

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2015

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	I
DATE:	1 st September 2015
TIME:	9.00 a.m. to 11.00 a.m.

Answer **THREE (3)** questions in total, one from each section. Questions carry equal marks.

Section A: Physical Geography of the Maltese Islands

Question 1

Karst processes are mostly evident on a limestone landscape such as that of the Maltese Islands. It appears best in the Upper Coralline Limestone and Lower Coralline Limestone as they have more joints and cracks.

- Explain the chemical processes that lead to the development of karst land surfaces. (10 marks)
- Subsidence features are typically associated with karst processes in limestone regions. Provide a local example of a subsidence feature in the Maltese Islands and explain the processes that led to its formation. (14 marks)

Question 2

Valley watercourses are one of the most species-rich habitats on a national scale. However, they are considered as one of the most endangered habitats in the Maltese Islands. Describe the species community associated with valley watercourses making reference to their adaptations to this environment. Provide examples to illustrate your answer. (24 marks)

Question 3

'Malta is on the list with Bahrain, Jordan, Kuwait, Libya, Maldives, Qatar, Saudi Arabia, United Arab Emirates and Yemen as being the ten poorest countries globally in terms of water resources per inhabitant'. (Malta Water Association, 2015)

- How does the physical environment of the Maltese Islands impose constraints on the natural re-generation of water resources? (8 marks)
- Explain the human factors that are also undermining the quality and quantity of water resources on the Maltese Islands. (16 marks)

Section B: Human Geography of the Maltese Islands

Question 4

Figure 1 shows the population pyramids as projected for Malta for the years 2025 and 2060.

- a. Describe the population projections for Malta for the years 2025 and 2060. (6 marks)
- b. List and discuss TWO negative impacts that the future projected populations for Malta will have on housing in Malta. (10 marks)
- c. Suggest and explain TWO possible measures that can help reduce these housing problems. (8 marks)

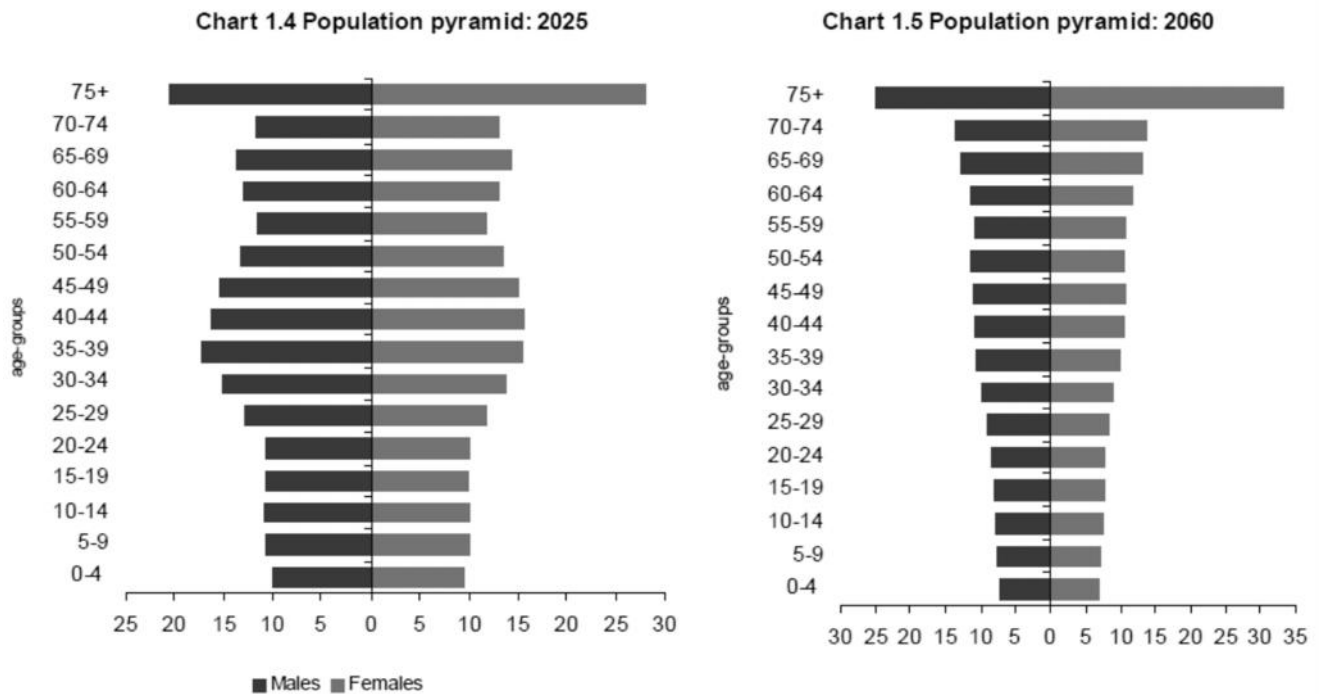


Figure 1: Population Pyramids for Malta (2025 and 2060)

Source: NSO (2011)

Question 5

In Malta, hunting and trapping is a topic that is often discussed and there are different views to hunting and trapping.

- a. Identify the TWO main views of hunting and trapping. (4 marks)
- b. List and briefly discuss FIVE negative impacts of both hunting and trapping. (10 marks)
- c. Elaborate on what is being done in order to minimise the negative impacts of hunting and trapping. (10 marks)

Question 6

- a. Identify the TWO types of quarrying that take place in Malta and state the differences between them. (10 marks)
- b. Mention TWO locations of each quarrying type that are found in Malta. (4 marks)
- c. List and discuss FIVE conservation measures that are applied to unused quarries. (10 marks)

Section C: Fieldwork and Statistical Techniques

Question 7

- a. The map below (Figure 2) shows the weather on the 2nd of January 2015. Describe in detail the different symbols shown on the map below. Illustrate with diagrams where possible. (18 marks)

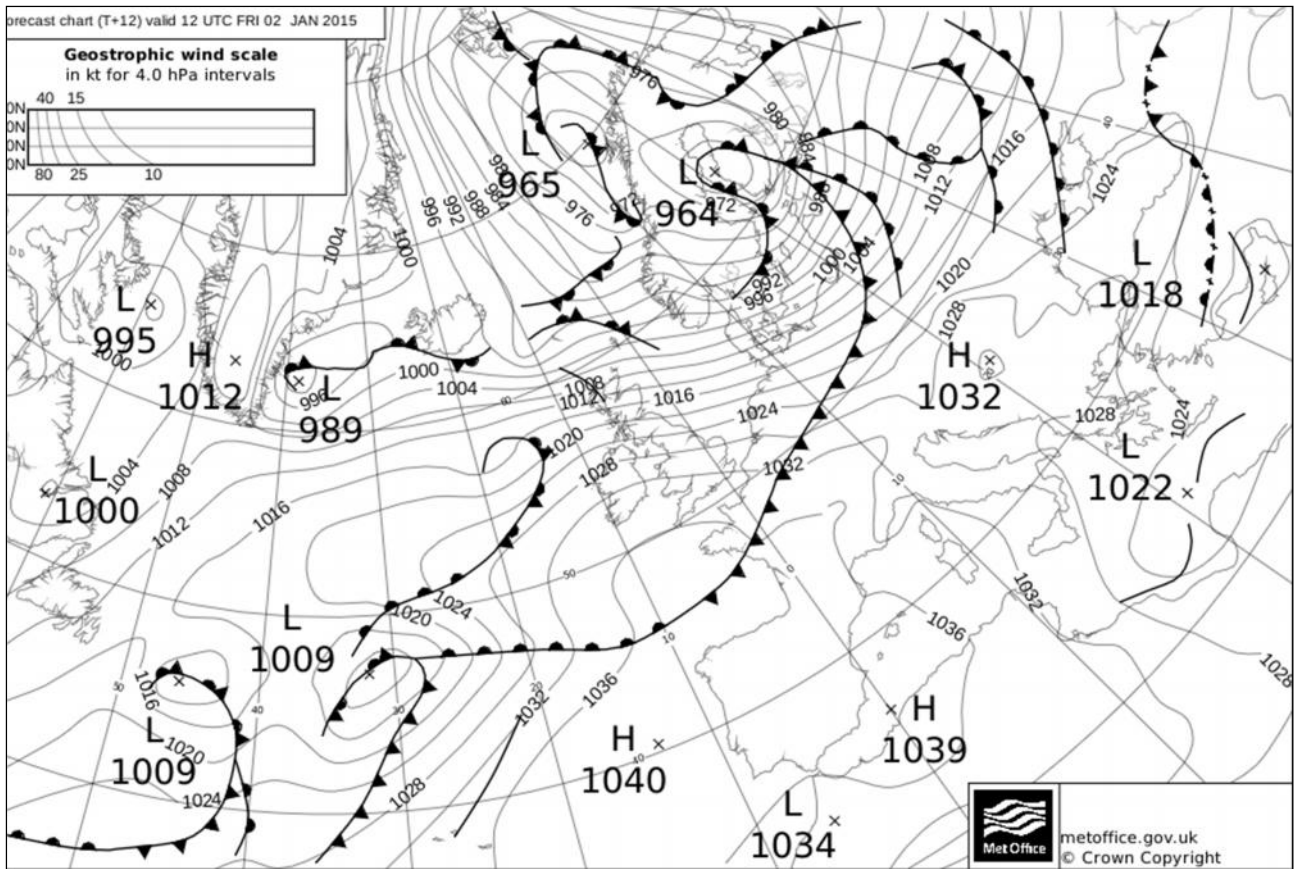


Figure 2: Weather map for 2nd January 2015
 Source: <http://www.metoffice.gov.uk/>

Please turn the page.

- b. Describe and explain the type of map below (Figure 3). (6 marks)



Figure 3: Unemployment rates for the United States

Question 8

- a. With the help of a diagram, discuss when a pictogram should be used. (6 marks)
- b. Describe what a rose diagram is and show step-by-step how it can be constructed. (10 marks)
- c. Table 1 lists direction data in relation to the movement of a glacier, as evidenced by the presence of coarse erosional material. From the following information listed in Table 1, complete the rose diagram and describe the direction in which the glacier has moved. (8 marks)

Direction	Number of pebbles
North	2
North-east	12
East	4
South-east	6
South	2
South-west	16
West	4
North-west	2

Table 1

Question 9

You have been assigned to investigate the vegetation in a valley area by using quadrats.

- a. Define the term 'quadrat'. (3 marks)
- b. Describe the THREE main types of quadrat. Illustrate your answers with suitable diagrams. (21 marks)

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MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2015

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	II
DATE:	2 nd September 2015
TIME:	9.00 a.m. to 11.00 a.m.

Answer **THREE (3)** questions in total, one from each section. Questions carry equal marks.

Section A – Atmospheric Processes**Question 1**

Figure 1 illustrates the North Atlantic Conveyor Belt system, which is considered one of the most important ocean circulation patterns in the world.

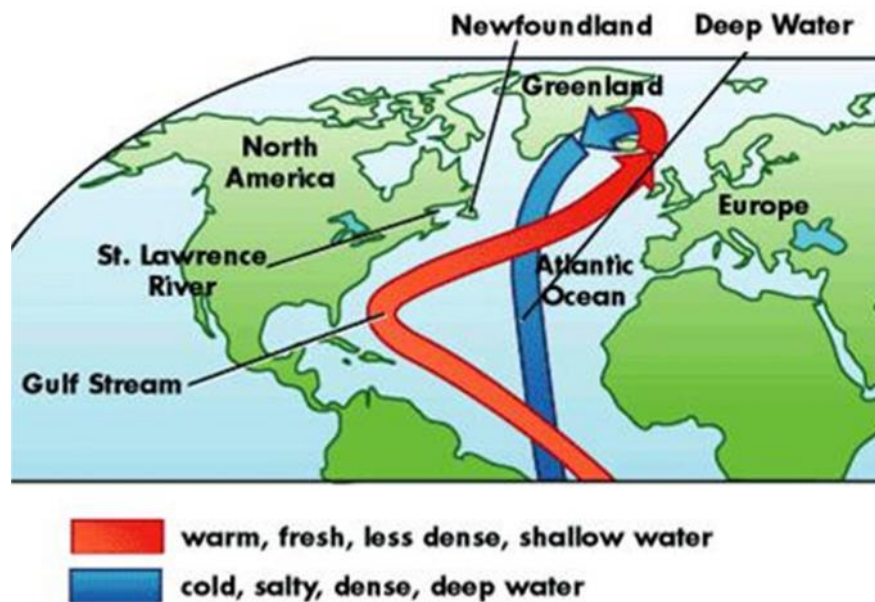


Figure 1: North Atlantic Conveyor Belt system

- With reference to Figure 1, describe how this global conveyor belt system operates in the North Atlantic Ocean. (12 marks)
- The Gulf Stream is quite influential in terms of localised weather effects. Discuss such effects on the climate of countries bordering the North Atlantic Ocean. (12 marks)

Question 2

Figure 2 illustrates a climate graph of a tropical continental climate.

- a. With reference to Figure 2, describe the main characteristics of tropical continental climate. (10 marks)
- b. Name the biome which typically thrives in such a climate. (2 marks)
- c. Explain how vegetation has adapted to a tropical continental climate. (12 marks)

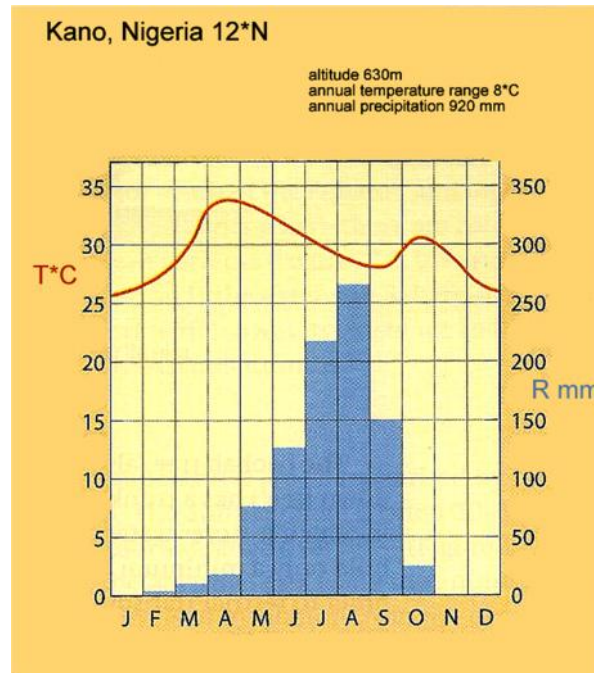


Figure 2: Climate graph for a tropical continental biome.
(Source: Waugh, 2000)

Question 3

In recent times high-latitude countries in the northern hemisphere like UK, Scotland, USA and Canada have been experiencing severe winter storms, with episodes of low temperatures and heavy snowfall.

- a. With the help of diagrams, describe the atmospheric processes that may trigger these types of snowfall and low temperature episodes. (12 marks)
- b. Discuss the impacts and hazards associated with prolonged cold spells and snowfall weather conditions. (12 marks)

Section B – Geomorphology

Question 4

- a. With the help of an annotated diagram, identify the relationship between the Earth’s crust and the interior structure of the Earth. (8 marks)
- b. Describe, with the use of annotated diagrams, the tectonic processes responsible for the formation of the following crustal landforms and provide a named example of each landform:
 - i. Fold mountain ranges
 - ii. Mid-ocean ridges. (16 marks)

Question 5

Figure 3 illustrates six different designs of coastal protection measures against erosion.

- a. Identify which measures, illustrated in Figure 3, are classified as follows:
 - i. Soft engineering solutions
 - ii. Hard engineering solutions. (6 marks)
- b. Select ONE measure classified as a soft engineering solution and ONE classified as a hard engineering solution. Describe their characteristics and outline the advantages and disadvantages of each solution. (18 marks)



Figure 3: Examples of coastal protection measures

Please turn the page.

Question 6

Most drainage patterns evolve over a lengthy period of time and usually become adjusted to the rock structure present in the basin. Figure 4 illustrates examples of patterns which have either evolved independently of the structure or are dependent on the rock structure for their evolution.

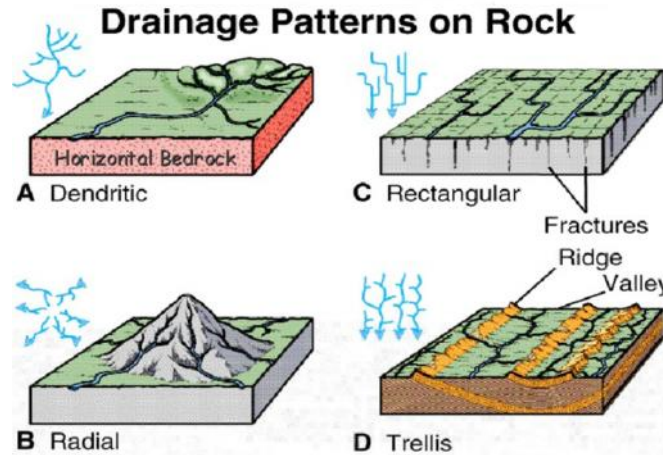


Figure 4: Examples of drainage patterns.

- a. Name the patterns that are classified as:
 - i. independent of the rock structure; or
 - ii. dependent on the rock structure. (8 marks)
- b. For the answers provided in (a), explain the fluvial processes for each drainage pattern to better support your answer. (16 marks)

Section C: Biospheric Processes

Question 7

- a. Define the term ‘biome’. (4 marks)
- b. Explain in detail the FOUR main factors that interrelate to produce and control each biome. (20 marks)

Question 8

With specific reference to climate, discuss how the global patterns of soils found in low latitudes are different when compared to those in high latitudes and give reasons for your answer. You may provide annotated diagrams to help in your explanation. (24 marks)

Question 9

- a. The following are modern farming practices that are currently being used. Describe ONE problem that can result from each of the following practices:
 - i. Draining wetland
 - ii. Increasing use of chemicals on land
 - iii. Decreasing the size of the fields. (6 marks)
- b. ‘Irrigation is the artificial watering of the land by humans during dry periods of weather’ (Skinner et al, 2003). With reference to this statement, describe what type of environmental negative effects may arise when practicing irrigation in semi-arid areas. (18 marks)

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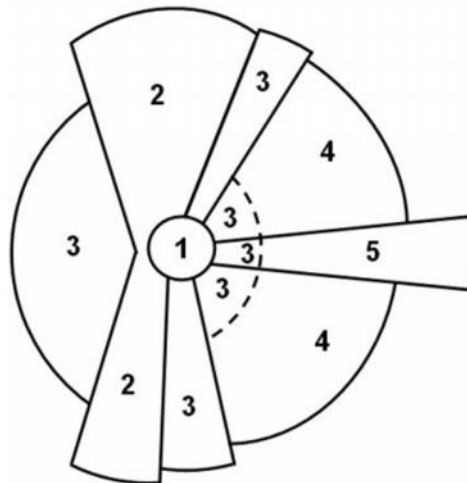
MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2015

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	III
DATE:	3 rd September 2015
TIME:	9.00 a.m. to 11.00 a.m.

Answer **THREE (3)** questions in total, one from each section. Questions carry equal marks.

Section A: Human Geography and the Developing World**Question 1**

The following diagram is an example of an urban land use model.



- 1 CBD
 2 Wholesale, light manufacturing
 3 Low-class residential
 4 Medium-class residential
 5 High-class residential

Figure 1: An example of an urban land use model

- With reference to Figure 1, name the model and explain the reasons for the type of land use distribution shown in the model. (14 marks)
- Mention TWO basic assumptions on which the model is based. (4 marks)
- Discuss THREE limitations of this model. (6 marks)

Question 2

- a. Explain Von Thünen’s model of rural land use and support your answer with a drawing of the model. (14 marks)
- b. Mention TWO basic assumptions of Von Thünen’s model of rural land use. (4 marks)
- c. Discuss THREE limitations of Von Thünen’s model of rural land use. (6 marks)

Question 3

Figure 2 illustrates the process of acid rain.

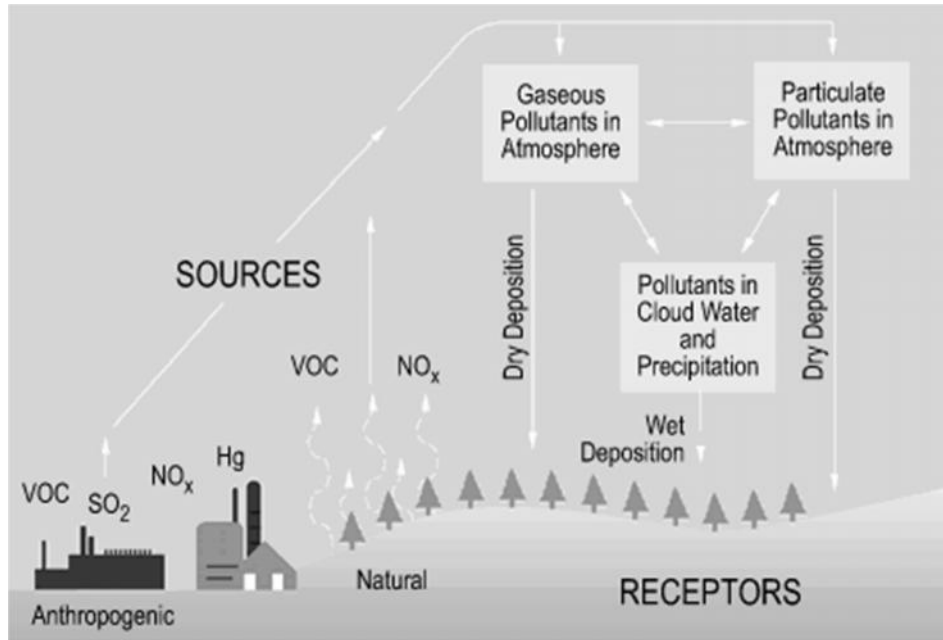


Figure 2: The process of acid rain.
(Source: <http://www.epa.gov>)

- a. Define the term ‘acid rain’ and mention a place where this phenomenon has occurred. (7 marks)
- b. List and briefly explain FOUR effects of acid rain. (8 marks)
- c. Explain THREE ways that can help reduce acid rain. (9 marks)

Section B: Issues in Resource Management

Question 4

- a. Explain the concept of ‘Sustainable Development’ and how it emerged. (9 marks)
- b. Comment on the following THREE views of resource use:
 - i. Club of Rome
 - ii. Gaia Hypothesis
 - iii. Agenda 21. (15 marks)

Question 5

Discuss the international environmental issues and ethical debates surrounding the practice of whale hunting. What measures are being taken to alleviate such a controversy? (24 marks)

Question 6

- a. What is the difference between renewable and non-renewable energy? (4 marks)
- b. Describe the main trends shown in Figure 3. (8 marks)

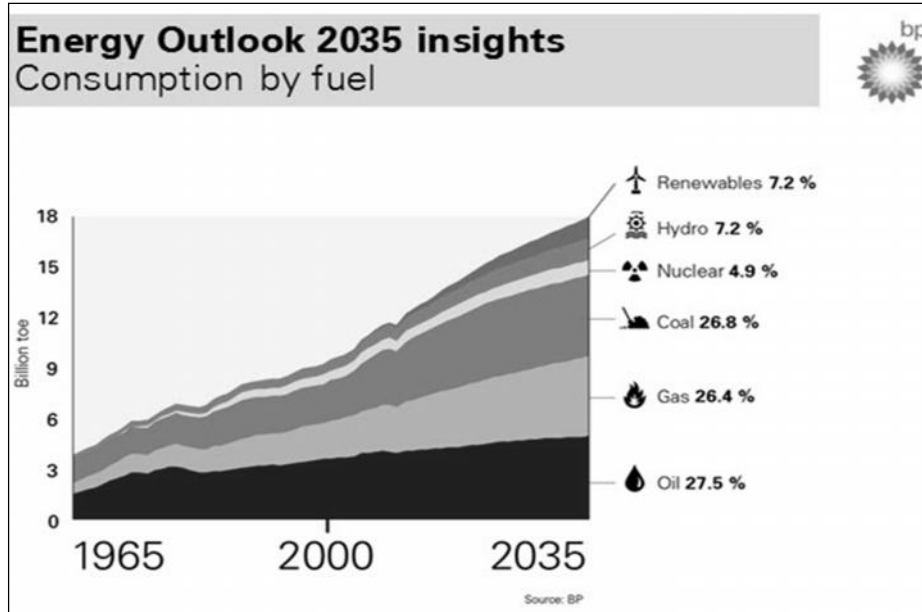


Figure 3: Global projections for consumption by fuel by 2035 (Source: British Petroleum, 2015)

- c. Figure 3 shows that in 2035, the global use of non-renewable resources will still be more dominant than the use of renewable resources. With the help of examples, discuss the reasons why countries will not shift entirely to the use of renewable resources. (12 marks)

Section C: The Geography of Tourism and Recreation

Question 7

“In 2013, domestic tourism flows decreased by 2%, reaching 61 million trips. The main reasons for this performance were the negative economic environment and the lower available incomes of Italians. In addition, the crisis changed the travel habits of Italians, with many more people reducing the number of holidays taken in the year, or the number of days per holiday, as well as choosing cheaper accommodation and trying to limit transportation costs. In particular, increases in petrol prices contributed to shortening the distance travelled, with an increase in trips within regions of residence or to neighbouring regions.” (Euromonitor International, 2015)

- a. Define ‘domestic tourism’. (2 marks)
- b. State the TWO main differences between domestic tourism and international tourism. (4 marks)
- c. Provide FOUR reasons why domestic tourism takes place in Italy. (8 marks)
- d. Discuss TWO possible ways in which domestic tourism can regain its prosperity in Italy. (10 marks)

Question 8

The Mediterranean coastline hosts huge amounts of tourists on a yearly basis.

- a. List and describe FOUR main environmental impacts caused by tourist activities in these areas. (8 marks)
- b. List and describe FOUR main human related impacts caused by tourist activities in these areas. (8 marks)
- c. Discuss TWO conservation methods that can be applied to protect the environment in these touristic areas. (8 marks)

Question 9

Figure 4 shows the projected international tourist arrivals in Europe (in millions).

- a. Describe the trends observed in Figure 4. (6 marks)
- b. List and discuss FOUR main challenges that European tourism faces. (8 marks)
- c. Mention and discuss TWO main projects/programmes that the European Union has applied to manage environmental problems related to tourism. (10 marks)

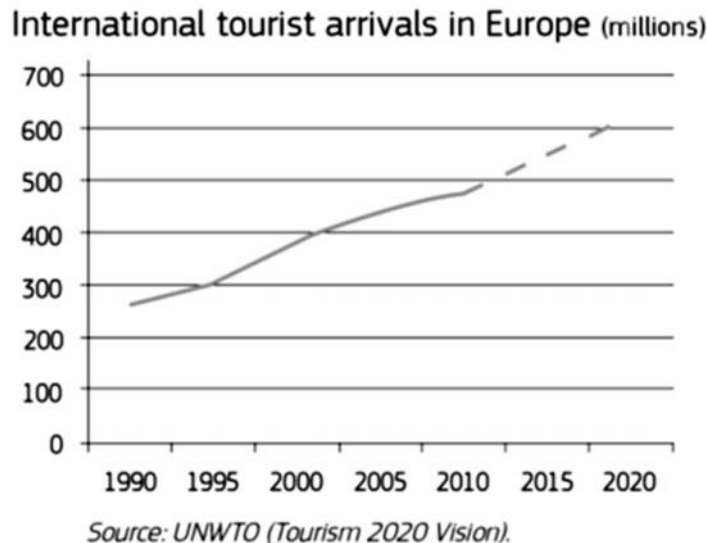


Figure 4: International tourist arrivals in Europe (in million)