1 SRP = 2 marks)
- The *black economy* in urban areas is growing. As a percentage of GDP, the black economy is larger than both the industrial and agricultural sectors. The operation of the black economy has resulted in the loss of enormous amounts of tax revenue which could have been invested in proper services. (1 SRP = 2 marks)
- All postal and telephone *services are state owned*. Radio and TV stations are state operated. (1 SRP = 2 marks)

2. Transport

- The first train operated in India in 1853. Today, India possesses *Asia's largest* and most comprehensive *railroad system* and is one of the largest in the world, with over *63,000 kilometres* of track. (1 SRP = 2 marks)
- It is operated by the *state-owned* company Indian Railways. All the major cities are connected by railway lines. Trains transport most of India's freight and passengers. (1 SRP = 2 marks)
- Road transport is improving. However, many *roads become impassable during the wet monsoon season*. Roads are vital to import and export processed goods. Roads carry 70 per cent of the freight traffic and 85 per cent of the passenger traffic. As the economy develops, traffic on the roads is set to grow by between 7 and 10 per cent per annum. (1 SRP = 2 marks)
- India possesses a *large network of inland waterways*, i.e. rivers and canals. Almost half are navigable. However, the volume of freight carried on these waterways is small. (1 SRP = 2 marks)
- All the major airline providers fly to and from India. *Air India Ltd*, which is state owned is the *national carrier*, formed when Air India merged with Indian Airlines. The major airports are in Mumbai, Kolkata, New Delhi and Chennai. (1 SRP = 2 marks)

3. Tourism

- The *Ganges*, one of India's most sacred rivers, is a major tourist attraction. It is of *spiritual significance* to Hindus, as a dip in the Ganges is believed to absolve all sins. The Hindus also believe that a few drops of water from the river on a dying Hindu's lips are supposed to earn the dying person a permanent place in heaven. (1 SRP = 2 marks)
- The Indian *coastline is 7,500 km long*. Nearly 70 per cent of all foreign trade travels through the ports of Kolkata and Chennai on the east coast and Mumbai and Mangalore on the west coast. (1 SRP = 2 marks)
- The *Himalayas attract hillwalkers* and mountain bikers in the summer and skiers in winter. The Himalayas are unspoiled and are ideal for jungle safaris. (1 SRP = 2 marks)
- India possesses many *wonderful beaches*, such as Goa on the west coast, which are popular tourist destinations. The Andaman and Nicobar islands are a *tropical paradise*. (1 SRP = 2 marks)
- Many tourists go on wildlife *safaris* in India's numerous national parks, such as Nanda Devi National Park in the upper Himalayas, where elephants, tigers and lions can be seen in their natural habitat. (1 SRP = 2 marks)
- India has many *temples* and wonderful architecture, such as the *Taj Mahal*, which was built of white marble. It was completed in 1648, having taken 22 years to build and 20,000 workers. It was built by an emperor in honour of his wife and is one of the seven wonders of the world. (1 SRP = 2 marks)
- Many tourists come to see the tea plantations in Assam in north-east India and Darjeeling in west Bengal, where *tea planting* started in 1841. (1 SRP = 2 marks)

15 SRPs = 30 marks

EXERCISE 6

Read the answer to the question on the human processes on pages 162 & 163 of the workbook and fill in the appropriate blanks.

CHAPTER 22

THE TYPES & COMPLEXITIES OF REGIONS

Case study 1: Ireland (North & South)

EXERCISE 1

Read the following sample answer and fill in the key points to your workbook on pages 165 & 166

SAMPLE QUESTION:

ASSESS THE INTERACTION OF ECONOMIC, POLITICAL AND CULTURAL ACTIVITIES IN THE REPUBLIC OF IRELAND AND NORTHERN IRELAND?

SAMPLE MODEL ANSWER 42

Background Information:

The government of Ireland Act 1921 divided the island of Ireland into two political regions

1. The Republic of Ireland consisting of 26 counties became an independent sovereign state.
2. Northern Ireland consisting of 6 counties remained under the control of the U.K.

ECONOMIC INTERACTION:

- Up to the end of the troubles trade between Northern Ireland and the Republic of Ireland had been dramatically reduced and as political interaction deteriorated so did economic interaction. (1 SRP = 2m)

- **Focus on economic development in the Republic of Ireland**

1. Up to the 1960's the Republic of Ireland was a low value subsistence based agricultural economy.
2. This was aided by a policy of self-sufficiency and protectionism
3. During the Lemass years protectionism was replaced by free trade.
4. The Industrial Development Authority (I.D.A.) actively promoted 'Foreign Direct Investment (F.D.I.)' and the economy began to grow particularly during the 'Celtic Tiger' era. **(2 SRP =4m)**

- **Focus on economic development in Northern Ireland**

1. In 1921 Northern Ireland was a well-developed and prosperous industrialised economy focusing on shipbuilding and textiles.
2. Their development was aided by investment from the U.K.
3. In the 1960's the Northern Ireland economy became depressed due to declining traditional industry and the 'Troubles'.
4. The troubles destabilised the Northern Ireland economy with the result that no foreign direct investment would locate in the region until after the Good Friday Agreement' in 1998. **(2 SRP =4m)**

Definitions:

<p><u>The Troubles:</u> This was a period of political tension in Northern Ireland between the pro- unionist i.e. pro-UK Protestant majority and the Pro-nationalist i.e. pro-republican Catholic minority.</p>

<p><u>The Good Friday agreement:</u> This was the cessation of violence between the nationalist and unionist factions in Northern Ireland and the establishment of a power sharing executive.</p>

- During the troubles trade decreased significantly between the two countries due to intimidating security posts at the border. **(1 SRP =2m)**
- Some improvements occurred in 1973 when both countries joined the European Union, but it wasn't until after the Good Friday Agreement in 1998 that all restrictions were removed on the movement of people, goods and services between the two regions. The overall value and volume of goods traded between the two regions has increased significantly in recent years. **(1 SRP =2m)**

Statistics:

<p>Value of Imports from Northern Ireland to the Republic</p>

1996 = 816 million

2005 = 1276 million

<p>Value of exports from the Republic to Northern Ireland</p>

1996 = 1045 million

2005 = 1574 million

POLITICAL INTERACTION:

- After 1921 political interaction between North and South deteriorated as the Republic was preoccupied with a civil war and the North distanced itself as much as possible from the 26 counties and aligned itself with the British government in Westminster. **(1 SRP =2m)**
- Ireland's neutrality and Northern Ireland's involvement in the Second World War increased the divide between the two communities. This deepened the distrust of nationalists by Unionists and created tension between them within Northern Ireland. **(1 SRP =2m)**
- The troubles in Northern Ireland were created by the mistreatment of the Catholic minority by the Unionist majority i.e. Catholics were treated as second class citizens. This only served to strain relations even further between North and South as most Southerners were sympathetic towards the ill-treated Catholics in the North. **(1 SRP =2m)**

- The Good Friday Agreement in 1998 led to an improvement in relations between North and South.
 1. A referendum held in the Republic of Ireland voted in favour of changing Article 2 of its Constitution which claimed jurisdiction over the 32 counties of Ireland and this served to ease tensions between North and South.
 2. Under the agreement 'Strands' were designed to link together and create positive inter-relationships between the political capitals of Belfast, Dublin and London.
 3. One of the key political bodies set up between the two communities was the 'North-South Ministerial Council' where ministers of the Northern Ireland administration and those of the Irish government would work together and this has strongly improved interaction between the two communities. **(2 SRP =4m)**

CULTURAL INTERACTION:

- Sports illustrates both co-operation and division between North and South as the national rugby team is on an all-Ireland basis as is boxing where cultural differences are accepted. On the other hand football (soccer) is divided as both North and South have their own teams. **(1 SRP =2m)**
- Domestic sports i.e. G.A.A. is played on an all-Ireland basis but in the North it is played almost exclusively by Catholics. The G.A.A. among Northern Catholics gives them a sense of identity with traditional Irish customs and their Celtic past. **(1 SRP =2m)**
- In education there is a marked difference as the Republic of Ireland has its own education system while that of Northern Ireland is linked directly to the British system. Within Northern Ireland there is a segregated education system between Catholics and Protestants. **(1 SRP =2m)**
- In the media there are differences between the communities. Catholics in the North and the South watch R.T.E. stations while Protestants in the North watch B.B.C. stations. It should be noted however that globalisation has brought U.S. television programmes particularly soaps which are watched by both communities but on different channels. **(1 SRP =2m)**
- There are also religious differences between the two communities. The South is predominantly Catholic while the majority in North is mainly Presbyterian (Protestant). This led to distrust between the two communities as the Catholics believed that the Presbyterians were pawns of Britain while the Presbyterians believed that Catholics were pawns of Rome. **(1 SRP =2m)**

(15 SRP =30m)

Case study 2(i): The Basques

EXERCISE 2

Read the answer to the question on the importance of culture defining a region on pages 166 - 167 of the workbook and fill in the appropriate blanks.

Case study 2(ii): Spain

EXERCISE 3

Read the following sample answer on cultural diversity within a country and fill in the key points to your workbook on pages 168 & 169

SAMPLE QUESTION:

WITH THE AID OF A CASE STUDY EXPLAIN THE INTERACTION OF DIFFERENT CULTURAL GROUPS WITHIN A POLITICAL REGION?

SAMPLE MODEL ANSWER 43

- Spain has a centralised administration in its capital Madrid but a degree of autonomy i.e. a president and parliament has to be given to the Catalans and the Basques who are clearly defined cultural groups within Spain. **(1 SRP =2m)**

- These cultural groups have been granted local government powers to rule over cultural affairs, education, economic development and the environment. **(1 SRP =2m)**
- Both the Basque region (Bilbao) and Catalonia (Barcelona) have their own houses of parliament. Their distinctive languages Euskera and Catalan are co-official languages with Spanish. **(1 SRP =2m)**

THE BASQUE REGION

- This region is well known for demanding political independence located next to the western end of the Pyrenees mountains along the coast of the Bay of Biscay. **(1 SRP =2m)**
- The Basques are a distinctive cultural group centred around the city of Bilbao with a population of approximately 2 million. **(1 SRP =2m)**
- The Basques have lived in the area for about 5,000 years and have developed their own cultural identity. **(1 SRP =2m)**
- Their language (Euskera) differs from all other European language. The survival of the language has been a key factor in the survival of this uniquely distinctive cultural region. **(1 SRP =2m)**
- Tensions rose in the past when the Spanish government under General Franco a fascist dictator banned all expressions of Basque identity most notably the language and imprisoned any Basque nationalists who spoke out against the ban. **(1 SRP =2m)**
- One group to react to the government's repression was the extreme nationalist group ETA. This group are responsible for the deaths of over 800 people due to its bombings campaigns and assassinations in its drive to gain independence. **(1 SRP =2m)**
- In return for peaceful co-existence the Spanish government granted the region a high level of autonomy in 1979. **(1 SRP =2m)**
- This had the desired effect i.e. it weakened support for ETA. There has been a ceasefire since March 2006. It is hoped that this will be permanent and result in improved relations between the Basques and the Spanish. **(1 SRP =2m)**
- Today the Basque region has focused on developing numerous businesses and has a strategic regional development plan focusing on science and technology. **(1 SRP =2m)**

CATALONIA

- This is another region that has gained a lot of regional autonomy because of its unique cultural identity. They have their own language 'Catalan' and unlike the Basque region they have a very prosperous economy. **(1 SRP =2m)**
- The region has attracted large scale industrial investment and accounts for 40% of Spanish industrial exports. **(1 SRP =2m)**
- It is important to note that this region is capable of being very self-sufficient if it were to gain independence. **(1 SRP =2m)**

(15 SRP's = 30 marks)

Case study 3(i): European Union

EXERCISE 4

Read the answer to the question on the impact of European union expansion on Ireland on pages 169 - 171 of the workbook and fill in the appropriate blanks.

Case study 3(ii): European Union

EXERCISE 5

Read the following sample answer on the future of the European Union and fill in the key points to your

workbook on page 172 & 173

SAMPLE QUESTION:

OUTLINE THE FUTURE OF THE E.U. IN RELATION TO ECONOMIC, POLITICAL AND SOVEREIGNTY ISSUES?

SAMPLE MODEL ANSWER 44

THE FUTURE OF ECONOMIC UNION:

- The economic future of the E.U. is currently focused on the economic integration of countries from Eastern Europe which were formerly part of the communist block. **(1 SRP =2m)**
- It is likely that the overwhelming economic benefits of being part of the E.U. will eventually led to the integration of all Eastern European countries including former soviet states excluding perhaps Russia. **(1 SRP =2m)**

ECONOMIC BENEFITS OF EXPANSION FOR THE E.U. STATES:

1. By 2007 it increases the size of the European market by 130 million approx
2. The new states provide new sources of raw materials e.g. coal from Poland
3. The increased international migration of educated young workers to Western Europe to replace the ageing labour force and fill job vacancies
4. New countries have low standards of living, thus wages are low and consequently these provide low cost production locations for industry
5. New states have the potential for higher rates of economic growth which is a positive trend for overall growth of the E.U. **(2 SRPs =2m + 2m)**

ECONOMIC DRAWBACKS OF EXPANSION FOR THE E.U. STATES:

1. These new Eastern European states are much poorer and much less developed than any other E.U. members and therefore the process of bringing these economies into line with the E.U. average will have a much greater financial impact on the E.U.'s economic base.

Statistic:

Bulgaria = G.D.P = 24% of the E.U. average in 2007

2. In the primary sector the less developed countries are over reliant on low value agriculture.
3. In the secondary sector their manufacturing industries are outdated and inefficiently run i.e. incapable of competing in an open market economy
4. In the tertiary sector their standard of services are poor and infrastructure is underdeveloped
5. The large Eastern European periphery 'Convergence regions' will dominate regional policy i.e. soak up all the structural funds and social funds (E.R.D.F.) which were previously allocated to long established peripheral regions e.g. the B.M.W. and the Mezzogiorno **(2 SRPs =2m + 2m)**

Statistic:

Initial economic cost of Eastern European integration = 25 billion euros

THE FUTURE OF POLITICAL UNION

- The development of political union within the E.U. was to be underpinned by the 'European Constitution' and the 'Lisbon Treaty'. **(1 SRP =2m)**
- The goal of the European constitution rejected, by the French and the Dutch, and the subsequent Lisbon treaty's aim is to allow the E.U. to
 1. To exert a greater international influence as one political unit
 2. To allow for the more efficient running of E.U. institutions
 3. To act as a blue print for future E.U. development. **(1 SRP =2m)**

CHANGES TO THE E.U.'S POLITICAL STRUCTURE ENVISAGED BY EUROPEAN CONSTITUTION AND LISBON TREATY:

- a. A president would be elected to be the face of the E.U. and a foreign minister would be elected to deal with all foreign affairs and defence measures.
- b. Each state would no longer be guaranteed a seat on the commission and 'qualified majority voting' would be extended to new areas.

Definition:

Qualified Majority voting: This is a means of weighting votes where a certain number of votes above the majority are needed for a motion to be passed.

In relation to the European Union all major important decisions up till now needed unanimity i.e. where each member state had to be in agreement. Since the Nice Treaty a Qualified Majority Vote of at least 62% and half the E.U. states is all that is needed for a motion to be carried

- c. The decision making power of national governments will be reduced and transferred to the E.U. **(1 SRP =2m)**

PROBLEMS WITH THE RATIFICATION OF BOTH THE CONSTITUTION AND LISBON TREATY

1. There are deep divisions between member states on the issue of control of the balance of power between large and small states
2. There is a fear that former E.U. states will have less impact on the E.U. as it expands i.e. a shift of the E.U. centre of control from Western to Eastern Europe
3. Member states have different political agendas especially in relation to a centralised European defence strategy which might compromise the neutrality of countries such as Ireland. The Iraq war was an example of how countries in the E.U. were divided on military issues. **(2 SRPs =2m + 2m)**

THE FUTURE OF SOVEREIGNTY WITHIN THE E.U.

Definition:

Sovereignty is the ability of a country to make decisions on issues which affect it i.e. to rule itself on policies such as the defence of the country.

- The future of sovereignty or autonomy of member states within the E.U. is linked to the E.U. constitution now superseded by the Lisbon treaty, both of which would give the E.U. more power at the expense of national governments in the decision making process. This power is focused in two areas: **(1 SRP =2m)**
 1. Foreign and security policy
- A centralised European defence strategy i.e. a European rapid reaction military army would result in the loss of decision making power of individual national governments on defence issues. **(1 SRP =2m)**
- Ireland for instance would eventually have to forgo its strategy of neutrality impacting on its sovereignty. **(1 SRP =2m)**
 2. Reforms of the E.U. institutions

- Countries will no longer have a 'veto' on certain aspects of E.U. policy and they will no longer have an automatic right to a commissioner thus reducing their power. **(1 SRP =2m)**
 - An increase in the number of countries in the union decreases the power of the former members and the extension of 'Qualified majority voting' will only serve to further reduce their power. **(1 SRP =2m)**
- (15 SRP's = 30 marks)**

Case study 3(ii): European Union

EXERCISE 6

Read the following sample answer on the European Union and fill in the key points to your workbook on page 173 & 174

SAMPLE QUESTION:

ASSESS HOW THE BOUNDARY OF A POLITICAL AND SOCIO-ECONOMIC REGION YOU HAVE STUDIED HAVE DEVELOPED AND EXPANDED OVER TIME?

SAMPLE MODEL ANSWER 45

- The development of economic, social and political European integration has been one of the greatest success stories of the modern world. **(1 SRP =2m)**

POLITICAL DEVELOPMENTS:

- After world war 2 the economies of most countries in Europe were devastated. **(1 SRP =2m)**
- It was the vision of Schmann and Monnet that was instrumental in driving forward the process of European integration starting with the formation of the European Coal and Steel Community (E.C.S.C.). **(1 SRP =2m)**
- This led to the Treaty of Rome in 1957 where the 6 initial member states joined together to form the E.E.C. and agreed to develop their economies and improve the quality of life of their people. **(1 SRP =2m)**
- From these initial developments has grown the worlds largest and most prosperous trading block consisting of 27 countries and nearly half a billion people. **(1 SRP =2m)**
- There have been 7 key stages of European enlargement since its initial creation.
 1. In 1957 the original 6 members were West Germany, France, Italy, Belgium, Netherlands and Luxembourg. **(1 SRP =2m)**
 2. In 1973 a westward enlargement expanded the core area of the E.C. to include Ireland, Great Britain and Denmark. **(1 SRP =2m)**
 3. In 1981 Greece and 1986 Spain and Portugal joined to expand the E.C.'s southern boundaries further into the Mediterranean. **(1 SRP =2m)**
 4. In 1990 the reunification of Germany added a further 17 million to the European Union population. **(1 SRP =2m)**
 5. In 1995 the E.U. expanded north into Scandinavia as Sweden and Finland joined and Austria also joined. **(1 SRP =2m)**
 6. In 2004 the largest single expansion took place to include eight former communist states from Eastern and Central Europe i.e. Latvia, Lithuania, Estonia, Czech republic, Slovak republic, Hungary, Poland, Slovenia and also the islands of Malta and Cyprus joined the same year. **(1 SRP =2m)**
 7. In 2007 Bulgaria and Romania joined to bring the number of E.U. countries to 27. **(1 SRP =2m)**
- The eastern enlargement was much more difficult due to the underdeveloped economies of these countries. **(1 SRP =2m)**
- Through the stages of enlargement the E.U. now covers a significant part of the European continent. **(1 SRP =2m)**
- A succession of treaties have deepened the political and economic development of the E.U. such as:

1. The Maastricht treaty in 1992 brought in a common foreign and defence policy.
2. The Amsterdam treaty in 1997 harmonised immigration policy and restructured institutions to enable the E.U. to cope with enlargement.
3. The Nice treaty in 2003 introduced the 'E.U. charter of Fundamental rights' to promote political equality among all E.U. citizens. **(2 SRPs =2m + 2m)**

SOCIO-ECONOMIC DEVELOPMENTS:

- The European Coal and Steel Community (E.C.S.C.) was set up in 1951 to encourage economic cooperation among the initial 6 member states. The motivation for setting up the E.U. was primarily economic. **(1 SRP =2m)**
- The Treaty of Rome in 1957 opened up the first common market among the six member states and created Eurotom. **(1 SRP =2m)**

Definitions:

COMMON MARKET: This enabled free trade between member states i.e. the elimination of tariff barriers (Tariffs = Taxes put on imports)

EUROTOM: This was cooperation among member states to develop nuclear power for electricity generation and it also sought to set high safety standards particularly for disposal of nuclear waste.

- In 1962 the then E.E.C. introduced the Common Agricultural policy to regulate food production and ensure fair prices for farmers – (See also C.A.P. & C.F.P. page_____) **(1 SRP =2m)**
- In 1974 the E.C. set up the European Regional Development fund (E.R.D.F.) and provided structural funds to develop poorer regions of the E.C. – (See C.R.P. page_____) **(1 SRP =2m)**
- The Single European Act 1987 (S.E.A.) allowed for the supremacy of European law over national law in some areas. **(1 SRP =2m)**
- The Maastricht Treaty 1993 led to an enhancement of social and economic policy. **(1 SRP =2m)**
- The Amsterdam Treaty 1997 saw the introduction of the single European currency (EURO) in 1999 and 12 of the 15 member states opted for the European currency. **(1 SRP =2m)**

15 SRP's = 30 marks)

Case study 4: Cool temperate oceanic (A Climatic region)

EXERCISE 7

Read the answer to the question on a climatic region on pages 174 - 176 of the workbook and fill in the appropriate blanks.

Case study 5: East/West Germany

EXERCISE 8

Read the following sample answer on the impact of a changing political boundary on cultural groups and fill in the key points to your workbook on page 177 & 178

SAMPLE QUESTION:

EXAMINE WITH THE AID OF A CASE STUDY HOW CHANGES IN A POLITICAL BOUNDARY CAN HAVE ECONOMIC, SOCIAL AND CULTURAL IMPACTS

SAMPLE MODEL ANSWER 46

ECONOMIC EFFECTS OF REUNIFICATION:

- One of the key economic problems affecting the former East Germany after reunification was that around 6,000 state owned companies turned out to be much less competitive than most had assumed and they closed down as they could not compete in an open market economy. **(1 SRP =2m)**
- The German Government's response was to inject large sums of money to make the former East Germany more attractive for industry. In the first 15 years after reunification Germany's 'Aufban Ost' – 'Rebuilding of the East' has already pumped 1.25 trillion euros into developing the region. **(1 SRP =2m)**
- The funding has succeeded in modernising key infrastructure such as:
 1. Building of over 5,000 km's of rail lines
 2. Building of over 11,000 km's of road
 3. Upgrading the telecommunications network
 4. Switching from heavily polluting coal burning power stations to gas power stations thus aligning the region with E.U. environmental standards. **(1 SRP =2m)**
- New job opportunities have been created in the former East Germany as generous government subsidies have attracted over 2,000 multi-national companies such as B.M.W., Volkswagen, Motorola, General motors and Siemens. Another key attractions of the former East Germany for industry is that it has become a low cost location and therefore very attractive for investors. **(1 SRP =2m)**

Statistics:

AVERAGE HOURLY WAGE COSTS IN GERMANY IN 1990
Former East Germany = 17.15 euros per hour
Former West Germany = 28.14 euros per hour

- In the former West Germany however some services have begun to decline as the money has been pumped into the East **(1 SRP =2m)**

SOCIAL EFFECTS OF REUNIFICATION:

- Massive social problems - unemployment is running at an average of 18.6% but soared to 28% in some areas of the former East Germany. Before German reunification in 1990 the 'Chemical Triangle' of Leuna – Halle – Bitterfeld employed over 100,000 people but this has been reduced to less than 10,000. **(1 SRP =2m)**

Statistic:

UNEMPLOYMENT IN THE FORMER EAST GERMANY: OVER 3 MILLION OUT OF A POPULATION OF 17 MILLION
--

- These levels of unemployment have resulted in the mass migration of over 1.5 million people to the former West Germany, most of them young and well-educated leading to a 'Brain Drain' from the former East Germany leaving behind an ageing and economically depressed community. **(1 SRP =2m)**
- This migration of people to cities of the former West Germany put pressure on the already stretched housing sector and led to resentment of the Eastern migrants. **(1 SRP =2m)**
- The break up of former East German communities due to migration has led to a break up in the fabric of society, with resultant feelings of isolation. **(1 SRP =2m)**

CULTURAL EFFECTS OF REUNIFICATION:

- Many people who returned to live in the former East Germany discovered that they were large cultural differences in language, dress and food and cultural outlook. The former West Germans found that they were distrusted by the former East Germans despite the fact that they were originally from the region. **(1 SRP =2m)**
- Reunification has also led to the growth of racism in cities of the former West Germany as East Germans resented the immigrant Turks having jobs while they were left unemployed. **(1 SRP =2m)**
- Depressed areas in the former East Germany have become breeding grounds for political disaffection where people have drifted politically to the far left or the far right making integration even more difficult. Many former East Germans believe that capitalism inflicted upon them by the former West Germany has not been successful and has failed to create an equal Germany. This has resulted in a gloomy, apathetic outlook to the aim of a new culturally integrated Germany. **(1 SRP =2m)**
- The older generations look back with nostalgia to the security created by the government of the G.D.R. where life may have been dull and boring but food was subsidised and jobs were for life. This has led to the rise of 'Ostalgie' – 'Eastern Nostalgia' focusing on cultural identity associated with the former East Germany which only serves to widen the cultural gap between East and West. **(1 SRP =2m)**
- The former West Germans on the other hand see the former Eastern block citizens as ungrateful given the high costs the former West German citizens have paid for reunification. **(1 SRP =2m)**

- Overall the greatest success so far has been the economic, social and cultural integration in the capital Berlin where divisions of the past are fading rapidly and a new proud European city has begun to emerge. **(1 SRP =2m)**

15 SRP's = 30 marks)

Case study 6: The Gaeltacht

EXERCISE 9

Read the answer to the question on a language boundary which has changed over time on pages 178 - 180 of the workbook and fill in the appropriate blanks.

Case study 7(a): Dublin city

EXERCISE 10

Read the answer to the question on the expansion of an Irish urban centre over time on pages 180 - 183 of the workbook and fill in the appropriate blanks.

Case study 7(b): Paris city

EXERCISE 11

Read the following sample answer to the question on the expansion of a non-Irish European urban centre on pages 184 and fill in the key points to your workbook on page 184

SAMPLE QUESTION:

EXAMINE WITH THE AID OF A EUROPEAN CASE STUDY HOW A NODAL URBAN OR CITY REGION MAY GROW AND EXPAND OVER TIME

SAMPLE MODEL ANSWER 47

INTRODUCTION:

The city of Paris is the capital and largest city in France (12 million) and is a primate city. With its large domestic market Paris has become a nodal point i.e. the hub of the French road, rail and air transport networks and a thriving inland port of the river Seine. **(1 SRPs =2m)**

Factors which have contributed to the expansion of Paris:

1. It is a nodal point and consequently a focus of routeways for all road, rail and port traffic.
2. The city is the French capital and it has become the financial, commercial, services and industrial centre of France providing much employment and consequently attracting large number of people into the city.
3. A rural to urban migratory trend increased the cost of land and residential property in the city and forced people to look for houses or apartments outside the city centre which resulted in the creation of a commuter culture.
4. Planning restrictions on high-rise residential developments in the inner city led to urban sprawl.
5. Government policy led to the centralisation of government departments providing jobs in administration in the city. **(2 SRPs =2m + 2m)**

Problems with the growth of Paris

Traffic congestion

- Traffic congestion has increased as many suburban dwellers have to travel across Paris to another suburb for work. The nodal road pattern focuses traffic towards the centre. 35% of commuters use cars causing congestion on narrow city centre roads, noise and air pollution, accidents and parking problems. Public transport is poorly co-ordinated **(1 SRPs =2m)**

Urban sprawl

- The lack of an overall planning scheme resulted in an uncoordinated spread of the suburbs into the surrounding rural areas of Paris. Important woodland, farmland and waterside habitats for wildlife and recreation were lost and prime agricultural land was developed for urban landuses. As the city grew further commuting distances increased so worsening the congestion and pollution problems **(1 SRPs =2m)**

Population growth

- By 1980 there were just over 8 million people living in the Paris agglomeration. This increase has accelerated after 1954 by 150,000 per year due to rural depopulation, a rise in birth rates and the arrival of immigrants seeking work. The pull of Paris was accompanied by a decline in towns and villages in the surrounding area, leading to what has been called the French desert. Since 1980 the growth of the city slowed and it is now in decline due to counter-urbanisation **(1 SRPs =2m)**

Industry

- The nineteenth century industry has been located in the inner city suburbs of St. Denis, Aubervillas and Bobigny and also along several stretches of the river Seine. However these factories were set in old, cramped buildings and caused considerable pollution. **(1 SRPs =2m)**

Housing

- Many inner suburbs form an extensive 'twilight zone'. In the 1970's over 89% of the houses were built prior to 1914 with many being small and lacking adequate water supply or sewerage. Post war policies had concentrated on building high rise flats in huge estates in suburban areas. These created social problems, lacked recreational facilities, were too distant from work (increasing traffic congestion) and were often hastily built. **(1 SRPs =2m)**

Solutions to problems

1. Boulevard Peripherique

- Napoleon Bonaparte in the early nineteenth century built a road network which radiated outwards from the Arc de Triumphe. By the early 1960's the increase in cars and lorries had led to acute traffic congestion as all the routes met in the city centre. Major improvements were essential to help the economic and social life of the city. The first major motorway scheme was the 'Peripherique' which is a

ringroad surrounding the centre of the old city (Paris ville). The A86 (L'autoroute Urbaine) encircles the outer parts of Paris. **(1 SRPs =2m)**

2. New overspill towns

- By 1970 Paris was crowded, polluted and packed with traffic to take the pressure off, five new towns were built. These five new towns were built along the parallel preferential axes e.g. Marne Le Vallee and Evry. The towns are relatively green and pleasant environments to live in, with good public transport links into Paris so that people can leave their cars at home. **(1 SRPs =2m)**

3. Suburban nodes

- Le Defense has been established as an example of a suburban node to give more housing, more offices, better shops and more services such as health and sports centres. There are new office buildings so that people do not have to commute into the centre of Paris every day. **(1 SRPs =2m)**

4. Preferential Axes

- As part of the 'Grand Plan' Parisian planners have tried to divert growth away from the city centre and along two preferential axes, North and South of the river Seine. These areas allow for economic growth of the region without concentrating further development in the congested core of Paris. Along these axes are found motorways, new towns, new rail links, airports and commercial activity that has been attracted to more accessible locations away from the city centre. **(1 SRPs =2m)**

5. RER

- The 'Reseau Express Regional' (RER) is a new express metro using surface suburban routes and going underground in the city centre. Eventually it will link the city centre to Charles De Gaulle airport in the north, Orly airport in the South and the five new overspill towns. It is expected that the final network will be 300km long. **(1 SRPs =2m)**

6. Infill development

- By 1964 Paris had many old residential districts in the inner city which were in need of **renewal or redevelopment**. The French government set up the '**Schema Directeur**' to solve the inner city problems in the following ways:
 - (E) **The conservation of historic buildings** and pedestrianising the city streets.
 - (F) The **development of eight growth centres** in the inner suburbs which were to include shops and offices such as La Defense.
 - (G) **Building of five planned overspill satellite towns** outside the city to limit urban sprawl.
 - (H) Improvement in **urban transport** focusing on public transportation **(2 SRPs =2m + 2m)**
- The scheme has transformed Paris from an old rundown city to a city that is ultra-modern. Old derelict city townhouses have been modernised and bought up by young urban professionals who work in the city centre. An example of these developments is 'La Defense' which now houses one of the largest office complexes in the world consisting of many headquarters of global financial institutions. **(1 SRP =2m)**

Case study 8: Nord Pas de Calais (France)

EXERCISE 12

Read the answer to the question on an industrial region in decline on pages 185 & 186 of the workbook and fill in the appropriate blanks.

MAPS,
PHOTOS &
GRAPHS

Section

3

CHAPTER 23

MAPS & AERIAL PHOTOGRAPHS

SKILLS FOR SHORT QUESTIONS & PART (A)'S OF LONG QUESTIONS

EXERCISE 1

Read the answer to the questions on the ten skills associated with ordnance survey maps on pages 188 - 194 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the answer to the questions on the seven skills associated with aerial photographs on pages 194 - 197 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the introduction to drawing sketch maps from an ordnance survey map on page 198 of the workbook and underline the key points.

EXERCISE 4

Draw a sketch map of the Galway ordnance survey map page 199 of the workbook into your copy. You may use the sample on page 198 as a guide. (You may randomly pick some items to put in your key)

EXERCISE 5

Draw a sketch map of the Drogheda ordnance survey map page 200 of the workbook into your copy. Include on your map the items outlined in sample question 2 page 201.

EXERCISE 6

Read the introduction to drawing sketch maps from aerial photographs on page 201 of the workbook and underline the key points

EXERCISE 7

Draw a sketch map of the Galway aerial photograph on page 202 of the workbook into your copy. Include on your map the items outlined in sample question 3 page 202.

EXERCISE 8

Draw a sketch map of the Drogheda aerial photograph page 203 of the workbook into your copy. Include on your map the items outlined in sample question 4 page 203.

CHAPTER 24

MAPS & AERIAL PHOTOGRAPHS

SKILLS FOR LONG QUESTIONS

EXERCISE 1

Read the answer to the question on primary activities on page 204 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the following sample answer on the location of industry and fill in the key points to your workbook on page 205

SAMPLE QUESTION:

IDENTIFY BY GRID REFERENCE A SUITABLE SITE FOR THE LOCATION OF A MAJOR INDUSTRY OF YOUR CHOICE ON THE KILLARNEY MAP EXTRACT. EXPLAIN TWO REASONS WHY YOU CHOOSE THIS SITE?

SAMPLE MODEL ANSWER 48

I would locate my factory at V956923. (2 marks)

I have chosen this site for the following reasons:

Reason 1 – Site related factors

- Well spaced out contours on the site would indicate that it is **low lying**, which makes it ideal for building a factory and possible future expansion of the factory.
- The **site is readily accessible** as it is situated on a National Primary Route, the N22, which allows for ease of import of raw materials and export of finished goods.
- It is located outside Killarney approximately one kilometre from the built-up area of Killarney town. It is also in an area of **low population density**, thus reducing the risk of pollution.
- The site is well drained by the Deenagh river and the infrastructure in and around the site is well developed and accessible to the **road junction** at 0961918 via the N22. (4 SRPs = 8 marks)

Reason 2 – Situation related factors

- It is **far removed from Lough Leane**, thus reducing the risk of chemical runoff into the Lough.
- The site is close enough to Killarney town to guarantee a **good supply of labour**.
- The site is situated just off the **N22** and is connected to the rest of the map through a roundabout at 0961918, which joins up with national secondary roads: the N71 southwards and the N72 westwards. The site is also near a **railway line**. There is a railway station at M971908 which would allow for the movement of raw material and the finished product by rail.
- The factory would be located near the town of Killarney, which would provide a **market** for processed goods. (5 SRPs = 10 marks)

20 Marks

EXERCISE 3

Read the answer to the question on secondary and tertiary activities on pages 205 & 206 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer on the differences between OS maps and aerial photographs and fill in the key points to your workbook on page 206 & 207

SAMPLE QUESTION:

LIST AND EXPLAIN THE DIFFERENCES BETWEEN O.S. MAPS AND AERIAL PHOTOGRAPHS?

SAMPLE MODEL ANSWER 49

Location

- On OS maps *exact* locations can be stated by a four figure or six figure grid reference. (2 marks)
- On an aerial photograph only a *general* location can be stated, e.g. the shop is located in the north-west corner (if using a vertical photograph) or in the right background (if using an oblique photograph).

Naming features

- On OS maps most features are *named*. (2 marks)
- On aerial photographs features are *not named*. (2 marks)

Communications

- On OS maps all major forms of *transportation are named*. The map clearly shows national primary roads, national secondary roads and third-class roads. (2 marks)
- On aerial photographs *roads are not named*. Aerial photographs, however, provide more *evidence regarding traffic patterns*. (2 marks)

Altitude

- On OS maps it is possible to state *exact* height by using contours, spot heights and triangulation pillars. The contour lines also indicate flat or steep land, i.e. gradient. (2 marks)
- On aerial photographs it is not possible to state exact height or gradient, i.e. it is more *general*. (2 marks)

Land use

- On OS maps it is often *difficult to identify* land use. Shape and heights of buildings are not shown. It is also difficult to determine agricultural land use with the exception of forestry, which is clearly labelled on maps. Town and cities are shown but no detail is provided regarding building heights, shape or density. (2 marks)
- Aerial photographs provide *great detail* about land use. Building types, their size and shape can be identified. It is also possible to see density of settlement in an urban area. However, the photograph fails to provide names of buildings. (2 marks)

20 Marks

EXERCISE 5

Read the answer to the question on the development of a city on pages 207 & 208 of the workbook and fill in the appropriate blanks.

EXERCISE 6

Read the following sample answer on the development of a town and fill in the key points to your workbook on pages 208 & 209

SAMPLE QUESTION:

WITH THE AID OF THE DROGHEDA O.S. MAP EXPLAIN THREE REASONS WHY THE TOWN HAS BECOME AN IMPORTANT CENTRE OF ECONOMIC ACTIVITY?

SAMPLE MODEL ANSWER 50

Drogheda's an important centre of economic activity. On the map it is the main **transport focus**, the **centre of manufacturing** and the main **tourist centre**.

1 Transport focus

83

- Droghedais served by **a variety of transport types**. The **M1** Motorway bypasses Drogheda but is connected to the town by a number of secondary, regional and third-class roads, e.g. at the Toll Plaza 0066736 the M1 serves Drogheda by means of a third-class road. (2 marks)
- A number of **regional roads** connect Drogheda with the northern section of the map, e.g. the R166 and the R167. (2 marks)
- Droghedais also served by three **railway lines**. One line enters from the south-west at 0050730, one from the south-east at 00167700, and one from the north at 0101789. (2 marks)
- All three lines **link up** at the railway station at 0099748. The railway lines allow for the movement of people and goods. (2 marks)
- On the **river Boyne**, on the eastern approach to Drogheda, there are many beacons, e.g. 0127761 and 0134764. These beacons guide boats to the quay at 0108757. The quay allows for the importation and exportation of goods by sea. (2 marks)

2 Manufacturing centre

- Droghedais an industrial centre. There are two **industrial estates** on the west and south-west of the town, one at 0074745 and one at 0080741. (2 marks)
- These are located on the edge of the town allowing easy **access** to the M1 by third-class roads. They are both near a railway line. Proximity to these two transport modes allows for easy importation and exportation. (2 marks)
- Droghedais also a **coastal town**, which would allow industries to import and export goods by sea. (2 marks)
- Droghedais a large town so there would be an abundant **labour supply** nearby. (2 marks)
- There are also two **reservoirs**, at 0064778 and 0071774. These would provide water for cooling processes at the industrial estates. (2 marks)

3 Tourist centre

- Drogheda possesses many tourist **antiquities**. There is an abbey at 0086753, an old city gate at 0088747, a mound at 0095745, a motte at 0091747. There is a museum at 0086745, which would attract tourists to view ancient artefacts. (2 marks)
- Modern-day tourist attractions would include the 18 hole **golf course** at Baltray 0148780, which would attract golfing enthusiasts. (2 marks)
- There is a **tourist information centre** at 0085748 to provide details about the historical attractions of the area. (2 marks)
- Tourists have **easy access** to the town via the M1 and three railway lines. The M1 bypasses Drogheda on its west side but is linked by regional and third-class roads to the town. There is a railway station at 0099748. (2 marks)
- The **youth hostel** at 0095765 would also attract tourists in the younger age bracket, e.g. backpackers. (2 marks)

30 Marks

EXERCISE 6

Read the answer to the question on historical development on pages 209 - 211 of the workbook and fill in the appropriate blanks.

EXERCISE 7

Read the following sample answer on functions of a city and fill in the key points to your workbook on page 147

SAMPLE QUESTION:

WITH THE AID OF THE GALWAY AERIAL PHOTOGRAPH EXAMINE THREE FUNCTIONS OF A CITY?

SAMPLE MODEL ANSWER 51

1 Transport function

- The bridge crossing the river in the centre of the photograph has an important transportation function as it is the only bridge on the photograph linking the foreground to the background. Therefore this **bridging point** would have strategic importance for movement of both merchandise and people. (2 marks)
- This bridging point has become a **focus of routeways** for road traffic as roads emerge towards the bridge from the background and foreground of the map. (2 marks)
- **Commercial** activities on the photograph are focused primarily on the centre ground and centre foreground where buildings tend to be taller than the rest of those in the photograph, i.e. over two storeys high. This would indicate that this area would possibly be the **central business district** (CBD). The **car park** located in the centre foreground would seemingly be an appropriate place for shoppers to park and the presence of a significant number of cars would indicate this. (2 marks)
- There is a factory, i.e. evidence of **industry** located in the right centreground. The large complex with very few windows and a large carpark would indicate that this would likely be a factory. It is located next to the river for transportation purposes. (2 marks)
- The **river** flowing across the centreground of the photograph could be used for the importing and exporting of goods. There are boats moored in the right centreground that could be used for this purpose although the size of these them indicates that they may be pleasure craft with a recreational function. There is also a pier in the right foreground where boats could dock. (2 marks)
- There is possibly a **canal** in the right centre ground where boats are moored. Even if this is not a canal but rather a tributary of the main river there is certainly evidence of a lock to control the height of the river. This would ensure that the river height would be sufficient to allow the transportation of boats in and out of the area. (2 marks)

2 Religious function

- There is a **church or cathedral** in the centre of the photograph. It would more likely be a cathedral due to its sheer size in relation to the other buildings. (2 marks)
- It is **centrally located** and contains a large car park, which is in great demand judging by the number of cars present. (2 marks)
- The cathedral is **accessed** by two main roads, one road links to the residents living in the background while the other road crosses the river to link people living in the foreground of the photograph. (2 marks)

3 Residential function

- There is evidence of both **planned and unplanned** residential functions in the photograph. Unplanned settlements are evident in the older, more built-up areas around the CBD in the left centreground and left and centre foreground, while planned housing estates are evident in both the left and right background of the photograph. (2 marks)
- Characteristically, the **inner city** or CBD area contains more **terraced** housing, as can be seen along the roads in the centre foreground and left foreground of the photo. (2 marks)
- There are **many services** shown that are available to the people residing in the area covered by this photograph. Such services would include ecclesiastical/religious services in the centre, recreational services such as boating activities in the right centreground, and shopping in the centre and centre foreground. (2 marks)
- The suburbs' housing estates in the left and right background have many detached and **semi-detached houses** which are not evident in the CBD. (2 marks)

- Residential functions are also closely *linked to manufacturing* and commercial activities on the map. The commercial activities in the CBD and the manufacturing activities in the right and left centreground would provide much needed employment for those living in the area. (2 marks)

To *conclude* it is clear from this oblique aerial photograph of Galway city that it is a multi-functional settlement with functions such as transportation, religious, residential, manufacturing, recreational, tourist and services. (2 marks)

30 Marks

CHAPTER 25

GRAPHS, CHARTS & SATELLITE IMAGERY

EXERCISE 1

Read the answers to the different types of graphs and charts on pages 212 - 215 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Fill in the appropriate blanks to the twelve satellite images on page 216 of the workbook.

HUMAN

ELECTIVE

Section

4

CHAPTER 26

POPULATION CHANGE

EXERCISE 1

Read the following sample answer on population density & distribution and fill in the key points to your workbook on page 218 & 219

SAMPLE QUESTION:

DESCRIBE AND EXPLAIN THE DIFFERENCE BETWEEN THE TERMS 'POPULATION DENSITY' & 'POPULATION DISTRIBUTION' AND THE FACTORS THAT AFFECT THEM?

SAMPLE MODEL ANSWER 52

POPULATION DISTRIBUTION:

- Global population distribution refers to the dispersal of people across the world i.e. the number of people who live on each continent. **(1SRP = 2m)**
- The world’s population is unevenly distributed around the world:
 1. 90% of the world’s population live in the Northern hemisphere.
 2. 80% live below 500m above sea level
 3. 70% live within 500km of the coast **(1SRP = 2m)**
- On a global scale there are four distinct regions where most of the worlds population are located and these are to be found in sub-tropical regions i.e. latitude 20 degrees to 40 degrees North and temperate regions i.e. latitude 40 degrees to 60 degrees North.

NAME OF REGION	REGION TYPE	LATITUDE
1. The Indian sub-continent	Sub-tropical	20 – 40 North
2. South – East Asia	Sub-tropical	20 – 40 North
3. West & Central Europe	Temperate	40 – 60 North
4. East coast of the U.S.A.	Temperate	40 – 60 North

(1 SRP = 2m)

- On a global scale there are also four distinct types of regions that are very thinly populated i.e. few human inhabitants.

TYPE OF REGION	EXAMPLE
1. Polar ice caps	Antartica (South Pole)
2. Mountainous regions	Himalayas (Asia)
3. Hot desert regions	The Sahara (Africa)
4. Equatorial rainforests	The Amazon (South America)

(1SRP = 2m)

EDCO: put in a map of the world with one example of each of the 8 above: use one colour for low population and one for high population

You may also include a photos of high and low density areas

POPULATION DENSITY:

- Population density refers to the number of people living in a specific area. It is measured in the number of people per square kilometre.

The formula for population density =

(NUMBER OF PEOPLE DIVIDED BY THE NUMBER OF KILOMETERS) **(1SRP = 2m)**

FOCUS ON POPULATION DENSITY BY CONTINENT

1. **Europe:** It has a average/moderate percentage of the world's population (12%) but has a high population density as the landmass is small.
2. **Australia & New Zealand:** They have a low percentage of the world's population (0.5%) and a large landmass and therefore has a low population density.
3. **Asia:** Despite the fact that it is a large landmass they have over half the world's population (61%) and therefore have a high population density.
4. **America & Africa:** They have a moderate percentage of the world's population (13.5% & 13% respectively) with a reasonably sized landmass and therefore have a moderate/average population density.
5. Population density is not always an accurate measurement as it can vary widely within continents i.e. the coastal regions usually have a much higher population density.

(3 SRPs = 6m)

FACTORS AFFECTING BOTH THE GLOBAL DISTRIBUTION AND DENSITY OF POPULATION

PHYSICAL FACTORS:

1. **Relief:** People are attracted to lowlands area due to the ease of accessibility, a warmer environment and the suitability of land for agriculture and building of settlements. Therefore high relief areas are sparsely populated while low relief areas are densely populated. (1 SRP = 2m)
2. **Climate:** People avoid settling in areas of extreme climatic conditions e.g. the Tundra climate of the polar ice caps is too cold while the deserts such as the Sahara are too dry. People prefer to inhabit temperate climatic zones where temperatures are mild and rainfall is distributed throughout the year i.e. conducive to intensive agricultural practices. (1 SRP = 2m)
3. **Soils:** People prefer to locate where crops will grow more easily i.e. near floodplains of rivers where fertile alluvial soils are to be found and also where fertile brown earth or black earth soils with a high humus content are found. (1 SRP = 2m)
4. **Resources:** People gravitated towards resource based settlements such as the 'Gold Rush' era in California and to mining towns around the era of the industrial revolution where employment could be found e.g. the Nord Pas De Calais region in France and the Sambre Meuse region in Belgium. Towns developed after the discovery of resources e.g. Navan town developed after the discovery of zinc in Tara mines. (1 SRP = 2m)

SOCIO-ECONOMIC FACTORS:

1. **Levels of economic development:** Well diversified economies with well developed agriculture, manufacturing and services sectors are more desirable locations than regions which have underdeveloped subsistence economies. (1 SRP = 2m)
2. **Urbanisation:** As a country develops economically there is a shift from people working in the primary sector to the secondary and tertiary sectors both of which are dominant in towns and cities leading to urbanisation. This had developed a rural to urban migratory trend creating 41 urban megacities around the world. This has however had a knock on effect resulting in rural depopulation. Cities are now sprawling so far that they are joining together to form a megalopolis (1 SRP = 2m)

PERCENTAGE OF THE WORLDS POPULATION LIVING IN URBAN AREAS

YEAR	%
1950	30%
2009	50%
2030 (PREDICTION)	60%

3. **Industrialisation:** This led to an era of large factories mass producing basic industrial goods and people moved to these areas to find employment. Since the industrial revolution technology has led to an increase in the earths 'carrying capacity' to over 6 billion people. **(1 SRP = 2m)**
4. **Politics and History:** Politically Governments may decide to do the following which would influence the density and distribution of population:
 - Designate landuse zones as residential or open space
 - Use reclaimed land e.g. the polders in the Netherlands and the drained Metaponto region in Southern Italy.
 - Resettlement programmes e.g. the plantations in Ireland and the Yangtze river upstream of the 'Three Gorges Dam.

Historically some urban centres grew to their geographical location to colonial powers e.g. Dublin has become a primate city in Ireland due to (A) Its proximity to the U.K. on the east coast of Ireland and (B) It became the British centre of control of its Irish colony. **(1 SRP = 2m)**

- Populations are dynamic and therefore population distribution and density can change over time and space. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 2

Read the answer to the question on Density & Distribution in Ireland on pages 219 - 222 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on population density and distribution in China and fill in the key points to your workbook on page 222.

SAMPLE QUESTION:

WITH THE AID OF AN INTERNATIONAL CASE STUDY OUTLINE HOW POPULATION PATTERNS OF DENSITY AND DISTRIBUTION CAN CHANGE OVER TIME AND THE CONSEQUENCES THIS CAN HAVE?

SAMPLE MODEL ANSWER 53

CHINA & THE ONE CHILD FAMILY POLICY

- China is an international example is a country whose population density and distribution has changed dramatically over time. From 1949 – 1979 China's population had increased by several hundred million under the leadership of Chairman Mao, thus substantially increasing the population density. **(1 SRP = 2m)**
- By the 1960's the average fertility rate was 6, consequently China came to have 25% of the world's population occupying just 7% of the world's arable land. By 1979 two thirds of the population were under the age of 30 years and the baby boomers were entering their reproductive years. **(1 SRP = 2m)**
- The Chinese government saw strict population containment as essential to avoiding problems arising from overpopulation. It was also seen as necessary to successfully implement important economic reforms which would result in an overall improvement in living standards. So the one child family policy was introduced. **(1 SRP = 2m)**

THE ONE CHILD FAMILY POLICY:

- The policy consists of a set of regulations governing the approved size of Chinese families. These regulations included restrictions in family size, late marriage and childbearing and birth spacing. **(1 SRP = 2m)**
- The general rule is that one child is allowed per couple inhabiting an urban area and two are allowed per couple in a rural area if the first is a girl but there are many exemptions to this rule including ethnic minorities and parents without any siblings themselves. **(1 SRP = 2m)**
- Penalties for non-compliance i.e. those couples who exceed the quota include substantial fines, confiscation of belongings and dismissal from work. There are also economic incentives for compliance. **(1 SRP = 2m)**

POSITIVE OUTCOMES OF THE POLICY:

- The fertility rate has been successfully reduced to 1.8 in 2009. The Chinese government claims that they have reduced the population by up to 300 million over the duration of the policy. **(1 SRP = 2m)**
The reduction in the fertility rate and thus population growth has reduced the severity of problems that come with overpopulation like epidemics, slums, overwhelmed social services (such as health and education & law enforcement), and strain on the ecosystem from abuse of fertile land and production of high volume waste. **(1 SRP = 2m)**
- Other non-population related benefits include:
 - (A) A better healthcare service for women through the 'Care for Girls' program.
 - (B) Increased rate of household savings as less children leads to less expenditure and an increased standard of living.The reduced population reduced the demand for natural resources, maintained a steady labour rate, reduced unemployment and led to an economic growth rate of 9% average per annum over the last two decades. **(1 SRP = 2m)**

NEGATIVE OUTCOMES OF THE POLICY:

- **The 4:2:1 problem:** As the one child policy begins to near its next generation, one adult child is left having to provide support for his or her two parents and four grandparents. This has increased the dependency ratio and leaves the older generation with more of a dependency on retirement funds or charity. **(1 SRP = 2m)**
- **Confucianism:** This traditional philosophy has meant that sons are more valuable than daughters. Other reasons for son preference may include:
 1. Sons are thought to be more helpful for farmwork.
 2. Sons are expected to provide financial support for their parents in their retirement.
 3. Daughters on their marriage become primarily part of her groom's family.**(1 SRP = 2m)**
- **Gender based birth rate disparity (sex selection):** In the 1980's ultrasound and amniocentesis technologies meant that couples could identify the sex of an unborn foetus and aborted many females in what became known as **sex selection**. This policy has led therefore to an imbalance of the sexes in terms of numbers. In 1995 the government banned abortions purely on the grounds of sex but the practice of female abortions continues most notably in unclean backstreet clinics which are dangerous to the mother's health. **(1 SRP = 2m)**

EDCO: include population pyramid of China today's world book 3 new edition page 21 figure 5-1-17.

Include the caption: Notice the reduction in birth rates in the 0-14 age category.

- **Undocumented females:** It is estimated that over 2 million females in rural China have not been registered by their mothers i.e. their daughter's births are left unreported, thus they live in legal limbo. This inevitably will become a serious issue if government support is needed e.g. if the daughter develops a health problem and needs to be hospitalised. Many deliveries of babies that have not been officially sanctioned occur at home without trained personnel, a practice that is associated with the risk of maternal and/or neonatal mortality. **(1 SRP = 2m)**
- **Abortions, Infanticide & Child abandonment:** Sex selection as a result of the one child policy in China is recognised as a contributory factor to abortion and infanticide. In 1995 the Chinese government banned abortions purely on the grounds of sex but the practice of female abortions and infanticide continues most notably in unclean backstreet clinics which can be life threatening. **(1 SRP = 2m)**
- **Child abandonment:** The social pressures exerted by the one child policy have affected the rate at which parents abandon undesirable children and many live in state sponsored orphanages. In the 1980's and early 1990's, poor care and high mortality rates in some state institutions generated intense international pressure for reform. **(1 SRP = 2m)**

CRITISMS OF THE POLICY:

1. Other less intrusive policy alternatives were available e.g. birth spacing
2. Some benefits of the policy were exaggerated e.g. the fertility rate under the voluntary 'Late, long, few' policy had already lowered the fertility rate from 6 to 2.9 from 1970 – 1979.
3. Forced sterilization has been recognized as a violation under the U.N. declaration of human rights as each human being has the right to 'found a family'. **(1 SRP = 2m)**

FOCUS ON POPULATION DISTRIBUTION IN CHINA:

- China's population distribution is directly related to the physical environment. The west of the country is inhospitable due to climatic extremes in the Gobi desert and mountainous areas such as the Tibetan plateaux and the Himalayas. The east of the country most notably along the coast by the Yellow and China's seas has a much higher population density. The cities of Shanghai (17 million), Hong Kong (7 million) and Beijing (13.2 million) are located along the east coast. **(1 SRP = 2m)**

EDCO: insert map page 17 of today's world book 3 first edition. Figure 5-1-19 change the colours to high, medium and low population density and put in the cities of Shanghai, Hong Kong and Beijing only

- China's economic boom in the last two decades has resulted in a large rural to urban migration to big cities such as Shanghai and Beijing. Consequently the population distribution has changed significantly and the government projects that between 300 -500 million will have migrated from rural areas to the cities by 2020. This has led to many problems associated with urbanisation e.g. overcrowding, lack of services, traffic congestion, pollution etc. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 4

Read the answer to the question on the 'Demographic Transition Model' on pages 223 - 226 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer on population structure, fertility rates and mortality rates and fill in the key points to your workbook on page 226 & 227.

SAMPLE QUESTION:

EXAMINE HOW THE POPULATION STRUCTURE, FERTILITY RATES AND MORTALITY RATES CAN AFFECT POPULATION CHARACTERISTICS OF COUNTRIES?

SAMPLE MODEL ANSWER 54

Population structure, fertility rates and mortality rates change over time throughout the world.

POPULATION STRUCTURE:

- Population pyramids are the best way to illustrate the AGE STRUCTURE (proportion of people belonging to different age groups) and SEX STRUCTURE (ratio of males to females) of a population at a local, regional or national level. **(1 SRP = 2m)**
- Generally a population structure will be in a pyramidal shape due to the higher numbers of younger people to older people. The advantages of population pyramids is that they allow governments forecast short and long term future changes or trends in population to allow for social needs such as schools, hospitals etc, thus giving a better understanding of a countries population. **(1 SRP = 2m)**
- A narrow base for instance would indicate that fewer schools would be needed while a wide top would indicate that more nursing homes may be needed. From an economic perspective a large young workforce represents a vast potential market for consumer goods. **(1 SRP = 2m)**
- A countries sex structure gives information on the balance between males and females. A ratio of less than 90 or over 110 for every hundred of the opposite sex would be regarded as distinctly unbalanced. Sex ratio can vary within different age groups i.e. more baby boys are born than baby girls but infant mortality rates are higher among boys and life expectancy for girls is higher. **(1 SRP = 2m)**
- The 'Dependency Ratio' is an important aspect of age structure i.e. a large old population may have profound social implications. A disproportionate number of old or very young people or both in the population can put an intolerable burden on the working population (16 – 65) who must pay for services such as education, health and pensions. **(1 SRP = 2m)**
- The dependency ratio is lowest in stage 3 and 4 of the 'Demographic Transition Model' and highest in stage 1 due to a large proportion of children under the age of 15 and in stage 5 due to a large proportion of people in the 65+ category. **(1 SRP = 2m)**

The age and the sex structures of a population are primarily a result of the fertility rates and mortality rates.

FERTILTIY RATE:

- Fertility rates vary spatially i.e. vary throughout the world and change over time. Poor countries have high fertility rates while rich countries have low fertility rates. As a country develops or advances socio-economically it becomes wealthier and fertility rates decline. **(1 SRP = 2m)**
- Fertility rates in 'Developing countries' are very high due to the following:
 1. To compensate for very high child mortality rates and low life expectancy.
 2. Children are perceived to be an economic asset and are needed to work the land and to look after the parents when they are old as there is no old age pension.
 3. Women hold a very low social status in society due to cultural tradition. The consequences of this for women are a lack of education, no access to means of family planning and marrying young leading to potentially longer reproductive age span. **(1 SRP = 2m)**
- Fertility rates in 'Developed countries' are very low due to the following:

1. Improved primary health care leading to a reduction in child mortality rates and an increased life expectancy. Parents realise that their children will more than likely survive to become adults. **(1 SRP = 2m)**
2. Children are perceived to be an economic liability as technological advancements such as tractors reduce the need for them to work on the land and old age pensions are provided so children are no longer needed to look after parents when they get old. **(1 SRP = 2m)**
3. The emancipation of women has significantly increased their social status. Family planning is practiced, their standards of education have increased and many choose to work outside the home. Women who enter the workforce and focus on the development of their careers have less time to spend rearing children. Childcare costs are also seen as a significant financial burden. **(1 SRP = 2m)**
4. A consequence of low fertility rates below the 'Replacement level' of 2.1 per couple in developed countries has been a decrease in the number of young people entering the workforce. Therefore women are needed to work and contribute to their government's income to decrease the 'Dependency ratio'. Consequently this has led to an increase in the cost of living and high expectations regarding lifestyle which requires women to work in paid employment. **(1 SRP = 2m)**

MORTALITY RATES

- Infant mortality rates and child mortality rates differ throughout the world i.e. spatially. Levels of economic development are intrinsically linked to infant mortality rates i.e. developed countries with a high standard of primary healthcare have a low infant mortality rate while poor developing countries have a low standard of primary healthcare and therefore have a higher infant mortality rate. As the levels of economic development improve over time the infant mortality rate will decline and life expectancy will improve. **(1 SRP = 2m)**
- The reasons for high child mortality rates in the developing world are:
 1. Malnutrition which increases the spread of infection due to weakened immune systems.
 2. A lack of access to primary healthcare such as vaccinations.
 3. A decrease in standards of living due to civil wars and political corruption.
 4. The unplanned development of shanty towns with their characteristic social problems such as unsafe drinking water, lack of sewerage and sanitation. **(2 SRPs = 4m)**
- The key solutions to reducing infant mortality rates and increasing life expectancy are:
 1. To improve primary healthcare such as introducing vaccination campaigns for diseases e.g. measles, typhoid and to make antibiotics freely available.
 2. To increase the standard of living by encouraging economic development through fair trade and cancelling international debt.
 3. By promoting democratic governments and political stability.
 4. To tackle the 'AIDS' crisis which has decimated some poor regions of the world e.g. Sub-Saharan Africa. **(2 SRPs = 4m)**
- The impact of the AIDS crisis in Sub-Saharan Africa has reduced the life expectancy by 15 to 20 years in most countries and has cancelled out the economic gains since colonial independence. It has an even more deadly effect by straining the healthcare system and increasing the 'Dependency ratio' as it is the 15-65 age category that are most effected. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 6

Read the answer to the question on the 'population structure, fertility rates and mortality rates in Ireland' on pages 227 - 229 of the workbook and fill in the appropriate blanks.

CHAPTER 27

OVERPOPULATION

EXERCISE 1

Read the following sample answer on the causes of overpopulation and fill in the key points to your workbook on page 230 & 231

SAMPLE QUESTION:

EXAMINE TWO CAUSES OF OVERPOPULATION IN AN AREA THAT YOU HAVE STUDIED OR OUTLINE HOW THE OVERUSE OF RESOURCES CAN LEAD TO OVERPOPULATION?

SAMPLE MODEL ANSWER 55

The Sahel Region in Africa

1 Overcropping

- Over-cropping or **over-cultivation** is the growing of too many crops per hectare. The over-grazed soils become dry and dusty, resulting in a loss in soil fertility. (1 SRP = 2 marks)
- Over-cropping occurs for many **reasons**:
 - Farmers do not carry out crop rotation
 - Farmers do not leave their land fallow
 - Farmers are unable to afford fertilisers because most practise subsistence agriculture (1 SRP = 2 marks)
- The **Sahel region** in Africa is being over-cropped, causing **desertification**, which reduces food availability and increases overpopulation. The Sahel is a 3,400 mile (5,400 kilometre) semi-arid belt between the Sahara Desert to the north and the Savanna and dense Equatorial Forests to the south. The Sahel includes Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal. In the past 50 years the Sahara has advanced into the Sahel at the rate of 2km to 5km a year. (1 SRP = 2 marks)
- Over-cropping is also due to **population increase**. In 1961 the population of the Sahel was 19 million; by 2000 the number had increased to 50 million. This population explosion resulted in an expansion of farmland and as a consequence in overcropping. The population growth rate of 3% per annum is greater than the ability of the Sahel to produce food. Annual food production is increasing by a rate of only 2% per year. (1 SRP = 2 marks)
- The increased food demands were met by the introduction of **intensive agriculture**. Huge areas of natural vegetation were cleared. The natural vegetation of the Sahel – sparse coarse grasses with thorn trees and shrubs – was altered and degraded. Soil erosion increased. Heavy seasonal rainstorms fell on exposed ground, washing away valuable topsoil. Wind erosion also increased because there were fewer root systems to keep the soil in place. (1 SRP = 2 marks)
- **Natural vegetation also provides shade cover** for the soil. However, with the removal of this shade cover due to overcropping there is an increase in evaporation. As a result, salts are drawn up to the surface. Soil salinity increases (the process of salinisation) hindering plant growth. (1 SRP = 2 marks)
- **Salinisation** forms a hard white crust that acts as a barrier to nutrients entering the soil. The removal of plants also reduces the amount of moisture in the area. It may also mean less water being evaporated into the atmosphere, forming fewer rain-bearing clouds. Consequently, rainfall amounts decline, soil erosion increases and desertification occurs. (1 SRP = 2 marks)
- Many African countries have **huge international debt**. Farmers were encouraged to grow cash crops for export. The repetitive growing of the same crop on the same piece of land on an annual basis reduces the soil's fertility, causing soil erosion. The growing of the same crop every year is termed monoculture. Farmers, in order to maintain their output, moved to new land and the process repeated itself. (1 SRP = 2 marks)
- The absence of vegetation cover also means there is **less humus available** to fertilise the soil. The soil loses its nutrients and soil erosion occurs. (1 SRP = 2 marks)

2 Overgrazing

- Overgrazing is another major cause of desertification, which reduces food availability and increases overpopulation. It is caused by **excessive numbers of livestock** feeding for too long in a particular area. Consequently, the land is left bare making it prone to wind erosion. (1 SRP = 2 marks)

- Overgrazing also **damages soil structure**. Overgrazing compacts the soil, reducing its ability to hold water, causing soil erosion through reduced water infiltration and reduced aeration. (1 SRP = 2 marks)
- Overgrazing also results in the removal of **natural vegetation**. Natural vegetation helps to reduce soil erosion in the following ways:
 - Plants help to reduce the speed of water as it flows over the land (runoff), allowing some rain to soak into the ground
 - Plant roots stabilise the soil thus reducing the amount of soil washed away
 - Plants absorb raindrops, reducing their power before they hit the soil and thus weakening their ability to erode (1 SRP = 2 marks)
- The **conversion of traditional rangelands to cash crops**, cities and roads reduce the amount of land available for grazing adding to overgrazing of the land that remains. (1 SRP = 2 marks)
- Overgrazing is a huge problem in the Sahel region of Africa, mainly during the rainy season. Due to a **high birth rate the population of the region has increased**. The land is required to produce more and consequently it is overgrazed, leading to massive soil erosion. (1 SRP = 2 marks)
- For hundreds of years nomadic tribes such as the Tuareg people of Mali farmed the Sahel in a sustainable manner. They moved their herds of camels from one grazing area to another. However, following **European colonisation** cattle, not suited to the arid environment of the Sahel, were introduced. Overgrazing resulted. (1 SRP = 2 marks)
- The perennial shrubs (shrubs that last an indefinitely long-time) were destroyed and they were replaced with annuals. The annuals, in turn, were destroyed, leaving bare soil. The soil was eroded exposing bare rock. Plants failed to grow because their roots could not penetrate the hard layer.
- Both overcropping and overgrazing has led to the spread of deserts (desertification) and consequently a **decrease in food availability**, which serves to increase overpopulation. (1 SRP = 2 marks)

(15 SRPs = 30m)

EXERCISE 2

Read the answer to the question on the causes and effects of overpopulation in the Sahel on pages 231 - 233 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on the impact of society, income levels and technology on overpopulation and fill in the key points to your workbook on page 233 & 234.

SAMPLE QUESTION:

EXAMINE HOW ANY TWO OF THE FOLLOWING HAVE IMPACTED ON OR LEAD TO OVERPOPULATION:

- 1. SOCIETY & CULTURE**
- 2. INCOME LEVELS**
- 3. TECHNOLOGY**

SAMPLE MODEL ANSWER 56

1 The impact of society and culture on overpopulation

- In recent years it has become apparent that cultural and social values have led to an *increase in birth rates*, most notably in the *developing regions* of the world. (1 SRP = 2 marks)

Statistic

Population increases due to high birth rates in India and China:

- 1951: India = 361 million, China = 660 million
- 2001: India = 1,016 million, China = 1,262 million

- Factors affecting high birth and high fertility in developing countries are:

(a) Empowerment of women and access to education

– One of the key conclusions made at the 1994 **Cairo Conference** on Population and Development is the link between fertility levels and the education level of women in society (1 SRP = 2 marks)

– Family planning and empowerment of women through literacy reduces fertility rates. In Botswana women with no formal education have an average of 5.9 children while women with 4–6 years of education have just 3.1 (1 SRP = 2 marks)

(b) Culture

– Women are forced to **marry young**, have many children and are expected to carry out the traditional role of housewife and mother

– In some countries, e.g. India, they are **under pressure to provide sons** because boys are potentially a source of wealth to the family

– Having lots of children is a way of **proving their fertility** and preventing their husbands from marrying another wife (1 SRP = 2 marks)

(c) Women's status in society

– In most developing countries women are **discriminated against** and are treated as second-class citizens

– They are given little access to education, family planning or decision making, i.e. they are not given the power to make informed decisions about their family size (1 SRP = 2 marks)

Statistic

Pakistan = 4.7 children per mother and 72% female illiteracy

(d) Religious and political influence

– In regions where the Catholic Church has a strong influence there are higher birth rates as they strongly oppose artificial contraceptive methods. In Latin America, as in Ireland in the past, the **Catholic Church banned artificial contraception** and abortion and therefore family sizes are very high (1 SRP = 2 marks)

– Some forms of Islam have a tradition of large families and do not approve the use of artificial birth control. In some Islamic traditions **women have a lower social status** than men and are prevented from accessing family planning, which results in higher birth rates (1 SRP = 2 marks)

– Some countries such as China with their one child family policy have **enforced family planning laws** and have managed to control population trends. Other countries such as Vietnam have introduced successful family planning education schemes (1 SRP = 2 marks)

Statistic

Fertility rates in Vietnam

- 1979 = 5.9 children per mother
- 2001 = 2.2 children per mother

2 The impact of income levels on overpopulation

- Low income levels in **developing countries** lead to low levels of economic development and high birth rates, which result in overpopulation. High income levels in **developed countries** lead to high levels of economic development and low birth rates, which prevent overpopulation. Income levels vary spatially, i.e. vary throughout the world and change over time. As a country develops or advances socio-economically it becomes wealthier and birth rates decline. (1 SRP = 2 marks)
- Income levels in developing countries lead to high birth rates for the following reasons:
 - A **lack of income** results in little chance of a good education and therefore income levels remain low with very little expectation of any improvement in the future
 - To **compensate for very high child mortality** rates and low life expectancy
 - **Children are perceived to be an economic asset** and are needed to work the land and to look after the parents when they are old as there is no old age pension
 - **Women hold a very low social status** in society due to cultural tradition. The consequences of this for women are a lack of education, no access to means of family planning and marrying young leading to potentially longer reproductive age span (2 SRPs = 4 marks)
- Income levels in developed countries lead to low birth rates for the following reasons:
 - **Improved primary healthcare** leading to a reduction in child mortality rates and an increased life expectancy – parents realise that their children will more than likely survive to become adults (1 SRP = 2 marks)
 - **Children are perceived to be an economic liability** as technological advancements such as tractors reduce the need for them to work on the land and old age pensions are provided so children are no longer needed to look after parents when they cannot look after themselves (1 SRP = 2 marks)
 - The **emancipation of women** has significantly increased their social status. Family planning is practised, their standards of education have increased and many choose to work outside the home. Women who enter the workforce and focus on the development of their careers have less time to spend rearing children. Childcare costs are also seen as a significant financial burden (1 SRP = 2 marks)
- The general trend looking at the **Demographic Transition Model** is that an increase in income levels coincides with a decrease in birth rates. However, some developing countries have managed to avoid this model and as income levels improved so did the fertility rates, leading to overpopulation. It is clear therefore that a combination of factors including high income levels coupled with health and education provision are needed to prevent overpopulation. (1 SRP = 2 marks)

Focus on the Mezzogiorno

- Low income leading to **outmigration**.

- The Mezzogiorno is an industrially **underdeveloped** region that is overpopulated. Income levels in the region are much lower than the more prosperous northern Italian Plain. It has a number of disadvantages, such as its mountainous nature and severe drought during the summer months. It also has a number of economic disadvantages, e.g. the largely infertile Terra Rossa soils prevent commercially intensive agriculture being developed and the region's geographical location is far away from the central European market. (1 SRP = 2 marks)
- Traditionally the region has very high birth rates and this has led to **overpopulation** as the region was unable to provide a sufficient income for its inhabitants. This led to a south to north migratory trend, i.e. out-migration of over 5 million people from the south to the big industrial cities of the north. (1 SRP = 2 marks)

2 The impact of technology

(a) Agricultural technology

- Agricultural technology has increased the amount of food available and therefore it has increased the carrying capacity of the earth. (1 SRP = 2 marks)

Definition

Carrying capacity The maximum number of people in a region that can live a sustainable lifestyle in the long term using the resources available to them.

- Types of technology innovations in **agriculture** are as follows:
 - The **use of chemicals** such as fertilisers, insecticides, pesticides, herbicides and fungicides, which have successfully minimised damage to crops and boosted crop output.
 - The planting of high yielding seed varieties that have been **genetically modified**.
 - The invention and application of **new planting and harvesting machinery**, such as tractors and combine harvesters.
 - The establishment of **irrigation schemes** to create more arable land, e.g. *pivot irrigation*. (2 SRPs = 4 marks)

(b) Medical technology

- Medical technology has had a major impact on population growth rates as preventative medicines such as vaccinations have **reduced mortality rates** significantly. (1 SRP = 2 marks)
- In most developing countries basic medical care is available and has dramatically reduced the infant mortality rate. The problem, however, is that the **solution has caused overpopulation**, i.e. the birth rates have stayed high while the death rates have fallen and a large natural increase occurs. When food supplies cannot meet the demand of the growing population famine may occur, e.g. as in Ethiopia in the early 1980s. (1 SRP = 2 marks)

Case study: USA

- Until the arrival of European settlers **native Americans** (American Indians) were hunter gatherers who hunted buffalo on the great plains and **lived in harmony with their environment**. Tribal populations remained low due to severe winters and intermittent non-arrival of buffalo, which prevented overpopulation. Native Americans had a holistic view of their environment meaning that they believed they were part of nature, in contrast to the view held by European settlers that they were masters of nature. (1 SRP = 2 marks)
- White **European settlers** brought a vastly more complex technology and saw how they could **exploit their environment**. (1 SRP = 2 marks)
- Millions of hectares of the great plains of the prairies were converted into lands yielding wheat and maize. Sophisticated equipment was used to maximise production such as irrigation schemes and this in turn increased the **carrying capacity** of the land. Over time the native Americans found that their traditional indigenous way of

life was no longer possible. Increases in European settlers increased the exploitation of the land allowing population density to increase. Vast forests were cleared to make way for agricultural production and giant ranches produced millions of cattle for the large beef markets in the big cities. (1 SRP = 2 marks)

- Today the population of the USA is approximately 285 million, but its advanced economy means that it is **not overpopulated**. The technology employed in the US economy to supply the population with its needs has easily outpaced the growth of production. (1 SRP = 2 marks)
- Nevertheless, some serious issues have arisen from this type of excessive living, which is casting a large **unsustainable ecological footprint**. (1 SRP = 2 marks)

EXERCISE 4

Read the answer to the question on the impact of growth rates on development on pages 235 - 236 of the workbook and fill in the appropriate blanks.

CHAPTER 28

MIGRATION

EXERCISE 1

Read the answer to the question on the impact of migration on Ireland on pages 238 & 239 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the following sample answer on the impact of changing migration patterns in Ireland and fill in the key points to your workbook on page 239 & 240.

SAMPLE QUESTION:

EXAMINE THE IMPACT OF CHANGING MIGRATION PATTERNS TO AND FROM IRELAND?

SAMPLE MODEL ANSWER 57

STAGES OF MIGRATION PATTERNS IN IRELAND:

Stage 1: (1840 – 1960) POST FAMINE POPULATION DECLINE

- There was a major post famine decline in population in Ireland due to outward migration/emigration. The famine was the catalyst to a wave of emigration which did not cease till the 1960's. During this period the population of the 26 counties declined from 6.5 million in 1840 to 2.8 million in 1960. **(1 SRP = 2m)**
- It is estimated that up to nearly 3 million people emigrated from Ireland during this period. Ireland consistently had a natural decrease in population despite having the highest birth rates in Western Europe i.e. high rates of emigration were offset by high birth rates. **(1 SRP = 2m)**
- In the 1950's a lack of job opportunities was the key 'push factor' to the exodus of over 400,000 people. Economic prosperity and the availability of jobs in the U.K., U.S.A. and Australia was the key 'pull factor' to attract Irish people there. **(1 SRP = 2m)**
- The consequences of emigration for Ireland were as follows:
 - Rural depopulation
 - A near collapse of social life in rural areas
 - An increasing dependency ratio
 - A decrease in the size of the consumer market**(1 SRP = 2m)**

Stage 2: (1961 – 1979) THE FIRST ECONOMIC BOOM

- The first 'Programme for Economic Expansion' was introduced by the then Taoiseach Sean Le Mass in the early 1960's and through the I.D.A. (Industrial Development Authority) M.N.C.'s (Multi-national companies) were attracted to Ireland creating the backbone to Ireland's manufacturing industry. **(1 SRP = 2m)**
- This programme was successful in attracting modern footloose industries and thus began Ireland's industrial revolution. **(1 SRP = 2m)**
- This resulted in stemming the flow of emigration as jobs were created and Ireland experienced its first wave of net inward migration since the famine of the 1840's. **(1 SRP = 2m)**

- Economic expansion accelerated into the 1970's when we joined the E.E.C. (now E.U.) in 1973 and this gave Ireland a larger market for exports, an inflow of money, a reduced reliance on the U.K. market and thus a positive balance of trade. (1 SRP = 2m)

Stage 3: (1980 -1990) GLOBAL ECONOMIC RECESSION

- Increasing world oil prices triggering a global downturn saw the return of economic recession in the 1980's and emigration increased once again with over 200,000 leaving. (1 SRP = 2m)
- This emigration was different from the previous years as it was predominantly the more highly educated and skilled people who left, thus creating a 'brain drain' from Ireland. (1 SRP = 2m)
- The 1980's also witnessed a decline in the total number of births as the country was reaching stage 4 on the demographic transition model. (1 SRP = 2m)

Stage 4: (1990 – 2006) THE CELTIC TIGER ERA (SECOND ECONOMIC BOOM)

- The early 1990's saw the beginning of the 'Celtic Tiger' i.e. a period of unprecedented economic growth. The economy boomed and there was a shortfall of workers in the labour market which was filled by immigrants predominantly from the former soviet dominated Eastern Bloc countries that entered the E.U. in 2004.. This resulted in a net in-migration rather than net out-migration. (1 SRP = 2m)
- "Ireland through a combination of good luck, good timing and good policies has caught the crest of a geographical and technological wave and has ridden it to a prosperity that nobody expected." Paul Krugman (U.S. economist) (1 SRP = 2m)
- This period up till 2006 saw an increase in population through immigration by nearly 500,000 from mostly non-Irish citizens and this led therefore to a large increase in the overall population. According to the 2006 census 14% of people living were born outside the state. (1 SRP = 2m)

Stage 5: (2007 – PRESENT) GLOBAL ECONOMIC RECESSION

- In late 2007 however, global recession returned and consequently a dramatic slowdown in the Irish economy has resulted with annual grow rates way below 2006 levels. (1 SRP = 2m)
- High levels of unemployment seems at present to be enticing non-native immigrants to leave Ireland in search of employment elsewhere, despite the fact that other countries are suffering the same economic fate. This will lead to a net out-migration for the foreseeable future until economic fortunes turn favourable again. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 3

Read the following sample answer on migration policy in Ireland and the E.U. and fill in the key points to your workbook on page 241.

SAMPLE QUESTION:

OUTLINE THE IMPACT OF CHANGING MIGRATION POLICY IN IRELAND AND THE E.U.?

SAMPLE MODEL ANSWER 58

MIGRATION POLICY IN IRELAND

- Ireland was unprepared for the massive wave of inward migration that occurred and due to the Celtic Tiger boom. It was only in February 2007 has an efficient migration policy been introduced. The new policy has seen a return to the work permit system which is designed to treat migrants with justice and fairness. **(1 SRP = 2m)**
- Workers who migrate here from the 'European Economic Area' (E.E.A.) can work freely and do not need a visa. The EEA consists of the all E.U. countries except for Romania and Bulgaria and includes Norway, Iceland and Liechtenstein. **(1 SRP = 2m)**
- Citizens who need a visa have to apply for a work permit from their current country of residence before entering the Republic of Ireland. The Irish government actively tries to attract the highly skilled workers particularly in specialised occupations. Highly skilled workers will be granted Green cards or work permits. Green cards for unskilled workers will be more difficult to obtain and strictly limited. **(1 SRP = 2m)**

Since 2007 there are four categories of permits allocated to non-EEA citizens.

1. The 'Green Card' system is available to highly skilled people who earn over 60,000 euros per year in high value sectors such as I.T., healthcare research and financial services.
2. The 'Work permit' system is available to those whose occupation earns them 30,000 – 60,000 euros per year and this permit is granted for an initial period of two years.
3. The 'Intra Company Transfer Permit' is a temporary permit for management of multi-national companies or corporations.
4. The 'Spousal and Dependent Permit' is offered to spouses and dependents of employment permit holders. **(2 SRPs = 4m)**

Key aspects of the policy:

1. Green cards are to be granted to the employee rather than the employer to allow the employee to move jobs i.e. to change the perception of foreign workers as 'bonded labour'.
 2. Workers with green cards can apply for immediately family reunification and they can have permanent residence in Ireland as long as the green card lasts.
 3. Employers may not deduct recruitment expenses from their wages or hold on to their professional documents.
 4. Non-nationals may apply for citizenship after 5 years.
 5. Asylum seekers are not permitted to work until they are granted refugee status.
 6. Students are allowed to come to study in Ireland without a visa. **(3 SRPs = 6m)**
- Since the implementation of the policy migrant workers now have the same employment and protection as Irish workers. **(1 SRP = 2m)**
 - Despite the fact that asylum seekers are not allowed work until their application for refugee status is processed they do now have certain rights such as accommodation, health care and welfare support in the form of a weekly allowance. **(1 SRP = 2m)**
 - If refugee status is attained they have the same rights as Irish workers and if it is rejected they are to be deported. Refugee status has become more difficult to attain in Ireland as a referendum in 2004 removed the automatic right to citizenship for Irish born children of non-national parents. **(1 SRP = 2m)**

MIGRATION POLICY IN THE E.U.

- Many E.U. countries need migrants to sustain economic development as they have reached stage 5 of the Demographic Transition Model and they are experiencing a natural decrease in population. Ireland attracted many migrants from Eastern Europe during the Celtic Tiger era', mostly to work the low paid jobs which Irish people did not want to do. **(1 SRP = 2m)**
- Within the E.U. a series of treaties has allowed all its citizens to move freely and work freely in any other member state. Within the E.U. only Ireland and the U.K. still have controls at their borders. **(1 SRP = 2m)**
- Through the 'E.U. Council of Seville' 2002 and other treaties the E.U. aims to develop a common system for immigration and asylum and to create a single external border control strategy i.e. to set up 'Fortress Europe'. **(1 SRP = 2m)**

The key aspects of the policy would be:

- A common border control and uniform measures towards asylum seekers.
- A sharing of the responsibility by countries. Portugal, Spain and Italy bear the greatest burden as they are geographically closest to North Africa, the source of many migrants.
- Through 'Europol' border cooperation between countries could strengthen the fight against human trafficking into the E.U.
- 'Eurodac', a newly established database to track illegal migrants could quickly detain and deport those whose applications for refugee status were rejected. **(2 SRP = 4m)**
- 'Fortress Europe' is being created as 'xenophobia' and 'asylum fatigue' has emerged in most European societies. Denmark is an example of an E.U. country where this has occurred. As of 2006 much more severe measures have been implemented to reduce the number of refugees being accepted.
 - Welfare payments reduced by half
 - Full residency will not be allowed for 7 years after refugee status is granted.
 - Marriage to a Danish citizen is forbidden during those 7 years.
 - If the application is rejected the subjects are immediately deported. **(2 SRP = 4m)****(15 SRPs = 30m)**

EXERCISE 4

Read the answer to the question on racial, ethnic and religious issues arising from migration on pages 242 - 244 of the workbook and fill in the appropriate blanks.

CHAPTER 29

SETTLEMENT

EXERCISE 1

Read the answer to the question on the site, situation and function of settlement in Ireland on pages 245 - 247 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the answer to the question on rural settlement patterns in Ireland on pages 248 & 249 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on planning strategies in rural areas and fill in the key points to your workbook on page 249 & 250.

SAMPLE QUESTION:

EXPLAIN THE PROCESS OF PLANNING STRATEGIES IN RURAL AREAS?

SAMPLE MODEL ANSWER 59

Introduction:

- The key goal of planning in rural areas is to find a balance between economics and social on one hand and environmental protection on the other. In recent years population growth and a desire to live in the countryside has increased the pressure on rural areas particularly those close to large urban centres. Counter urbanisation is taking place in the hinterland of large towns and cities. **(1 SRP = 2m)**
- As a result, balanced sustainable development has become a priority and sustainable development through planning strategies has become a very live issue in rural areas. **(1 SRP = 2m)**

Planners concerns:

People desire to live in these rural areas are due to:

1. People reared in the countryside prefer to live there and especially when rearing families
 2. People may acquire a site from their family and build for much cheaper
 3. Houses in desirable locations in large urban centres have become very expensive and unaffordable
 4. A cleaner and healthier environment for children with lower crime rates and substance abuse. **(2 SRPs = 4m)**
- Many planners are concerned that the building of too many one-off houses may have a negative environmental impact in the future such as:
 1. Septic tanks may effect groundwater and therefore be detrimental to people's health
 2. Dispersed development leads to greater number of ESB power cables criss-crossing the countryside
 3. Ribbon development along a road with busy traffic makes every dwelling entrance a traffic hazard
 4. People who live in one-off houses are car dependent and this is environmentally unfriendly. **(2 SRPs = 4m)**

PLANNING STRATEGIES:

- The government implementation of sustainable rural development is through its National Development Plans (NDPs) and County Development Plans (CDPs). **(1 SRP = 2m)**

- Sustainable rural development is the need to ensure that communities survive and grow in economic and social terms having regard to the impact of development on the areas future environmental quality. (1 SRP = 2m)

National Development Plans:

- The first NDP from 2000-2006, advanced sustainable rural development and renewal through the following:
 1. Enhancement of the quality of life in rural villages through renewal projects, e.g. water schemes, footpath extensions and the creation and/or enhancement of village parks
 2. The development of local enterprise was supported through grant schemes and by improving road infrastructure between urban and rural areas
 3. To develop the tourist potential of rural areas, by providing grants for agri-tourism, scenic walking trails, upgrading heritage sites etc. (1 SRP = 2m)
- The second NDP from 2007-2015, has begun to implement two strategies for rural development:
 1. The countryside recreational strategy targeting diversification into non-agricultural activities
 2. The EU backed LEADER programme, which provides funding to provide business plans in rural areas. (1 SRP = 2m)

County Development Plans:

- These plans are created to provide proper planning and sustainable development in each county. (1 SRP = 2m)
- There current focus is to encourage housing in rural villages while reducing the number of one off houses. It also wants to promote sustainable rural generated housing rather than unsustainable urban generated housing. (1 SRP = 2m)
- County councils want to promote young energetic locals to stay in rural villages as they provide the backbone to a local rural community thus preventing rural depopulation. (1 SRP = 2m)
- County councils zone certain specific categories, e.g. open countryside, vulnerable landscape, urban generated etc. Design guidelines are provided so buildings do not intrude on the landscape. (1 SRP = 2m)
- An Environmental Impact Assessment (EIS) has to be carried out on any major industrial development to ensure it won't have a negative effect on the environment. (1 SRP = 2m)

(15 SRPs = 30m)

EXERCISE 4

Read the answer to the question on the site characteristics of urban settlement on pages 251 & 253 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer on functions and services of settlements change over time and fill in the key points to your workbook on page 253 & 254.

SAMPLE QUESTION:

WITH THE AID OF A CASE STUDY, EXPLAIN HOW FUNCTIONS AND SERVICES OF URBAN CENTRES CAN CHANGE OVER TIME?

SAMPLE MODEL ANSWER 60

CASE STUDY: GALWAY

- Galway city is located in Galway bay on the floodplain of the Corrib River. It is the dominant urban centre of the Border, Midlands & West region (B.M.W.) of Ireland. Its functions have changed over time and today it is a multi-functional settlement. **(1 SRP = 2m)**

Function 1: DEFENSIVE FUNCTION

- During Medieval times a Norman Lord called De Burgo built a castle now called Lynch's Castle in Galway city centre for defensive purposes. **(1 SRP = 2m)**
- His key priority for defence was to protect himself against the local Irish clans e.g. the O'Flahertys clan whom he seized lands from originally. A city wall was constructed around Galway city for protection. The 'Spanish Arch' section of the defensive wall still stands today and is a popular site for tourists. **(1 SRP = 2m)**

Function 2: PORT FUNCTION

- Like most Norman settlements in Ireland international trade grew particularly in the wine trade with Spain and France. Galway became a merchant city ruled by an oligarchy of fourteen merchant families or tribes. Since then it has been known as 'The city of the Tribes'. **(1 SRP = 2m)**
- Galway city became the principal Irish port and the key distribution centre for the west of Ireland. **(1 SRP = 2m)**
- The port function of Galway led to development of infrastructure such as bridges across the Corrib, roads, and rail lines. Thus Galway became a focus of routeways and a nodal centre. **(1 SRP = 2m)**
- The port of Galway has declined in recent decades as ports in the east and south of the country become more important. **(1 SRP = 2m)**

Function 3: EDUCATION FUNCTION

- In 1845 Galway became a university city as it was chosen as one of the locations for the Queens Colleges. Consequently the city's importance was greatly enhanced and this was the catalyst needed to further increase levels economic development. **(1 SRP = 2m)**
- In recent years the National University of Ireland Galway (NUIG) formerly Queens College and the 'Galway and Mayo institute of technology' (GMIT) have become centres of education and have been of paramount importance in attracting high value foreign direct investment i.e. multinational companies into the city. **(1 SRP = 2m)**

Function 4: MANUFACTURING FUNCTION

- Galway city is the main manufacturing centre west of the Shannon. It has become the key dominant centre for the location of MNC's particularly in the health care and IT sectors. **(1 SRP = 2m)**
- There is a well developed link between its education function and its manufacturing sector as many companies have linked up to the educational institutions for 'Research & development' purposes e.g.
 - a. Companies such as H.P. and Cisco systems have links to the 'Digital Enterprise Research Institute' (DERI). In 2008 Boston Scientific located its new R & D centre in Galway city.
 - b. Multinational companies such as Medtronic have links with the 'National centre for biomedical engineering science (NCBES). **(1 SRP = 2m)**
- The availability of high value well paid jobs in these sectors has led to a large influx of new residents predominantly from rural areas throughout the province. Many highly skilled graduates from third level institutions find well paid jobs in footloose multinational companies who have located in the city. **(1 SRP = 2m)**
- Galway city now has a very significant residential function to house these workers. It also houses many college students attending NUIG and GMIT. **(1 SRP = 2m)**

Function 5: SERVICES FUNCTION

- Galway also has a services function providing a wide range of services including financial, commercial, retail and tourist services.

Focus on Tourism:

1. Galway City at the mouth of Galway Bay is both a picturesque and lively city with a wonderful avant-garde culture and a fascinating mixture of locally owned speciality shops, often featuring locally made crafts.
2. It is unique among Irish cities because of the strength of its Irish language, music, song and dancing traditions - it is often referred to as the 'Bilingual Capital of Ireland'. The city is well known for its 'Irishness', and mainly due to the fact that it has on its doorstep the Galway [Gaeltacht](#) (Irish-speaking area).
3. The Claddagh, previously a fishing village of thatched cottages, now an area just outside the city centre is the birthplace of the world famous Claddagh ring.
4. A vast array of festivals take place in Galway city each year. Among some of the events taking place are the [Galway Sessions](#) traditional Irish music festival, the [Galway Arts Festival](#), the [Galway Races](#) horse racing festival, the [Galway International Oyster Festival](#), to name but a few. It also held the international round the world yacht race or 'Volvo Ocean Race, in the summer of 2009.
5. Outside the city in Connemara and the Twelve Bens the scenery is unsurpassable. This gives rise to the development of other tourist activities such as hill-walking, pony trekking, golf, angling and sightseeing etc.
6. Walking trails to suit all tastes are available both around the city and in the countryside. Hill walkers will find many fine routes in Connemara and the Twelve Bens and the scenery is unsurpassable. So much coastline is a good indicator of the variety of watersports available.
7. According to 'Failte Ireland' over 1 million overseas tourists visited Galway (Galway City and County) in 2005 contributing over 350 million to the local economy. Tourism therefore has become the most sustainable industry in Galway. **(4 SRPs = 8m)**

(15 SRPs = 30m)

CHAPTER 30

URBAN SETTLEMENT

EXERCISE 1

Read the answer to the question on land use zone theories on pages 255 - 258 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the following sample answer on social stratification and fill in the key points to your workbook on page 259.

SAMPLE QUESTION:

OUTLINE WITH THE AID OF A CASE STUDY, HOW SOCIAL STRATIFICATION OCCURS IN CITIES AND HOW THIS MIGHT AFFECT LAND VALUES?

SAMPLE MODEL ANSWER 61

- Land values are generally more valuable closer to the CBD and decrease with distance from the CBD. **(1 SRP = 2m)**
- This is normally a good general guide for the location of retail and business sectors but not necessarily for residential accommodation as social stratification occurs in most cities. **(1 SRP = 2m)**

Social Stratification:

- Social stratification is where people of similar economic backgrounds live in the same areas in the city i.e. higher income earners live together while low income earners live together. **(1 SRP = 2m)**
- The result is that residential areas are often separated on the basis of wealth, i.e. income. The most expensive dwellings are located in the most pleasant parts of the city which are also the most environmentally friendly. **(1 SRP = 2m)**
- The factors influencing houses purchases segregates people into different areas of a city. **(1 SRP = 2m)**
- House type and design can reflect social segregation and stratification in the following ways:
 1. Smaller terraced houses and flats were common in low income areas. These houses, built by the local council, are usually repetitive in design and services are usually inadequate.
 2. In middle income areas, semi-detached and detached houses with gardens are found.
 3. In upper income areas large spacious detached houses with landscaped gardens are to be found. **(1 SRP = 2m)**
- Access to third level education is a good indicator of socio-economic stratification, i.e. children from middle and upper income areas of the city are seven times more likely to go to third level colleges than those from lower income areas. Some young people from working class areas who have attended third level institutions have managed to climb the social ladder and have bought houses in middle income areas. **(1 SRP = 2m)**
- The 'Celtic Tiger' economy has led to a greater integration of social classes due to rising property prices. Exorbitant house prices have resulted in local authority houses being bought privately **(1 SRP = 2m)**
- Up to date planning ensures that permission will only now be given to developers if new residential developments will consist of 20% social and affordable housing. This again reduces the social segregation within Irish cities. **(1 SRP = 2m)**

How land values are affected by social stratification:

- Houses in lower income suburbs are much cheaper than houses in upper income suburbs. Houses in upper class suburbs are considered to be more desirable places to live and the high demand for these properties drives the prices up, thus limiting the market to higher income earners. **(1 SRP = 2m)**
- Poor planning strategies in many Irish cities by the local councils have led to the development of large local authority housing estates where social problems e.g. unemployment, crime and drugs have become serious issues. These areas are not so desirable to live in and consequently housing properties are much cheaper. **(1 SRP = 2m)**
- Land values can change over time if areas are renewed or redeveloped. The redevelopment of traditional working class areas of the inner city has increased the demand for housing units thus driving up the property prices. This has led to the development of the 'Yuppi' culture where young business professionals have moved into redeveloped areas of cities e.g. Smithfield in Dublin city. **(1 SRP = 2m)**
- Some working class people can resent the wealth and quality of environment in upper class areas. In upper class areas residents act to exclude lower income residents into their area as they are perceived to have a negative impact on property values. This has led to the 'Nimby' attitude (Not in my back yard) which has led to discrimination particularly against the travelling community. This has only served to increase social segregation and thus has created 'Ghettos' in some large cities. **(1 SRP = 2m)**
- Some social stratification can be age based, i.e.
 - (A) Large young student populations reside near college and universities
 - (B) Young couples tend to live in commuter towns outside the city
 - (C) Older people are found in older areas, particularly in the inner city **(1 SRP = 2m)**

Focus on Dublin city:

- Residential segregation in Dublin can be divided into two broad areas. These areas can be separated by drawing a line from Howth down in a South-Westerly direction through the city.

Area 1. South East Dublin = Middle & Upper income areas

Area 2. North, West & inner city Dublin = Middle and Lower income areas **(1 SRP = 2m)**

- The government is trying to rebalance the age structure of some inner city areas through urban redevelopment projects, e.g. The Dublin Docklands area **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 3

Read the answer to the question on urban sprawl on pages 260 & 261 of the workbook and fill in the appropriate blanks.

CHAPTER 31

PROBLEMS WITH URBANISATION

EXERCISE 1

Read the following sample answer on traffic problems and fill in the key points to your workbook on page 262 & 263.

SAMPLE QUESTION:

WITH THE AID OF A CASE STUDY, OUTLINE THE PROBLEMS OF URBAN TRAFFIC AND THERE SOLUTIONS?

SAMPLE MODEL ANSWER 62

- Cars have become the most desirable means of transport in most urban areas due to their high levels of efficiency i.e. a relatively cheap means of direct door to door transfer of people. Consequently traffic movement, congestion and the need for new methods of traffic management have become one of the most important issues effecting urban land use zones in modern cities today. **(1 SRP = 2m)**
- The influence of street patterns has a major effect on the ability of local authorities to regulate traffic movements
 - (A) Unplanned streets which have a tendency to be narrow and winding inhibit the efficient management of traffic control systems.
 - (B) Planned street patterns with a grid plan of rectangular blocks make for an easily regulated and efficient management of traffic movements. **(1 SRP = 2m)**

PROBLEMS WITH TRAFFIC MOVEMENT:

- Increased traffic at 'Rush Hour' in the morning and evening creates several problems such as increased stress levels and road rage for drivers, noise and air pollution and an increased risk of accidents. **(1 SRP = 2m)**
- The key problem areas of traffic movement are:
 - (A) Commuters driving towards the CBD in the morning to work and outbound back to the suburbs in the evening block up all the main arterial roads and strategic road corridors in and out of the city.
 - (B) One of the key problems with movement of traffic within and around cities at rush hour is the dropping and collecting of children from school. There is a noticeable drop in congestion during school holidays. **(1 SRP = 2m)**

SOLUTIONS:

1. To develop ring-roads and by-passes to allow long distance traffic on busy primary routes to avoid entering town centres.
2. To provide more road space and off road parking by constructing multi storey car parks, new streets and one way traffic systems.
3. To develop an efficient public transport system with frequent, fast and reliable services. Is must also be user friendly by introducing an integrated ticketing system.
4. By introducing more efficient traffic management systems such as Cycle lanes, roundabouts, traffic lights, yellow boxes, traffic calming measures, park and ride facilities, parking restrictions etc. **(2 SRPs = 4m)**

CASE STUDY: DUBLIN CITY

- Dublin city has a low housing density and exhibits the worst excesses of urban sprawl. Dublin's public transport system has always taken second place to the car. Dublin city has seemingly taken after the American model where the car is central to transport within and around the city. **(1 SRP = 2m)**

PROBLEMS:

- Dublin's street network was laid out before the arrival of the car and therefore unplanned. Some streets are narrow and winding making effective traffic solutions more difficult. **(1 SRP = 2m)**
- Thousands of motorists make their way inbound to the CBD during rush hour in the morning and in the evening outbound back to the urban fringes and commuter towns. This created serious traffic congestion where commuter **(1 SRP = 2m)** routes converge at the M50 ring motorway and further in near the city centre.
- Traffic in Dublin is also noticeably heavier during school time as parents drop their children to school by car. They do this for many reasons, not least of which is the weight of schoolbags and the inadequate cycle lanes make cycling unsafe. **(1 SRP = 2m)**
- The Celtic Tiger era in Dublin led to a marked increase in the population density of the greater Dublin area due to rural to urban migration and immigration and coupled with increased wealth led to a dramatic increase in car ownership. **(1 SRP = 2m)**
- Dublin's key ring road motorway (M50) has become an urban spine rather than an urban by-pass of the city and the numbers of cars using the motorway has outstripped its maximum capacity by over 50%. **(1 SRP = 2m)**

SOLUTIONS:

- In the last decade vast sums of money have been spent by Dublin's public transport network under the governments National Development Plans and Transport 21 plan. This project includes the following under the 2000-2006 National Development Plan: **(1 SRP = 2m)**
 1. The DART (Dublin Area Rapid Transport) linking the coastal suburbs as far out as Bray and Howth to the CBD has been upgraded to increase its passenger numbers
 2. The Dublin Port Tunnel provides access for trucks (HGV's) and other vehicles to Dublin Airport and the M50 thus reducing noise, air and traffic pollution within the city
 3. Two electrified light rail lines (LUAS) carry 26 million passengers a year from Sandyford and Tallaght to the CBD
 4. QBC's (Quality Bus Corridors) i.e. designated bus lanes decrease commuting times and buses on these routes tend to run on schedule
 5. A computerised traffic signal system (SCATS) is now used along all main routes in Dublin city. The system adjusts signal timings throughout the network in response to variations in traffic demand. **(2 SRPs = 4m)**
- Under the 2000-2013 National Development Plan it is envisaged that 33 billion euros will be spent on transport development:
 1. New LUAS lines are to be built and the current lines are to be extended
 2. Two underground 'Metro' systems are to be built (Metro North and Metro West)
 3. An integrated ticketing system for suburban rail, DART, LUAS and Bus that is competitively priced will encourage people to leave their cars at home
 4. An electronic road toll for motorists who wish to drive in the city centre. **(2 SRPs = 4m)**
- The Dublin councils have to encourage people to live in the city rather than the suburbs, i.e. infill developments such as the Docklands project and this will dramatically reduce the number of commuters. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 2

Read the answer to the question on inner city decline and urban sprawl on pages 263 - 265 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on urban growth and the environment and fill in the key points to your workbook on page 266.

SAMPLE QUESTION:

DISCUSS THE INTERRELATIONSHIP BETWEEN URBAN GROWTH AND THE ENVIRONMENT?

SAMPLE MODEL ANSWER 63

- Increased urbanisation has led to the development of serious environmental problems such as air pollution (smog), waste disposal and water quality. **(1 SRP = 2m)**
- The burning of fossil fuels domestically to heat homes, in fossil burning power stations to generate electricity, in industry and emissions from cars have resulted in high pollution levels, poor air quality and associated health problems in large urban centres. **(1 SRP = 2m)**

FOCUS ON AIR POLLUTION (SMOG)

- Cities in Ireland suffered from winter smog until the 'Air Pollution act' in 1987 banned the sale of smoke coal in Irish cities and large towns. **(1 SRP = 2m)**
- Prior to this, high levels of nitrogen oxides were polluting the urban environment creating many health problems in humans and stunting plant growth. **(1 SRP = 2m)**
- Despite leaded petrol being phased out, Ireland's car use is still the key culprit in CO₂ gas emissions. **(1 SRP = 2m)**
- During the Celtic Tiger era CO₂ emissions from transport increased by over 140% due to the increase in car ownership. **(1 SRP = 2m)**
- Under the 'Kyoto Protocol' we have to take action immediately as CO₂ levels in Ireland are above the projected figures for 2012. **(1 SRP = 2m)**
- Nevertheless most Irish people still rely on their cars as the public transport system is still hopelessly inadequate in most areas. **(1 SRP = 2m)**

Steps to improve air quality in the urban environment

1. Natural gas, the cleanest of the fossil fuels from the Kinsale and North sea gas fields have replaced coal as the main source of domestic heating thus reducing CO₂ emissions.
2. Public transport has been upgraded including the DART and LUAS both of which are being extended further into the Dublin commuter belt to reduce the number of cars entering the city.
3. In 2002 Dublin bus introduced an ultra-low sulphur diesel to all its bus fleet.
4. An increase in standards of insulation in new houses has reduced the amounts of natural gas being used. **(2 SRPs = 4m)**

HERITAGE ISSUES IN URBAN AREAS

- According to the 'Heritage Council' our architectural heritage is a unique and exceptional resource. Although some commentators argue that heritage preservation is too costly others argue that tourism from heritage will generate even more revenue than the cost of preservation Blarney castle and the City Gaol in Cork as examples have generated more revenue through tourism than the cost of preserving the sites. **(1 SRP = 2m)**

- The 'Heritage act' 1995 and the 'Planning act' 2004 have required local authorities to compile a register of protected structures and to identify new historical structures that should be preserved for future generations. **(1 SRP = 2m)**
- In accordance with the national heritage plan all local authorities have to take heritage factors into account when drawing up county development plans and strategic urban development plans. **(1 SRP = 2m)**
- In urban areas the law now requires developers to undertake archaeological excavations prior to acquiring planning permission in an urban area. **(1 SRP = 2m)**
- Most local authorities have now employed a heritage officer whose job it is to promote the educational aspects of heritage to the local community. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 4

Read the answer to the question on problems associated with developing world cities on pages 267 - 269 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer on urban planning strategies and fill in the key points to your workbook on page 269 & 270.

SAMPLE QUESTION:

WITH THE AID OF A CASE STUDY, OUTLINE THE EFFECTIVENESS OF URBAN RENEWAL SCHEMES IN SOLVING URBAN PROBLEMS?

SAMPLE MODEL ANSWER 64

CASE STUDY: THE BALLYMUN REGENERATION PROJECT:

- The Ballymun flats complex is located on the North side of Dublin city and was built in the 1960's, due to a housing shortage in the inner city. **(1 SRP = 2m)**
- The urbanist Le Corbusier believed that his new, modern architectural forms of large blocks of cell-like individual apartments stacked one on top of the other would solve the urban housing crisis problem. This strategy was adopted by the local authority who moved inner city residents to tower blocks in Ballymun. **(1 SRP = 2m)**
- The housing complex was a failure from the start due to the following:
 1. Tenants had to leave the community they grew up in.
 2. The social and family support structures had been destroyed
 3. Tower block living was very stressful especially when broken lifts were not fixed and stairwells and corridors were poorly maintained. They were not suitable for young families as space was limited.
 4. The quality of the flats was poor with substandard insulation.
 5. Poor housing management.
 6. Poor infrastructure and housing provision. **(3 SRPs = 6m)**
- The results were devastating with high unemployment, low educational achievement, youth boredom and frustration, drug abuse and crime. Ballymun quickly became Ireland's most disadvantaged urban area. **(1 SRP = 2m)**

The regeneration project

- In 1997 'Ballymun Regeneration Limited' (BRL) was established by the Dublin city council to create a sustainable socio-economic environment. **(1 SRP = 2m)**

A master plan costing 2.5 billion euros was drawn up in conjunction with the local community.

Key features of the project

1. The demolition of the tower blocks and their replacement with housing units which cannot be over four storeys tall. There was to be 50:50 split between public and private housing.
 2. The provision of very high standards of insulation and comfort were to be provided in the new houses
 3. The building of a town centre and a new 500m long main street.
 4. The new centre will have necessary services, such as banks, offices, leisure facilities and public services
 5. The construction of a number of new urban parks.
 6. The creation of job opportunities along the M50 corridor including the Swedish furniture giant IKEA
 7. The creation of neighbourhoods with corner shops, community buildings, parks etc
 8. The development of programmes such as sport and the local environment
 9. The provision of social support services
 10. The setting up of centres for education and training
 11. The development of new routes linking Ballymun to the surrounding communities.
 12. The development of a science and technology park. **(6 SRPs = 12m)**
- One unique feature of the project was the community consultation at each stage. Local people now feel they have had a real influence on the development of the new town, i.e. the project has been people centred rather than development centred. **(1 SRP = 2m)**
 - The projects completion date is in 2012 but major progress has been made already and a new air of optimism is prevalent in the community. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 6

Read the answer to the question on the future of urbanism on pages 270 - 272 of the workbook and fill in the appropriate blanks.

ECONOMIC

ELECTIVE

Section

5

CHAPTER 32

ECONOMIC ELECTIVE INTRODUCTION

EXERCISE 1

Read the introduction to the economic elective on page 274 & 275 of your workbook and underline the words.

CHAPTER 33

ECONOMIC DEVELOPMENT

EXERCISE 1

Read the following sample answer on gross national product and fill in the key points to your workbook on page 276

SAMPLE QUESTION:

OUTLINE HOW GROSS NATIONAL PRODUCT CAN BE USED AS A MEASURE OF ECONOMIC DEVELOPMENT?

SAMPLE MODEL ANSWER 65

- **Gross Domestic Product (GDP)** refers to the total value of goods and services produced in a country per year i.e. the total output of the country. It is calculated per capita (per person) by dividing the monetary value of GDP by the population. **(1 SRP = 2m)**
- **Gross National Product (GNP)** refers to the total value of goods and services produced in a country (GDP) plus income from overseas investments minus income earned within the country by foreigners i.e. MNCs. It is calculated per capita by dividing the total GNP by the number of people in a given country. It is a measure of national income per person. **(1 SRP = 2m)**
- GDP and GNP for each country are calculated with **PPP (Purchasing Power Parity)** or purchasing per head of population in \$US. This is the average income per capita in relation to what a \$US dollar would buy in that country i.e. a dollar in Ethiopia will buy you more than a dollar in Ireland. **(1 SRP = 2m)**
 - It is estimated that, in 2010, the per capita income in the rich countries or MDCs was 95 times that of the poorest countries or LDCs. 200 years ago the income gap between the rich and poor countries was in the ratio of 3:1 **(1 SRP = 2m)**
 - Since the Industrial Revolution, combined with the impact of colonialism, the poverty gap between rich and poor countries has continued to widen. **(1 SRP = 2m)**
 - The GNP of a country can grow very rapidly as happened in the Republic of Ireland during the Celtic Tiger period **(1 SRP = 2m)**.

There are problems of using GNP as an economic indicator.

- GNP may be rising but it fails to show distribution of income within a country. Not every economic sector may be enjoying the benefits of rising GNP. **(1 SRP = 2m)**
- GNP figures ignore voluntary work such as domestic work. If a value was put on this it would increase the value of GNP. **(1 SRP = 2m)**
- GNP also ignores subsistence production. If the value of subsistence production was included GNP figures would rise. **(1 SRP = 2m)**
- GNP includes work that produces no net change or that results from repairing damage done - rebuilding after a natural disaster may produce economic activity and boost GNP but is the economy any better off? **(1 SRP = 2m)**
- GNP takes no account of the quality of goods being produced. GNP may be rising but at the expense of low quality goods. **(1 SRP = 2m)**

- GNP does not measure damage done to the environment - GNP may be rising but the consequences are global warming and deforestation, poor air and water quality. **(1 SRP = 2m)**
- GNP does not take into account depletion of finite resources. GNP may be rising but all the best coal seams have been exploited – the Nord Pas de Calais in France and the Sambre Meuse in Belgium. **(1 SRP = 2m)**
- Sustainability of growth is not measured in GNP figures - an economy may enjoy a high level of GNP temporarily by over using its natural resources. Saudi Arabia and other oil rich states enjoy high levels of GNP but what will happen when the oil reserves run out? **(1 SRP = 2m)**
- GNP figures do not take into account the black market. A black market occurs when income from certain economic activity goes unrecorded in official government statistics e.g. drug smuggling. If the income from black market activities were included GNP figures would rise. **(1 SRP = 2m)**
- Care must be taken when comparing GNP figures between countries, especially regarding the quality of goods produced. The population in country X may consume the same amount of locally produced apples as country Y but apples in country X may be tastier. This difference in quality will not be recorded in GNP figures. **(1 SRP = 2m)**

(15 SRP = 30m)

EXERCISE 2

Read the following sample answer on the human development index and fill in the key points to your workbook on page 277

SAMPLE QUESTION:

OUTLINE HOW THE HUMAN DEVELOPMENT INDEX CAN BE USED AS A MEASURE OF ECONOMIC DEVELOPMENT?

SAMPLE MODEL ANSWER 66

High levels of GNP do not always result in a high level of human development for all in that country. (1 SRP = 2m)

The Human Development Index

- The Human Development Index (HDI) was introduced as a measurement of human progress by the **United Nations Development Programme (UNDP)**. **The Human Development Report 1993 states that the HDI is seen as a measure of people's ability to live a long and healthy life, to communicate and participate in the life of the community and to have sufficient resources to obtain a decent living.**

(1 SRP = 2m)

It is concerned with **3 elements**.

1. **Life expectancy at birth** as an index of population health and longevity - **The Demographic Factor**.
2. **The adult literacy rate** - the level of knowledge and education in the economy - **The Social Factor**
3. **The standard of living** as measured by GDP per capita at purchasing power parity (PPP) measured in American dollars - **The Economic Factor**. **(2 SRPs = 4m)**

Note: A \$US in Ireland would buy fewer goods than a \$US in Sub-Saharan Africa.

1. The HDI allocates a score of between 0 and 1 to each of 177 U.N. member countries.
2. Countries fall into 3 categories based on their HDI - high, medium and low development.

3. A HDI below 0.5 represents low development. The 22 countries that comprise this category are all in Africa.
4. A HDI of 0.8 or more represents high development. This includes the entire developed world as well as some newly industrialised countries in Central and South America, the Caribbean, Arabia and S.E. Asia. **(2 SRPs = 4m)**

HDI attempts to measure quality of life while GNP per capita measures income per head.

- Generally, countries that enjoy a high level of GNP have a high HDI because they possess the wealth to invest in the social and economic sectors of the economy such as health and education. **(1 SRP = 2m)**

1. Wars

Wars result in:-

- A high death rates especially amongst the younger age groups.. As a result there are few people to work the farms so food production declines. Essential services such as water and sanitation are not maintained **(1 SRP = 2m)**
- All of these result in famine, abandonment of agricultural land and millions of displaced living in refugee camps. **(1 SRP = 2m)**

As a result the **HDI of that country is very low.**

2. National Debt

- Many developing nations have borrowed heavily from the developed world to develop their infrastructure, plunging them into massive debt. In order to fund these massive debts LDCs reduce health and education spending. The LDCs combined owe \$12.5 billion per month, more than they spend on health and education combined. **(1 SRP = 2m)**
- To help the most serious indebted the IMF and World Bank imposed **Structural Adjustment Programmes (SAPs)**. These were introduced by the IMF in 1986 to help the LDCs to develop. This was achieved by: **(1 SRP = 2m)**

1. Rescheduling their debt repayments by paying them back over a longer period.
2. Increased exports of each crops e.g. coffee.
3. Reduce spending on imports.
4. Reduced social and economic expenditure - health and education. **(1 SRP = 2m)**

- All of the above means that loans or financial aid will only be given to LDCs if they agree to follow an economic pattern of privatisation, lift all trade barriers and devalue their currencies. **(1 SRP = 2m)**
- In the 1990s Zimbabwe had one of the best health systems in Africa but repayments to the IMF caused a 30% cut in their health budget and as a result the infant mortality rate doubled. Currently, inflation is running at over 1000%. As a result the HDI of many LDCs is very low. **(1 SRP = 2m)**

3. Politics

- Life expectancy is affected by the amount of resources governments invest in primary health care. If spending on health care is low, life expectancy will be low and as a consequence the HDI will be low. **(1 SRP = 2m)**

4. Water Availability

- Over 2 billion people lack access to clean water, leading to increased cases of disease such as typhoid. As a result, life expectancy is reduced and the HDI of many LDCs will be low. **(1 SRP = 2m)**

5. Aids

- The majority of the world's population infected with the HIV Virus live in the developing world, leading to a drop in life expectancy. This puts extra pressure on an already under-resourced health service.

(1 SRP = 2m)

As a result the quality of life and the HDI of many LDCs, will be low.

(15 SRPs = 30m)

CHAPTER 34

LEVELS OF DEVELOPMENT CHANGE OVER TIME

EXERCISE 1

Read the answer to the question on how economic development can change over time and space on pages 278 & 279 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the answer to the question on how patterns of Ireland's economic development has changed over time and space on pages 280 & 281 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on 'Brazil' - A case study of a developing country and fill in the key points to your workbook on pages 282 & 283.

SAMPLE QUESTION:

EXAMINE THE IMPACT OF COLONIALISM AND/OR GLOBALISATION ON A DEVELOPING COUNTRY YOU HAVE STUDIED AND HOW IT HAS ADJUSTED TO THE GLOBAL ECONOMY?

SAMPLE MODEL ANSWER 67

- Brazil was colonised by the Portuguese in 1500. The colonisers developed settlements along the fertile east coast. Timber (Brazil wood), sugar and gold were exported to Europe in an unprocessed state. Secondary economic activity was not encouraged.
(1 SRP = 2m)
- Slaves were imported from Africa to work on the large plantations. As a consequence of the slave trade, Brazil is a multi-racial society. (1 SRP = 2m)
- Brazil gained its independence in 1822. However, a neo-colonial trade developed. Brazil, despite political independence, was still economically dependent on Portugal as a market for its raw materials, mainly tropical wood and sugar cane. (1 SRP = 2m)
- Sixty years following independence Brazil began exporting rubber. However, the rubber industry fell into sharp decline when South East Asian nations began exporting rubber. (1 SRP = 2m)
- Up until the late 1950s Brazil was still heavily dependent on primary exports, especially coffee. Coffee accounted for almost 70% of the country's exports. Dependence on a single crop was not ideal due to fluctuating world prices. (1 SRP = 2m)
- During the 1950s the government introduced a policy of import substitution. Brazil was determined to produce the goods which it imported in the past. Trade restrictions such as tariffs, quotas and embargoes

were introduced on goods coming from abroad. Brazil had developed into a closed economy. **(1 SRP = 2m)**

- The 1960s and 1970s became known as the Brazilian Miracle. The world oil crisis of the 1970s forced Brazil to export goods to earn revenue to pay its energy bills. **(1 SRP = 2m)**
- Multinational companies such as Ford, Shell and Volkswagon were encouraged to set up production plants in the country. The government began to manage the development and exploitation of the country's varied natural resources. **(1 SRP = 2m)**
- The country was governed by military rule between 1964 and 1985. The military leaders were neither economists nor politicians. They attempted to develop secondary economic activities by borrowing huge amounts of money, plunging the country into debt. When military rule ended in 1985 the IMF was called upon to solve the country's debt problem. **(1 SRP = 2m)**
- The IMF introduced Structural Adjustment Programmes or SAPs. The SAPs encouraged export led growth to repay the massive debt. Emphasis was placed on growing cash crops such as soya at the expense of basic food crops. As a consequence, millions starved. Government investment in health and education was reduced to make more funds available to pay off the debts. The poor suffered as a consequence. **(1 SRP = 2m)**
- In 1991 Mercosur or the Southern Common Market was created. It comprised Brazil, Argentina, Uruguay and Paraguay. It encouraged free trade between the member states. The member states have also introduced common external tariffs from countries outside the group. **(1 SRP = 2m)**
- The country has undergone a massive transformation. It is no longer dependent on primary exports such as coffee. It is now a major producer of industrial products such as aircraft, cars and chemicals. It has made a great transition from being a primary economic economy to one of the world's leading exporters of industrial products. **(1 SRP = 2m)**
- However, the benefits of industrialisation have not been evenly spread. Only 88% of the population are literate. Almost 9 % of the workforce are unemployed. There are still only 2.6 hospitals beds per 1000 population. Most of the wealth is enjoyed by 40% of the population while the rest live in poverty. **(1 SRP = 2m)**
- Due to improvement in agriculture, millions have migrated to the urban areas in search of a better lifestyle and higher incomes. However, unable to find employment and rather than returning home to their small farms, they settle in shanty towns or favelas where living conditions are very basic. **(1 SRP = 2m)**
- Output of basic food crops has decreased as emphasis is placed on growing cash crops for exports such as soya beans. As a result, many millions suffer from malnutrition. **(1 SRP = 2m)**
- The Amazon Rainforest is being damaged. Cattle ranching and extraction of different species of timber have resulted in the clearance of millions of hectares of Rainforest. The deforestation is damaging flora and fauna contributing to global warming and destroying the home of many indigenous people. **(1 SRP = 2m)**

(15 SRP = 30m)

EXERCISE 4

Read the answer to the question on tertiary economic activities in France as a case study of a developed economy on pages 283 - 285 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer on an industrial region in decline in France as a case study of a developed economy and fill in the key points to your workbook on page 285

SAMPLE QUESTION:

EXAMINE HOW AN INDUSTRIAL REGION HAS DECLINED IN A DEVELOPED COUNTRY YOU HAVE STUDIED?

SAMPLE MODEL ANSWER 68

- France has been a major industrial economy since the 19th century. France is a major producer of cars (Renault, Citroen, Peugeot) planes (Airbus) and invests heavily in military research and development. **(1 SRP = 2m)**
- However, parts of France, especially the Nord Pas de Calais has been experiencing industrial decline due to a decline in coal reserves and competition from larger integrated iron and steel plants across the world. **(1 SRP = 2m)**
- The Nord was, in the past, a centre of industrial activity, attracting iron and steel industries. It also possessed excellent infrastructure in the form of canals. However, since the 1960s, the region has gone into decline. **(1 SRP = 2m)**

Reasons for industrial decline:

1. All the best coal seams had been extracted. There was still coal available but it was too deep and overlain by non-coal bearing rocks increasing production costs. **(1 SRP = 2m)**
2. New alternative forms of energy, namely oil and gas, were now more freely available. They were also cheaper and easier to transport and more environmentally friendly than coal. **(1 SRP = 2m)**
3. The small iron and steel plants which had been attracted by the coal and iron ores were unable to compete with more modern and integrated plants. **(1 SRP = 2m)**
4. The textile plants in the region, and especially in Alsace, faced competition from the cheaper low cost economies in the Far East. **(1SRP = 2m)**

As a consequence the Nord suffered **deindustrialisation**.

- To combat the resulting unemployment and deindustrialisation the French government were obliged to take steps to remedy the problem. They introduced conversion poles. **(1 SRP = 2m)**

Conversion poles attempt to regenerate the economy by replacing the emphasis on primary economic activities with secondary and tertiary economic activities that are in the growth phase of the product life cycle.

(1 SRP = 2m)

The redevelopment of Lille

- Lille, with a population of 1m and the major urban centre in the Nord is being developed as a conversion pole. **(1 SRP = 2m)**
- The Eurostar train passes through Lille en route from Paris to London via the Channel Tunnel. This access to the U.K. market has attracted new business to Lille. **(1 SRP = 2m)**
- The city contains a World Trade Centre and is home to one of the major French banks, Credit Lyonnais. Lille is home to Euralille, an international business centre which provides jobs in the tertiary sector it also contains many retail outlets. **(1 SRP = 2m)**
- The creation of technopoles or technology parks for footloose high-tech industry on the cities ring motorway has provided thousands of jobs in the secondary sector. **(1 SRP = 2m)**
- Out-migration mainly of the young people has been reduced but unemployment amongst older miners still remains a problem. **(1 SRP = 2m)**
- Lille has been converted from a city where primary activities dominated to one where secondary and mainly tertiary activities dominate. **(1 SRP = 2m)**

(15 SRP = 30m)

EXERCISE 6

Read the answer to the question on footloose industries in France as a case study of a developed economy on pages 285 & 286 of the workbook and fill in the appropriate blanks.

EXERCISE 7

Read the answer to the question on mass tourism in France as a case study of a developed economy on pages 286 & 287 of the workbook and fill in the appropriate blanks.

CHAPTER 35

GLOBALISATION & MULTINATIONAL COMPANIES

EXERCISE 1

Read the answer to the question on causes of globalisation on pages 288 & 289 of the workbook and fill in the appropriate blanks.

EXERCISE 2

Read the following sample answer on M.N.C.'s including their advantages and disadvantages and fill in the key points to your workbook on page 290.

SAMPLE QUESTION:

DEFINE MULTINATIONAL OT TRANSNATIONAL CORPORATIONS AND OUTLINE THE REASONS THEY LOCATE IN SO MANY DIFFERENT COUNTRIES? IN YOUR ANSWER REFER TO THE ADVANTAGES AND DISADVANTAGES OF GLOBALISATION

SAMPLE MODEL ANSWER 69

A multinational corporation is a corporation that has factories and other assets in many different countries outside of its home country where it headquarters are located. They control the production process from beginning to end. Their annual sales often exceed the GDP of many developing countries. (1 SRP = 2m)

MNCs locate in different countries for many reasons:

1. Cheap Labour

- MNCs locate in developing economies to take advantage of lower wage rates. Workers, mainly women and children, work in very poor conditions for little reward. This has resulted in an international division of labour where all the research and development is undertaken in the Developed World and mass production is carried out in the Developing World. (1 SRP = 2m)
- However, as many of the developing countries become more educated many high-technology industries are moving from the Developed World to the Developing World. Many MNCs are locating their call centres in countries such as India and China. (1 SRP = 2m)

2. Access to Raw Materials

- The developed world is very dependent on the developing world for its imports of many raw materials such as tea, coffee, rubber and bananas. All of these goods are exported in an unprocessed form by the MNCs to processing plants in the Developed World. **(1 SRP = 2m)**

3. To ensure access to the Economic Triad.

The economic triad comprises: North America, The EU and Japan. In order to gain access to these rich markets the MNCs must locate their production plants in these areas.

Ford Motors, an American MNC with its headquarters in Michigan USA has production plants in Europe, including France, Germany and Spain. **(1 SRP = 2m)**

4. To enable them to move production from plant to plant depending on global economic factors.

MNCs, with a number of different production plants in many countries, will **move if economic conditions are unfavourable** to another production plant in a different country where economic conditions are more favourable. Fruit of the Loom closed down their production plants in Donegal and Derry and moved to a cheaper plant in Morocco. **(1 SRP = 2m)**

5. To take advantage of the product life cycle.

The Product Life Cycle

The term was first used by Theodore Levitt in 1965. The product life cycle outlines the life cycle of a product from introduction to decline and the factors which cause the production process to move from core regions to cheaper peripheral regions. **(1 SRP = 2m)**

Phase 1: Introductory Stage

The product is introduced and marketed to promote awareness. Samples of the new product will be distributed to encourage consumption. Consumers may buy the product on a trial basis. The introductory stage is located in core regions such as London and the Paris Basin where technology and finance are available. **(1 SRP = 2m)**

Phase 2: The Growth Stage

The product is in demand. Sales are increasing. Competitors may begin to enter the market. The growth stage is located in core regions where incomes are high and where a market is guaranteed. The core regions also possess skilled workers. **(1 SRP = 2m)**

Phase 3: Maturity Stage

Competitors are entering and leaving the market. Demand may begin to slow down with only very loyal customers purchasing the goods. Production has now moved to peripheral regions where production costs, such as labour, are much cheaper. **(1 SRP = 2m)**

Phase 4: Decline

Sales down begin to fall due to increasing competition and poor economic conditions. New styles and trends may also enter the market. Production now takes place in even cheaper areas of the Developing World such as South East Asia. (1 SRP = 2m)

Advantages & Disadvantages of Globalisation

Advantages of Globalisation

1. Increased free trade between countries
2. Investors in developed countries can invest in developing nations.
3. Global mass media links the world together.
4. Vital information can be shared between individuals and companies around the world.
5. Cultural barriers are reduced.
6. Less likelihood of conflict between countries. (3 SRP = 6m)

Disadvantages of Globalisation

1. An economic problem in one country may have consequences for many nations
2. Increased risk of diseases being transferred between countries.
3. More civil wars within developing countries and conflict between developing countries over access to scarce resources.
4. Increased environmental pollution as MNCs enjoy lower environmental standards in developing states. (2 SRP = 4m)

(15 SRP = 30m)

EXERCISE 3

Read the answer to the question Dell as a case study of a multinational company on pages 291 & 292 of the workbook and fill in the appropriate blanks.

EXERCISE 4

Read the following sample answer on the factors affecting industrial location and fill in the key points to your workbook on page 292 & 293.

SAMPLE QUESTION:

LIST AND EXPLAIN THE FACTORS AFFECTING INDUSTRIAL LOCATION

SAMPLE MODEL ANSWER 70

1 Raw materials

- Resource materials are *key inputs* and so factories try to locate either: (1 SRP = 2 marks)

– *As close to the resource material as possible* – e.g. paper manufacturing, *or*

– *Where they can access the raw material easily* – near a port if the resource material is bulky – e.g. Aughinish Alumina at Foynes Harbour, Co. Limerick; the heavy and bulky bauxite is imported from the Republic of Guinea on the west coast of Africa (1 SRP = 2 marks)

- The role of raw materials in industrial location has **declined** due to more efficient transport, better handling techniques and less wastage. Industrial development in Switzerland and Japan proves that the lack of raw materials is not a barrier to industrial development. (1 SRP = 2 marks)

2 Labour

- **Labour costs are often the defining factor** in deciding where the industry should locate. Labour, due to its cost, has often been substituted by machinery or the entire operation moved to a lower cost economy such as those of South-East Asia. (1 SRP = 2 marks)
- Factories tend to locate where there is a **large educated workforce** such as in cities and towns. For example, Intel chose to locate in Leixlip close to Dublin city. Intel employs 3,200 workers directly and over 1,000 workers indirectly. The company processes micro chips for the computer industry. (1 SRP = 2 marks)
- An **industrial tradition** in a region is an advantage as in the Rhine-Ruhr area, where workers have inherited an industrial tradition. (1 SRP = 2 marks)

3 Transport

- Transport is a **very important** location factor. Industries must be able to get the raw material in and the finished goods out to the market as quickly and efficiently as possible. (1 SRP = 2 marks)
- Industries locate **near major roads, rail, port and air terminals** to move their outputs as quickly and cost efficiently as possible. For example, Intel is located just off the M4 motorway at Leixlip. It enjoys easy access to Dublin airport and the 'roll on roll off' ferry at Dublin port. The port tunnel has also increased the speed of delivery of Intel's output. (1 SRP = 2 marks)
- Developments in transportation have meant that industry may set up in **peripheral regions**, for example, the west of Ireland or the Mezzogiorno. Competition between the different modes of transport has also reduced transport costs. (1 SRP = 2 marks)

4 Markets

- The market is defined as the **place where the product/output of the factory is sold**. (1 SRP = 2 marks)
- Factories locate as **close as possible to their markets** or locate where they have good access to their markets, i.e. an **excellent infrastructure**. Producers of perishable goods locate as close to their market as possible – market gardening in north Co. Dublin is situated close to the city. The location of Aughinish Alumina allows it to export alumina by ship to Scandinavia and the UK to be processed further into aluminium. (1 SRP = 2 marks)
- There are two major global markets, which can be divided into the **developed market** and the **developing world market**. While many MNCs locate their processing plants in these countries the finished goods are exported to the First World market where income is higher and consequently buying power is greater. 25% of Intel's world sales are in Europe; they located in Leixlip because they could use Ireland as a springboard to access the European market. (1 SRP = 2 marks)
- The **expanding markets** of China, India and the new Eastern European members of the EU will provide a huge market for goods in the future. (1 SRP = 2 marks)

5 Energy

- In the past industry was drawn to **sources of energy** and so was concentrated on the coalfields such as the Nord Pas de Calais in North East France. (1 SRP = 2 marks)
- Today, proximity to coalfields is not as important due to advances in the transport of power and the development of national grids. However, some industries are still drawn by **cheap and plentiful** energy supplies – the generation of hydro electric power (HEP) in Northern Italy has attracted many industries to these regions. (1 SRP = 2 marks)

6 Capital

- An **injection of funds** is necessary to establish an industry. (1 SRP = 2 marks)
- While the role of capital has increased due to the complexity of the manufacturing process, its importance as an influence on location has **declined due to the increased mobility of capital** throughout the EU. (1 SRP = 2 marks)

7 The role of government

- The government offers **grants and incentives** to industry setting up in less well-off areas in order to redress the economic imbalance. The west of Ireland and the Mezzogiorno receive huge government aid to develop industry in the hope of reducing out-migration from these regions. (1 SRP = 2 marks)
- Governments also favour **decentralisation** or the moving of administrative functions and manufacturing from urban areas to rural areas to stop out-migration, as happened in the Nord Pas de Calais. (1 SRP = 2 marks)

8 Services

- All industries require **telecommunications, electricity and water** services. Consequently, industry will locate where these requirements are readily available – on industrial estates. Little Island in Cork and Sandyford in Dublin are examples of industrial estates. (1 SRP = 2 marks)
- **Intel** uses 9 million litres of water per day from the River Liffey. **Aughinish Alumina** draws its water from the nearby River Deel. (1 SRP = 2 marks)

(15 SRPs = 30 marks)

CHAPTER 36

IRELAND AND THE EUROPEAN UNION

EXERCISE 1

Read the following sample answer on the advantages of E.U. membership for Ireland and fill in the key points to your workbook on pages 294 & 295.

SAMPLE QUESTION:

SAMPLE MODEL ANSWER 71

When Ireland joined the EU in 1973 it was a primary economy with very high levels of unemployment and emigration. The average income in 1973 was \$38 per week. In 2006 the average income per week was €575. Ireland's income per person was 62% of the European average. Since joining 1973 Ireland has received €57 billion in income from the EU.

(1 SRP = 2m)

1) Reduced dependence on the UK market

- Membership of the EU has reduced Ireland's dependency on the United Kingdom. In 1973 55% of Ireland's exports went to United Kingdom. Just over 20% was exported to other EU members. **(1 SRP = 2m)**
- In 2003 only 18% of Ireland's exports went to the United Kingdom. Exports to other EU member states had increased to just under 45%. **(1 SRP = 2m)**

2. Multinational Corporation (MNCs)

- Many multinational corporations have located in Ireland to gain **access** to Europe's rich and large market of 500 million. These include Dell, Intel, Google and Ebay. The economy, as a consequence, underwent a massive

transformation from a primary based economy to one highly dependent on secondary economic activities. **(1 SRP = 2m)**

3. Improvements in Infrastructure.

- To facilitate the movement of **raw materials and finished goods** massive investment in infrastructure was essential. Huge EU funding has upgraded Ireland's infrastructure making Ireland as even more attractive location for MNCs. **(1 SRP = 2m)**
- **EU funding** has helped to part finance the Luas, extend the Dart network and allow for the introduction of new intercity trains. Funding has also been provided for the upgrading of ports at Rosslare, Cork and Killybegs. **(1 SRP = 2m)**

4. Increased levels of employment.

- Since joining, numbers employed in Ireland have increased by over 70%. However, unemployment is rising due to the global credit crunch and the onset of an economic recession in Ireland. **(1 SRP = 2m)**

5. Increased Gross National Product (GNP)

- Average income per capita is three times the 1973 equivalent. This is due to foreign direct investment (FDI), increasing numbers at work and resulting in export led growth. As a result of a rising income demand for goods and services has increased increasing the need for workers. This has resulted in immigration mainly from Eastern European States into the country. **(1 SRP = 2m)**

6. The Common Agricultural Policy (C.A.P.)

- C.A.P. was introduced in 1962 to increase farm output and to improve farming incomes. This really benefited only the larger farms in the more productive regions of Ireland such as the east and south-east. Reform of C.A.P. saw the introduction of the Rural Environmental Protection Scheme (REPS) whereby farmers are paid to act as guardians of the landscape. **(1 SRP = 2m)**

(1 SRP = 2m)

- Funds were also available through the Guidance Fund to help farmers modernise their holdings. Farmers were encouraged to increase the size of their farms to benefit from economies of scale. **(1 SRP = 2m)**

7. The Common Fisheries Policy (CFP)

- The CFP sought to increase productivity. Many of Ireland's small and very old fishing boats have been replaced by larger boats increasing the value of fish caught. **(1 SRP = 2m)**
- Ireland is also subject to a total allowable catch (TAC). Ireland's TAC is 5.8% of the EU catch even though we possess 11% of EU waters. TACs were introduced to preserve fish stocks. **(1 SRP = 2m)**

8. Equal Pay

- Ireland was obliged to introduce equal pay for all in 1976. Furthermore, Ireland can no longer discriminate on grounds of age, sex, race and nationality. **(1 SRP = 2m)**

9. Consumer Protection

- Airline passengers enjoy guaranteed rights when travelling. Mobile phone roaming charges have been reduced. Uniform safety standards regarding food with regard to packaging, hygiene and contents of food. **(1 SRP = 2m)**

10. Environmental Protection

- The EU introduced the Reduce, Reuse, Recycle campaign to improve consumer's attitude towards the environment. Steps have been introduced to combat water and air pollution, to reduce CO2 emissions and to protect endangered habitats. **(1 SRP = 2m)**

11. Encouraging Tourism

- The EU provided funds for the new interpretative Centre at the Cliffs of Moher, Co Clare. Projects like these are important to reduce out-migration from peripheral regions. **(1 SRP = 2m)**
- In conclusion, Ireland has transformed from itself from a primary based economy to a highly successful secondary and tertiary based economy.

(15 SRP = 30m)

EXERCISE 2

Read the answer to the question on the common agricultural policy on pages 295 & 296 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on the common fisheries policy and fill in the key points to your workbook on page 296 & 297.

SAMPLE QUESTION:

OUTLINE THE IMPACT OF THE COMMON FISHERIES POLICY (CFP) ON IRELAND'S ECONOMIC DEVELOPMENT?

SAMPLE MODEL ANSWER 72

The CFP was introduced by the EU in 1983 to make EU fishing grounds a common resource by giving access to all member states and to help reduce overfishing. The EU also felt obliged to protect EU fishing waters and fishermen. **(1 SRP = 2m).**

In order to preserve fish stocks the EU have introduced the following measures:

1. Total Allowable Catch (TACs)

- TACs, introduced in 1983, refer to how much of each species of fish can be caught in EU waters without risk of exploitation. TACs are usually stated in tonnes but sometimes in numbers of fish caught. They are set annually, based on scientific advice, in December by the Council of Ministers. **(1 SRP = 2m)**

2. Quotas

1. The TACs are divided among the member states. The share obtained by each member is a national quota.
2. Each vessel within the EU is granted a quota regarding catches of regulated species.
3. All vessels must record their catches and landings.
4. Only fish of a certain size may be landed. This often resulted in dumping of under or over sized fish.
5. Minimum mesh sizes were introduced to allow smaller immature fish to escape.
6. The number of days and time of year in which boats could fish were limited to reduce overfishing during breeding seasons.
7. Only Irish vessels may fish within 10kms of the coast. Between 10kms and 20kms from the coast only Irish and EU boats may fish. **(3 SRP = 6m)**

3. A reduction in the size of the EU fleet.

1. Each member state is allocated a limit regarding the number of boats in their fleet. Money is made available to aid modernisation of boats.
2. Incentives were provided to encourage fishermen to retire. The CFP offered fishermen money to scrap their boats and to aid them in finding alternative employment.
3. The EU offers funding to assist in the introduction of modern fishing methods.
4. Encouragement is given to hunt species not traditionally fished. The CFP provides finance to encourage consumption of species which are not over fished. **(2 SRP = 4m)**

4. Enforcement and compliance

- The onus is on each member state to ensure that TACs are adhered to. The EU also operates a community level inspection service which ensures that member states are following EU policy. **(1 SRP = 2m)**
- Fishing gear and the ship's register are often checked. Fish processing plants are also monitored to check not only hygiene but also the origin of the fish. **(1 SRP = 2m)**

5. International Agreements

- Reciprocal agreements have been reached with other nations regarding access to fishing grounds. These agreements encourage sustainable use of the oceans. However, under the Third Country Agreements with some African states whereby the EU pays other governments to allow EU boats fish in their waters, great damage has been done. Their waters have been overfished by EU states, crippling local fishing communities. **(1 SRP = 2m)**

Impact of the C.F.P. on Ireland

1. Total Allowable Catches (TACs)

- While Ireland's territorial waters comprise 11% of the EU's seas the country was only allocated 5.8% of the EU TAC. The TAC greatly hindered the expansion of the Irish fishing industry, especially along the western seaboard where there are no alternative sources of employment. **(1 SRP = 2m)**

2. Free Access to Ireland's Water

- Membership of the EU allowed other member states free access to Ireland waters with one exception, the Irish Conservation Box. **(1 SRP = 2m)**
- The ICB is an important spawning area for many fish species. However, many EU members, notably Spain and Portugal, sought access to the ICB. As a result the ICB was abolished in 2002. However, following pressure from the Irish government and an EU review of the CFP the ICB was reinstated in 2004. The Irish Navy now enforces the ICB. **(1 SRP = 2m)**

3. EU Funding

- Under the EU aided Operational Programme for Fisheries (1994-1998) the Irish fishing industry received over €95 million in grants. These grants were used to finance fleet modernisation, the development of aquaculture farmed shellfish and salmon and fish processing. Between 2000 and 2006 the Irish fishing industry received over €57 million under the same programme. **(1 SRP = 2m)**
- Up to 2013 almost €335 million is being invested in Irish fisheries with the aim of making the fishing industry sustainable. The investment will also establish Irish fish products in overseas markets. The size of the fishing fleet will also be reduced. **(1 SRP = 2m)**

4. New Species

- As a consequence of overfishing, Irish boats are now fishing whitefish (hake and haddock) and pelagic fish such as mackerel. Many fishermen have become rich as a result especially those from Killybegs in Donegal. These fishermen are often termed the “Mackerel Millionaires”. (1 SRP = 2m)

5. 2002 Reforms

- The CFP was reformed in 2002 to ensure the sustainable development of fishing activities from an environmental, economic and social point of view. It allows for a long term approach to fisheries management, involving the introduction of multi-annual recovery plans for stocks outside safe biological limits and of multi annual management plans for other stocks. (1 SRP = 2m)

EXERCISE 4

Read the answer to the question on the common regional policy on pages 297 - 300 of the workbook and fill in the appropriate blanks.

CHAPTER 37

ENVIRONMENTAL IMPACTS

EXERCISE 1

Read the following sample answer on renewable resources and fill in the key points to your workbook on pages 301 & 302.

SAMPLE QUESTION:

EXPLAIN THE TERM RENEWABLE RESOURCE? IN YOUR ANSWER REFER TO ONE TYPE OF RENEWABLE RESOURCE WHICH IS BEING USED IN IRELAND.

SAMPLE MODEL ANSWER 73

Renewable energy resources are resources that will never become exhausted. They are infinite providing they are not overexploited or abused. (1 SRP = 2m)

Note: You have to answer one of the following case studies:

Case study 1: Wind Energy

- Wind is the movement of air from high pressure to low pressure as a direct result of the uneven heating of the earth's surface by the sun. (1 SRP = 2m)
- Wind power is not a new source of energy. The Dutch have used windmills for generations to pump water. Early explorers captured the power of the wind with their sails. (1 SRP = 2m)

- Wind energy is generated by turbines with three long blades. The wind spins the blades which turn a shaft connected to a generator which produces electricity. Wind energy is clean and sustainable. Wind energy provides electricity to 40 million Europeans. **(1 SRP = 2m)**

Advantages of Wind Power

1. Wind turbines produce no air or water pollutants.
2. Wind turbines produce no harmful gas emissions.
3. Wind turbines produce no effluent.
4. Wind turbines produce no waste products.
5. Wind turbines produce no radioactivity. **(2 SRPs = 4m)**

- Operating costs are almost zero because wind is a free source of energy. According to the European Wind Energy Association the risk of bird deaths through collision with wind turbines is low. The turbine blade passing through the air generates sound. When winds blow, the noise of the turbine is masked by the blowing wind. On windless days the turbines will remain silent. **(1 SRP = 2m)**
- Coal burning power stations emit 800-1000 grams of CO₂ per unit of electricity they produce. Each unit of electricity produced by wind power releases no emissions at all. **(1 SRP = 2m)**
- Wind farms generally comprise many tens of turbines. A typical wind farm extends over an area of 1sq km but only 2% of the land over would be taken out of use. The remainder can be used for farming or as a natural habitat. **(1 SRP = 2m)**
- The first wind farm was opened at Bellacorrick, Co. Mayo in 1992. Wind farms in Ireland supply enough power for over 146,000 users. **(1 SRP = 2m)**

Every megawatt of wind power produced has many advantages for Ireland and the environment:

- Emissions of CO₂ will fall by 2,700 tonnes.
- Emissions of SO₂ will fall by 49 tonnes.
- Emissions of NO_x will fall by 5.5 tonnes.
- A production in imports of 6000 barrels of oil. **(2 SRPs = 4m)**

- Ireland has 35 on-shore and one off-shore wind energy projects. The offshore farm 'Arklow Bank' is 10kms off Ireland's East coast at Arklow, Co. Wicklow. Ireland aims to provide 20% of the country's electricity needs from renewable resources, mainly wind, by 2010. By 2020, this should increase to 30%. **(1 SRP = 2m)**
- Germany has the greatest number of wind farms followed by Spain, the USA, India and Denmark. France and China are catching up rapidly. **(1 SRP = 2m)**
- The results of a survey undertaken by Landsdowne Market Research in 2003 show that 75% of the Irish population would support wind farms with eight out of ten stating that wind energy is good. **(1 SRP = 2m)**

Suitability of Ireland for wind farms:

Advantages:

1) Ideal Geographic Location.

- Ireland lies in the path of the South Westerly winds, so supply of wind is not a problem.
- 2) Mountains & Uplands

- Ireland has large exposed areas of upland and coastal low lands which are uninhabited and where the wind flow is great. **(1 SRP = 2m)**

Disadvantages:

- The only disadvantage of wind power for Ireland is that the wind supply is not constant. **(1 SRP = 2m)**

(15 SRP = 30m)

OR

Case study 2: Bio-energy

- Bio-energy comes from biomass. Biomass refers to all land and water-based vegetation; organic waste both animal and human and photosynthetic organisms. They are all renewable forms of energy which can be used as alternatives to fossil fuels. Examples include wood, crops, agricultural and municipal wastes. **(1 SRP = 2m)**
- Wood is described as carbon-neutral. When burned, wood releases CO₂. However, because wood absorbed CO₂ from the atmosphere during its life-cycle, the net emissions of CO₂ are zero. **(1 SRP = 2m)**

Benefits of bio-energy for Ireland

1. A net decrease in CO₂ emissions would be the greatest benefit.
2. Biomass is an indigenous resource which could reduce our dependence on fuel imports. Currently, 86% of our fuel requirements are imported.
3. The use of bio-energy would guarantee security of supply in times of international conflict unlike many fossil fuels, the supply of which depends on international events.
4. Bio-energy offers huge employment potential, especially in rural areas, reducing out-migration.
5. Bio-energy is very advantageous for the environment. Forests provide a habitat for flora and fauna, add scenic beauty to the environment and can be used for recreational purposes.
6. Bio-energy provides a solution to the waste problem - waste from sawmills, forests, farms and households can be used to generate electricity, rather than dumping in land fill sites. **(3 SRPs = 6m)**

Sources of bio-mass include:

1. Energy Crops

- Energy crops such as Poplar and Willow, Hemp and Elephant grass are used to generate electricity. Poplar and Willow are easy to plant, fast growing, suitable for a variety of sites and can withstand disease and pests. **(1 SRP = 2m)**
- Liquid bio fuel energy crops include biodiesel and bioethanol. Biodiesel is obtained from oilseed rape while bioethanol is obtained from wheat and sugar beet. Liquid biofuels can be blended with petrol and diesel. **(1 SRP = 2m)**

2) Organic Residues

- Organic residues include forest residues, agricultural residues and municipal solid waste. **(1 SRP = 2m)**
- Tree tops and branches can be used to provide energy. Wood waste such as wood chips, bark and sawdust from wood processing industries are converted into wood pellets which can be used in domestic wood boilers. **(1 SRP = 2m)**
- Animal slurry and manure can be used to generate energy. Sewage sludge and food processing waste can be converted into energy **(1 SRP = 2m)**

- Waste vegetable oil from the catering industry is used to produce biodiesel. Biogas, which is used to provide electric power is produced from sewage treatment plants such as the one at Ringsend in Dublin. It is formed as a result of the breakdown of organic waste in an oxygen free environment. **(1 SRP = 2m)**
- Only 2% of Ireland's energy supply is derived from renewable resources. Of this 2% only 1.3% is biomass. This is very low compared to other European counties. **(1 SRP = 2m)**
- Ireland is ideally suited to the development of biomass. Ireland enjoys a cool temperate oceanic climate which is ideal for tree growth. **(1 SRP = 2m)**
- The EU Commission wants to double the use of renewable energy from 6% to 12% of the EU's energy consumption by 2010. Most of this increase will come from biomass **(1 SRP = 2m)**
- Bioenergy also includes the production of biofuels. Biofuels are not a new source of energy. The first cars built by Henry Ford were designed to run on ethanol. The first ever diesel engines ran on peanut oil. **(1 SRP = 2m)**
- Brazil converts sugarcane into ethanol which is used to fuel cars. Biodiesel, produced from palm oil is widely available in Europe. **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 2

Read the answer to the question on non renewable resources on pages 302 - 304 of the workbook and fill in the appropriate blanks.

EXERCISE 3

Read the following sample answer on acid rain and fill in the key points to your workbook on page 304 & 305.

SAMPLE QUESTION:

WHAT ARE THE CAUSES AND CONSEQUENCES OF ACID RAIN AND WHAT CAN BE DONE TO REMEDY THE PROBLEM?

SAMPLE MODEL ANSWER 74

- The effects of acid rain were first observed in Scandinavia in the late 1950s. The cause of the problem was in Britain and Northern Europe. The wind carried the pollution from these core regions to Scandinavia where it fell as acid rain. **(1 SRP = 2m)**
- Acid rain refers to precipitation containing high levels of nitric and sulphuric acids i.e. precipitation that contains more acid than normal. **(1 SRP = 2m)**

Causes of Acid Rain.

- Acid rain is the result of burning fossil fuels. Fossil fuels release sulphur dioxide and nitrogen oxides into the atmosphere. These gases combine with moisture in the air to form a weak sulphuric acid and a weak nitric acid. These acids are carried in the wind, eventually falling as acid rain. **(1 SRP = 2m)**

Consequences of Acid Rain.

- Forests are damaged - trees can lose their leaves and suffer from stunted growth. Their barks can be damaged increasing the risks of disease and insects. Acid rain also poisons the soil in which trees grow. The acid rain may dissolve and wash away nutrients and minerals in the soil slowing down tree growth. **(1 SRP = 2m)**

- Lakes are damaged by acid rain. Fish die, removing a major source of food for bird life. They suffer stunted growth and reproduction may fall. Fish eggs coming into contact with acid rain can be killed off. In Scandinavia there are many dead lakes which are crystal clear and lifeless. **(1 SRP = 2m)**
- Acid rain can damage buildings by corrosion. Buildings comprised of limestone and sandstone are severely weathered. The acid rain changes the minerals in the stone into a powdery material that can easily be washed away by rain. The Parthenon in Greece has been damaged by acid rain. **(1 SRP = 2m)**
- Acid rain also damages airplanes, railways, cars and bridges. **(1 SRP = 2m)**
- Acid rain can result in respiratory problems in humans especially people with asthma. **(1 SRP = 2m)**

- Plants and animals absorb acid rain. When eaten by humans the plant and animal toxins can result in brain damage and Alzheimer's disease. **(1 SRP = 2m)**

Solutions to Acid Rain

- Factories should be encouraged to install filters on chimneys to reduce sulphur dioxide emissions. **(1 SRP = 2m)**
- Incentives should be available to encourage the use of alternative sources of energy such as solar, wind and tidal power. **(1 SRP = 2m)**
- Commuters should be encouraged to car pool to reduce harmful emissions into the atmosphere. **(1 SRP = 2m)**
- Increased government investment in public transport infrastructure to entice commuters to leave their cars at home. **(1 SRP = 2m)**
- Mandatory use of the cleanest emission technology in car exhausts. Car manufacturers should fit catalytic converters to cars to reduce the emission of harmful gases. **(1 SRP = 2m)**

- Grants should be made available for liming - the addition of lime to lakes to neutralise the water. This is a very expensive process. **(1 SRP = 2m)**
- People should be encourage to conserve energy **(1 SRP = 2m)**

(15 SRPs = 30m)

EXERCISE 4

Read the answer to the question on conflict between local and global interests on pages 305 - 307 of the workbook and fill in the appropriate blanks.

EXERCISE 5

Read the following sample answer on sustainable economic development and fill in the key points to your workbook on pages 307 & 308.

SAMPLE QUESTION:

EXAMINE WITH REFERENCE TO AN EXAMPLE YOU HAVE STUDIED THE IMPORTANCE OF ENSURING THAT DEVELOPMENT IS ENVIRONMENTALLY SUSTAINABLE?

SAMPLE MODEL ANSWER 75

- Sustainable economic development involves meeting the needs of the present without comprising the ability of future generations to meet their own needs. **(1 SRP = 2m)**

- In order to encourage sustainable economic development Ireland established the Environmental Protection Agency (EPA) and introduced Environmental Impact Assessments (EIAs). **(1 SRP = 2m)**

Case Study: Tara Mines: An example of sustainable development

- Tara Mines is located in Navan, Co. Meath. It is Europe's largest lead and zinc mine. It is also the fifth largest zinc mine in the world. The mine is owned by the Swedish based group, Boliden. **(1 SRP = 2m)**
- The zinc and lead deposits were formed in a shallow tropical sea over 350 million years ago. **(1 SRP = 2m)**
- The deposits were discovered in 1970, development commenced in 1973 and production started in 1977. Tara mines employs over 650 workers who spend their income in the local area. Many more are employed indirectly. Lead and zinc are also mined at Galmoy, Lusheen, Silvermines and Gortdrum. **(1 SRP = 2m)**
- Lead and zinc concentrate are sent by rail to Dublin Port and onwards to smelters in Finland and Norway. However, most of the production is sold to third parties in Europe. **(1 SRP = 2m)**
- 2.6 million tonnes of ore are mined annually which yield zinc and lead concentrates containing 200,000 tonnes of zinc and 40,000 tonnes of lead metal. **(1 SRP = 2m)**
- The zinc and lead deposits lie between 50m and 1000m under the surface. The deposits cover an area of 6.5kms x 1.5kms. This large geographical area requires the use of mobile equipment for drilling, explosives and haulage of ore. Miners travel throughout the mine by four-wheel drive vehicles. **(1 SRP = 2m)**
- Tara mines is located in an environmentally sensitive area. It is very close to Navan, the administrative capital of county Meath. The surrounding land is very fertile. **(1 SRP = 2m)**
- The mine is close to Brú Na Bóinne (the Neolithic monuments of Newgrange, Knowth and Dowth), the Hill of Tara, Slane and the towns of Kells and Trim. The mine is also situated close to the River Blackwater. **(1 SRP = 2m)**
- Consequently, great consideration was given to architectural compatibility with the surrounding countryside. Some of the buildings were sunken three metres into solid rock to reduce their visual impact on the surrounding landscape. **(1 SRP = 2m)**
- The placement and orientation of buildings was designed to reduce noise pollution. The mining area has been planted with trees to reduce the visual impact of the mine. **(1 SRP = 2m)**
- Recycling forms a huge part of the operation at Tara. When the lead and zinc have been removed the material left over is termed tailings or waste. Most of the waste is pumped to a tailings pond 5kms from the mine site where the solid particles fall to the bottom. The water is then re-circulated to the mine. Overtime, as the level of solids accumulates and the water is drained, new land is created. **(1 SRP = 2m)**
- The coarser sand tailing particles are stored in sand tanks. When water and cement are added to the sand it is used as a backfill. One million tonnes of tailings are used as a backfill. **(1 SRP = 2m)**
- In any mining operation health and safety of employees is of major concern. Tara mines have established a safety department. All employees are required to attend safety meetings. **(1 SRP = 2m)**

Mining can now be regarded as a form of sustainable economic development.

(15 SRP = 30m)

EXERCISE 6

Read the answer to the question on ignoring sustainable development on pages 308 - 310 of the workbook and fill in the appropriate blanks.

EXERCISE 7

Read the following sample answer on global warming and fill in the key points to your workbook on pages 310 & 311.

SAMPLE QUESTION:

EXAMINE THE CAUSES AND IMPACT OF ONE GLOBAL ENVIRONMENTAL ISSUE STUDIED BY YOU?

(note: This question contains more than 15 SRPs as the question can be asked in a variety of ways)

SAMPLE MODEL ANSWER 76

The greenhouse effect

- **Global warming** is due to an enhanced greenhouse effect. The Greenhouse Effect is a natural phenomenon. (1 SRP = 2 marks)
- The Earth is surrounded by a blanket of gases called the **atmosphere**. Without this blanket of gases life on Earth would cease. If this protective layer of gases did not exist, the Earth would have the same surface temperature as the moon, -18°C . However, the atmosphere surrounding the planet Earth guarantees an **average temperature of 15°C** . (1 SRP = 2 marks)
- The Greenhouse Effect acts like the glass in a greenhouse. It allows the sun's rays to penetrate, which warm the planet's surface. However, certain gases in the atmosphere, **carbon dioxide and methane** in particular, absorb this infra red heat, warming the atmosphere of the Earth. These gases are the greenhouse gases. (1 SRP = 2 marks)
- The natural process between the sun, the atmosphere and Earth is termed the greenhouse effect. However, the level of some gases, mainly CO_2 in the atmosphere is **increasing** due to human activities with the result that more heat is being trapped and less is escaping. (1 SRP = 2 marks)
- Over the past century global temperatures have risen by 0.6°C approximately. Levels of CO_2 have risen from 280 parts per million (ppm) before the Industrial Revolution to about 380 ppm now. At current rates of economic growth, levels of CO_2 will **increase to 800 ppm** by the end of the century. (1 SRP = 2 marks)
- According to the Intergovernmental Panel on Climate Change (IPCC) established in 1988, temperatures will increase by between 1.4°C and 5.8°C by the end of this century. In their 2007 report they stated that "there is new and stronger evidence that most of the warming observed over the past 50 years is attributable to human activities". (1 SRP = 2 marks)

The major greenhouse gases are:

- **Carbon dioxide**, which is released into the atmosphere due to the burning of fossil fuels – oil, coal and gas and by deforestation. Since the Industrial Revolution CO_2 levels in the atmosphere have increased by 25%. (1 SRP = 2 marks)
- **Methane**, which is produced by cattle and sheep and intensive agriculture such as the cultivation of rice in paddy fields. (1 SRP = 2 marks)
- **Nitrous oxides**, which are released by fertilisers, carbon fuels and dead organic matter. (1 SRP = 2 marks)
- **Manufactured gases** such as halocarbons, which include chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs), also trap heat. HFCs are used in refrigeration units instead of CFCs. (1 SRP = 2 marks)

The consequences of global warming are many and alarming:

- ***The World's temperature is increasing***

- Average global temperatures have increased by 0.6°C from the late 1800s to 2000. The 13 warmest years have occurred since 1979. With a rise in temperatures, polar ice caps will melt leading to a rise in sea levels of between 20cm and 3.6m by 2100, damaging farmland and forcing many people out of their land in low-lying parts of the world, e.g. Bangladesh. (1 SRP = 2 marks)

- In Tuvalu, Pacific, 11,000 people live on 9 coral islands. The islands are only 3m above sea level. Parts of the islands have flooded. The islanders have decided to abandon their island home emigrating to New Zealand. (1 SRP = 2 marks)

- The Maldivian Islands support over 300,000 people. A 1m rise in sea level will drown all these islands. A rise in sea levels will also contaminate drinking water with salt. (1 SRP = 2 marks)

- In 2003, extreme heat waves resulted in the deaths of more than 20,000 people in Europe and over 1,500 people in India. (1 SRP = 2 marks)

- ***Agriculture would be affected***

- Some regions will become drier (Ethiopia, for example), while others will become wetter (e.g. Canada and Siberia). Many of the world's breadbaskets – East Anglia in Britain and the rice bowls of India and South-East Asia, may become deserts as the rainfall moves to other regions of the world. (1 SRP = 2 marks)

- The economies of countries that rely on single crops for income could be wiped out (e.g. Uganda and the coffee bean) if temperatures rise by more than a few degrees. The practice of relying on a single crop is called *monoculture*. (1 SRP = 2 marks)

- Increased CO₂ levels in the air will mean that plants will grow faster. Weeds will also grow faster. Climate change will also accommodate many pests that are not currently found. (1 SRP = 2 marks)

- Climate change may also damage cultural and historical monuments and archaeological sites. In 2002 severe floods across Europe damaged libraries, theatres and concert halls. In Venice, Italy, St Mark's Square floods more than 50 times a year. This is more than it did during the early 1900s mainly due to sea level rise. (1 SRP = 2 marks)

- ***An increase in tropical storms and hurricanes***

- Hurricanes, which need moisture and heat, may become severe and stronger. Hurricanes Katrina and Rita in 2005 were perhaps the largest single storms to form in the North Atlantic. (1 SRP = 2 marks)

- ***Damage to water supplies***

- Globally, water supplies are already under pressure. Global warming will make this situation worse. Some regions will gain rainfall while in others rainfall will be less predictable. Rising temperatures will increase evaporation rates reducing supply of water and therefore increasing demand. (1 SRP = 2 marks)

- Increasing temperatures increase the rate of glacial melt, which in the short term may increase river flow but in the long run may damage many rivers causing them to dry up. In Northern India 500 million people depend on the Indus and Ganges which depend on glacial melt waters. (1 SRP = 2 marks)

- ***The circulation system of the oceans***

– The *ocean conveyor belt* might be altered causing Western Europe to cool down before it warms up. (1 SRP = 2 marks)

- ***Ecosystems may be disrupted***

– Global warming could kill more than one-third of the world's flora and fauna by 2050. The glaciers are melting on Kilimanjaro threatening many alpine species on the mountain slopes and habitats that depend on the glacial melt water. (1 SRP = 2 marks)

– The forested mountains of Central America are home to 17,000 plant species. A reduction in rainfall will damage this delicate environment. According to the journal *Nature*, up to 37% of all species will be extinct by the year 2050. (1 SRP = 2 marks)

Ireland will be affected by the greenhouse effect

- According to climatic models, Ireland may enjoy a Mediterranean Climate with hot dry summers and milder winters. This will allow farmers to grow a much more exotic range of crops – olives and vines. The new climate will also increase tourism. Rainfall levels may fall with rain now coming from the east rather than from westerly influences. (1 SRP = 2 marks)
- There will be increased coastal erosion and more storms along the east and west coasts. Rising sea levels and coastal erosion will place areas of human development and industries under threat due to the loss of infrastructure at huge financial cost. (1 SRP = 2 marks)
- Decreased rainfall in the summer will result in water shortages for flora and fauna. Increases in winter rainfall would result in more flooding. If prolonged summer droughts do not become a problem agriculture and grass growth could enjoy an increase because of higher temperatures. This would mean that new grassland and livestock management systems would be possible with a longer grazing season and the possibility of growing additional crops such as maize. (1 SRP = 2 marks)

The impacts of global warming can be reduced if all or even some of the following measures are introduced:

- ***A reduction in the use of fossil fuels and increased use of renewable energy sources*** (wind, hydro power, solar, biomass, geothermal and tidal power) would help to slow down global warming. None of these produce any greenhouse gases. California has stated that its largest service providers will obtain 20% of their electricity needs from renewable resources by 2017. (1 SRP = 2 marks)
- ***Stop production of chlorofluorocarbons and find alternatives.*** Many products are now CFC free – deodorants, for example. (1 SRP = 2 marks)
- ***Stop tropical rainforest destruction and encourage afforestation.*** Deforestation is the second biggest contributor to global warming. Planting trees absorbs carbon dioxide reducing the warming effect. (1 SRP = 2 marks)
- ***Introduce a carbon tax on carbon dioxide emissions.*** This tax would increase the cost of fossil fuels forcing industry to change to alternative sources of energy. (1 SRP = 2 marks)
- ***Transport.*** Car engines should be improved in order to reduce greenhouse emissions by 25%. Hydrogen fuel cell vehicles will make a big contribution to solving the problem. Hybrid gas electric engines could reduce global warming by one-third or more. (1 SRP = 2 marks)
- ***Agricultural improvements.*** Farmers should be encouraged to practise more environmentally friendly farming, e.g. organic, and to reduce the amounts of fertiliser used. The number of animals per hectare should also be reduced. (1 SRP = 2 marks)
- ***Nuclear power is an option but there are dangers.*** Nuclear power is better for the climate than fossil fuels. However, there are questions over where the radioactive waste will be dumped and the possibility of accidents. The nuclear reactor at Chernobyl exploded in 1986 with devastating consequences. However, despite these problems nuclear power is still better for the climate than fossil fuels. (1 SRP = 2 marks)

- A threefold increase in global nuclear capacity by 2050 could reduce greenhouse gas emissions by 25%. The government should impose a lower tax on cars with lower emissions. Environmentally friendly cars should be encouraged. (1 SRP = 2 marks)
- **The Kyoto Protocol (Japan 1997) should be implemented**, which places a limit on CO₂ emissions from industry. (1 SRP = 2 marks)
 - The Kyoto Protocol sets legally binding limits on greenhouse emissions in industrialised countries. Industrialised countries are required to reduce the emissions of six greenhouse gases on average 5.2% below the 1990 levels during the first commitment period from 2008 to 2012. There are no emission targets for the developing countries. (1 SRP = 2 marks)
 - So far 111 countries have agreed to the Kyoto Protocol. However, the US withdrew from the Protocol in early 2001 because of fears that it would damage the American economy. (1 SRP = 2 marks)
 - The involvement of the US is vital. While the population of the USA accounts for only 4% of the world's population it produces 25% of all the world's CO₂ emissions. The USA emits more carbon than China, India and Japan combined. (1 SRP = 2 marks)
 - Ireland has asked for an increase in CO₂ emissions by 2012 because it is not as economically developed as the rest of the EU. However, Ireland will surpass its target of 13% because of increased energy consumption between 1995 and 2001, mainly as a result of the Celtic Tiger economy. (1 SRP = 2 marks)
 - It is important that the Kyoto Protocol is achieved because if it is not the best alternative is a carbon tax.
 - In 2012 the Kyoto Protocol expires. Therefore there is an urgent need for a new protocol to be put in place. The Copenhagen climate conference in December 2009 hoped to introduce the Copenhagen Protocol to reduce global warming and climate change. (1 SRP = 2 marks)
 - The Copenhagen Climate Summit was unique in that it was the first time that 110 world leaders met to discuss climate change. However, no agreement was reached on target emissions. They have yet to be announced. The deal that was brokered will result in a temperature increase of 3% in the near future. On a positive note there will be another meeting in 2015. But by then it could be too late. (1 SRP = 2 marks)

EXERCISE 8

Read the following sample answer on tropical rainforests and fill in the key points to your workbook on page 311.

SAMPLE QUESTION

WHY ARE TROPICAL RAINFORESTS BEING DAMAGED? WHAT ARE THE CONSEQUENCES OF DEFORESTATION AND WHAT ARE THE SOLUTIONS?

SAMPLE MODEL ANSWER 77

Tropical rainforests

- In **1975** the area covered by tropical rainforests had fallen to **12%**. By **2000** this figure was **7%**. Every minute of every day, an area of rainforest equivalent to six football pitches is destroyed. (1 SRP = 2 marks)

Reasons for deforestation.

- **Developing nations**, e.g. Ghana, which face huge *foreign debts* and increasing populations regard their forests as resources to gain capital and to provide more agricultural land. (1 SRP = 2 marks)
- **Commercial logging** accounts for 25% of tropical deforestation. Logging opens the forest to uncontrolled settlement and land speculation. This has happened in Ecuador. (1 SRP = 2 marks)
- **Cattle ranching** in Amazonia and Central America clears millions of hectares of rainforests. The cleared land produces beef for the export market. (1 SRP = 2 marks)
- **Collection of wood for fuel** in many African countries that have no other power sources readily available also contributes to rainforest destruction. (1 SRP = m)
- **Increased demand in the First World** for tropical wood products, e.g. mahogany. (1 SRP = 2 marks)

Consequences of rainforest depletion at the local and national level

- **Indigenous people will lose their homes and culture.** The culture of the Yanomani Indians is under threat. (1 SRP = 2 marks)
- **Rainforests are home to a variety of species.** One species becomes extinct every 30 minutes. 80% of the world's insects are found in rainforests. These will be lost if deforestation continues. (1 SRP = 2 marks)
- **Rainforests are the source of medicinal plants.** 70% of the plant species known to be valuable in the treatment of cancer are found in rainforests. (1 SRP = 2 marks)
- **Rainforests are the source of hundreds** of renewable fruits, gums and vegetables. (1 SRP = 2 marks)
- Rainforest destruction leads to **siltation of rivers and oceans**, ruining drinking water and irrigation projects. (1 SRP = 2 marks)
- Rainforests are vital to **global and local climate patterns**. The carbon dioxide, released from the burning of tropical forests trap heat, increasing the Earth's temperature – the greenhouse effect. They also produce oxygen, which is vital to life on earth. (1 SRP = 2 m)

Solutions to rainforest destruction

- **Debt for Nature swaps.** The reduction of the debt repayments of developing countries if they stop the destruction of the rainforest. (1 SRP = 2 marks)
- **Banks should be prevented from lending money to companies that intend establishing cattle ranches if the operation entails the destruction of vast tracts of forests.** In Columbia, the World Bank withdrew its support from a Columbian cattle ranching project after research indicated that the forest soils could not support such a venture. (1 SRP = 2 marks)
- The establishment of **fuel wood plantations** to reduce the pressure on the natural forests. (1 SRP = 2 marks)
- The **developed world** should both **reduce its demand** for hardwoods and encourage **greater recycling**, which would reduce the need for paper pulp. (1 SRP = 2 marks)
- **Development and preservation** must go hand in hand. Sustainable development would ensure that for every tree lost, one, if not two are planted in its place. (1 SRP = 2 marks)
- More spending on **educational programmes** to highlight the loss of genetic diversity. (1 SRP = 2 marks)
- **Eco-tourism** – encouraging tours and safaris to the equatorial zones of the world. (1 SRP = 2 marks)
- Threatened species of flora and fauna should be protected in **botanical gardens**. (1 SRP = 2 marks)

END OF BOOK