

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD  
UNIVERSITY OF MALTA, MSIDA  
MATRICULATION EXAMINATION  
ADVANCED LEVEL  
SEPTEMBER 2013

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<b>SUBJECT:</b>	GEOGRAPHY
<b>PAPER NUMBER:</b>	I
<b>DATE:</b>	3rd September 2013
<b>TIME:</b>	9.00 a.m. to 11.00 a.m.

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

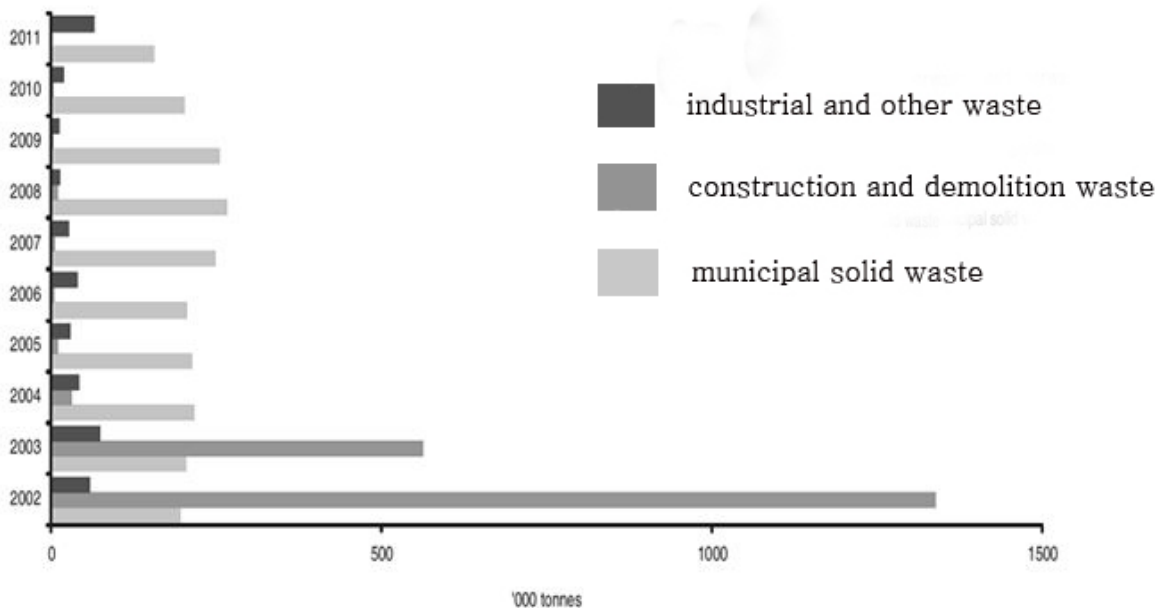
**Section A: Physical Geography of the Maltese Islands**

1. *“Malta comprises an archipelago of five islands: the island of Malta is the largest, followed by Gozo, Comino, Cominotto (Kemmunett), and Filfla” (NSO, 2012).*
  - a. Describe the position and situation of the Maltese Islands with respect to the continental mainland. (8 marks)
  - b. Explain the physical structure that makes up the archipelago of the Maltese Islands, with particular reference to topography and faulting. (16 marks)
2.
  - a. Briefly explain the type and origin of the geology of the Maltese Islands with reference to the age and environmental condition in which the Maltese rocks were formed. (9 marks)
  - b. Starting from the oldest formation to the youngest one, describe the layers that make up the Maltese stratigraphy. Provide examples of places where each layer is exposed. (15 marks)
3.
  - a. Define ‘biodiversity’. (2 marks)
  - b. Describe **TWO** Maltese habitats that provide a unique heritage of biodiversity. (10 marks)
  - c. Habitat degradation is one of the main causes for a decline in biodiversity. With reference to the Maltese Islands, discuss the main factors which are leading to degradation of habitats. (12 marks)

**Section B: Human Geography of the Maltese Islands**

4. *Most Maltese settlements were developed around the church.*
  - a. State the type of settlement pattern that is referred to in the statement. Give **TWO** examples of such settlements from the local context. (4 marks)
  - b. List **FIVE** reasons why such settlements were developed in this manner. (5 marks)
  - c. List and discuss, providing examples where necessary, **FIVE** aspects related to uncontrolled development and **FIVE** methods that help control development. (15 marks)
  
5.
  - a. Mention **TWO** examples of industrial estates in Malta and for each example state **ONE** reason why the location of the industrial estates was important. (4 marks)
  - b. Draw Weber’s 1909 Least-Cost Locations Model and discuss the applicability of the model to the Maltese Islands today. (20 marks)
  
6. Figure 1 shows waste disposal in public landfills between 2002 and 2011.

Figure 1: Waste Disposal in Public Landfills



Source: NSO, 2012

- a. Refer to Figure 1; describe the trends in waste disposal in public landfills between 2002 and 2011 and state possible reasons for such trends. (10 marks)
  
- b. Define the **THREE R**'s and discuss, with the use of examples, how these can help in waste management. (14 marks)

**Section C: Fieldwork Cartography and Statistical Techniques**

7. With the help of diagrams, explain in detail the following terms:

- a. Bar diagrams
- b. Scatter graphs
- c. Logarithmic graphs
- d. Triangular graphs

(24 marks)

8. A survey was carried out to see the depth of a stream along a line transect. The results are shown in Table 1 below.

<b>Location</b>	<b>Depth (m)</b>
<b>a</b>	0.24
<b>b</b>	0.26
<b>c</b>	0.29
<b>d</b>	0.32
<b>e</b>	0.46
<b>f</b>	0.57
<b>g</b>	0.44
<b>h</b>	0.46
<b>i</b>	0.49
<b>j</b>	0.58
<b>k</b>	0.45
<b>l</b>	0.41
<b>m</b>	0.43
<b>n</b>	0.40
<b>o</b>	0.39

Table 1: Results

a. Define the term 'central tendency'. (2 marks)

b. The below methods are measures of central tendency. Explain each measure and work them out by using Table 1.

- i. Mean
- ii. Median
- iii. Mode

(6 marks)

c. Using Table 1 and the formulae below, calculate the:

- i. upper quartile
- ii. lower quartile
- iii. interquartile range

(6 marks)

- d. The standard deviation is used to measure dispersion. Calculate the standard deviation using the formula below. (10 marks)

Formulae:

Upper Quartile:  $\frac{n+1}{4}$

Standard Deviation

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

Lower Quartile:  $\frac{n+1}{4} \times 3$

9. You have been asked to carry out a fieldwork exercise at Ramla l- amra (Figure 2). You have been specifically asked to investigate the erosional features of this coastal environment.



Figure 2: Ramla l- amra

Source: <http://www.mepa.org.mt/ramlahamra>

- a. Describe **TWO** erosional features that exist at Ramla l-Hamra. (4 marks)
- b. Identify and explain what techniques you would adopt in order to carry out your fieldwork. (20 marks)

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MATRICULATION EXAMINATION

ADVANCED LEVEL

SEPTEMBER 2013

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<b>SUBJECT:</b>	GEOGRAPHY
<b>PAPER NUMBER:</b>	II
<b>DATE:</b>	4th September 2013
<b>TIME:</b>	9.00 a.m. to 11.00 a.m.

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

**Section A: Atmospheric Processes and Patterns**

1. With the help of a labelled diagram, describe the formation of the following:
  - a. The **THREE** main cells which comprise the global atmospheric circulation model. (12 marks)
  - b. The **FOUR** global wind patterns (12 marks)
  
2. Ozone layer depletion and the greenhouse effect are both phenomena taking place in the atmosphere but the mechanisms behind them are very different.
  - a. Explain using diagrams:
    - i. Ozone layer depletion
    - ii. Greenhouse effect (14 marks)
  
  - b. State and discuss **TWO** international mitigation measures for climate change. (10 marks)

3. a. Coastal climates may be described at three different spatial scales. List these three scales. (3 marks)
- b. Figure 1 shows two graphs displaying the average climatic conditions of Plymouth and Kiev. Describe the characteristics of the climates shown in the two graphs in Figure 1. (11 marks)

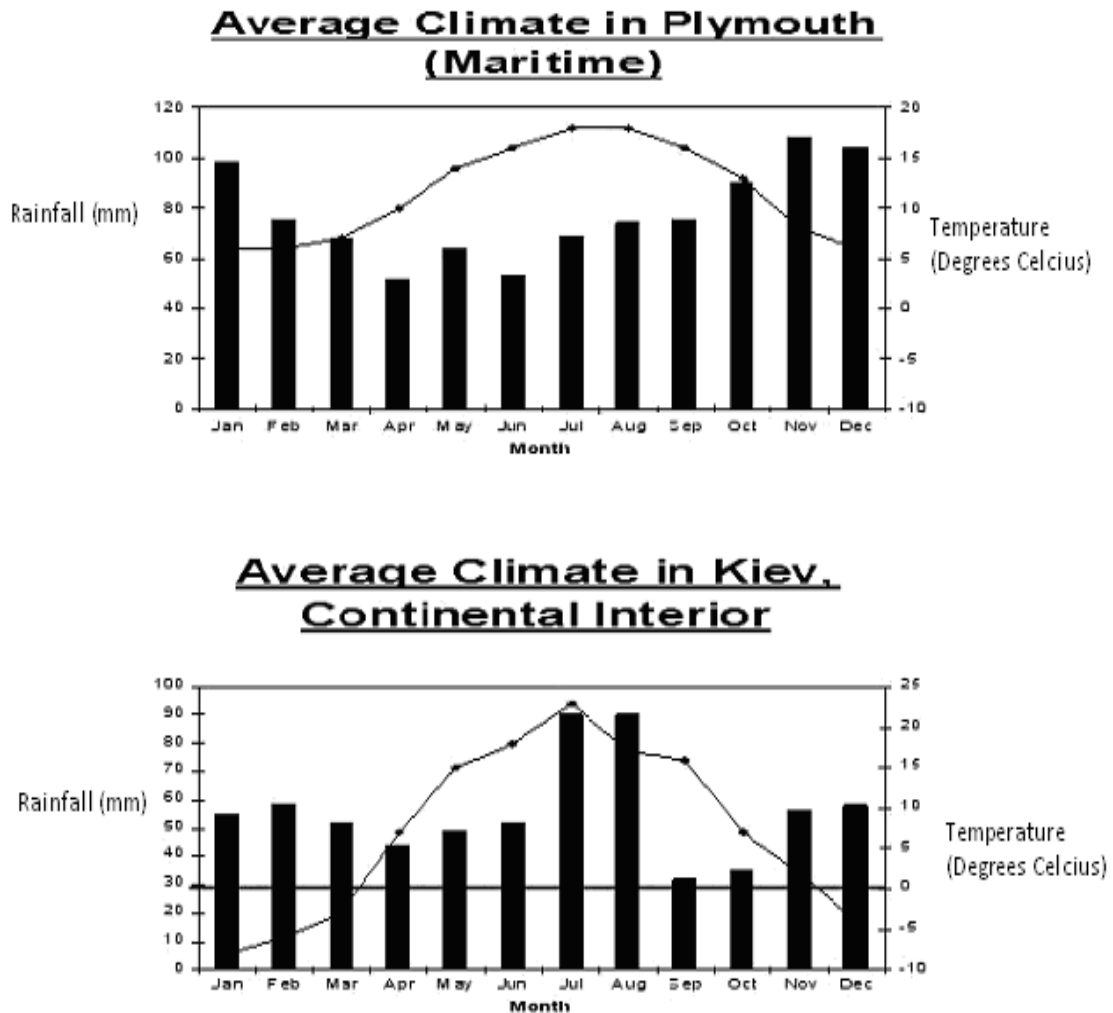


Figure 1: Climate graphs

- c. With the help of a labelled diagram, explain the processes responsible for land and sea breezes that condition the coastal climate at a micro-scale. (10 marks)

**Section B: Geomorphology**

4. Figure 2 displays a cross-section of the internal structure of the Earth.

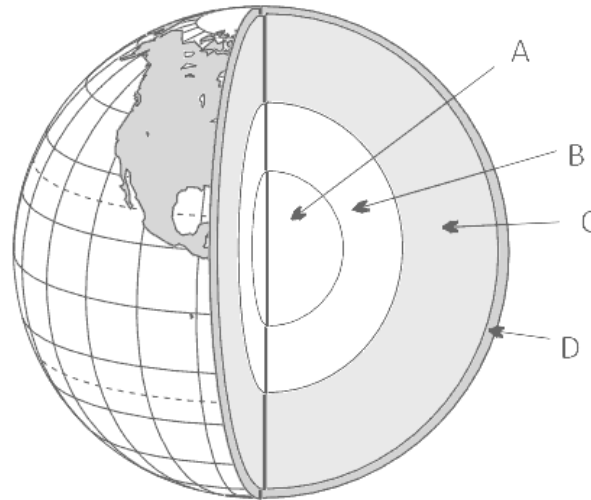


Figure 2: A cross-section of the internal structure of the Earth.

- a. Name the Earth's layers, indicated by letters A, B, C and D and give a description of the main composition of each layer. (16 marks)
  - b. In what way is the internal structure of the earth responsible for the tectonic processes present on the Earth's outer surface? (8 marks)
5. a. Explain the processes associated with water erosion in arid and semi-arid environments. (10 marks)
- b. Notwithstanding the limited rainfall pattern in arid and semi-arid environments, water courses can still provide enough erosion to develop types of valley landforms. Choose **TWO** examples of such landforms and describe their physical characteristics. (14 marks)
6. a. Define land reclamation. (2 marks)
- b. Describe **THREE** examples of land reclamation methods. (12 marks)
- c. Identify and provide a brief description of **FIVE** problems associated with land reclamation projects. (10 marks)

**Section C: Biospheric Processes and Patterns**

7. List and explain in detail the **FOUR** factors that contribute to soil fertility. Illustrate with diagrams where possible. (24 marks)
8. A “*Biome is a naturally occurring organic community of plants and animals. Each biome derives its name from the dominant type of vegetation found within its physical environment or habitat and consists of the ecosystem of plants, soils and animals*” (Skinner *et al* 2003).

With reference to the above statement, briefly describe the different plant adaptations in the zones below:

- a. Temperate Deciduous forest
  - b. Coniferous forest (taiga)
  - c. Tropical rainforest
  - d. Mediterranean (24 marks)
9. a. List **FOUR** instances when irrigation practices are used. (8 marks)
- b. List and discuss **TWO** potential problems that irrigation may cause. (16 marks)



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MATRICULATION EXAMINATION  
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 SEPTEMBER 2013

**SUBJECT:** GEOGRAPHY  
**PAPER NUMBER:** III  
**DATE:** 5th September 2013  
**TIME:** 9.00 a.m. to 11.00 a.m.

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

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

1. Figure 1 shows the Demographic Transition Model and Population Pyramids indicating contemporary examples.

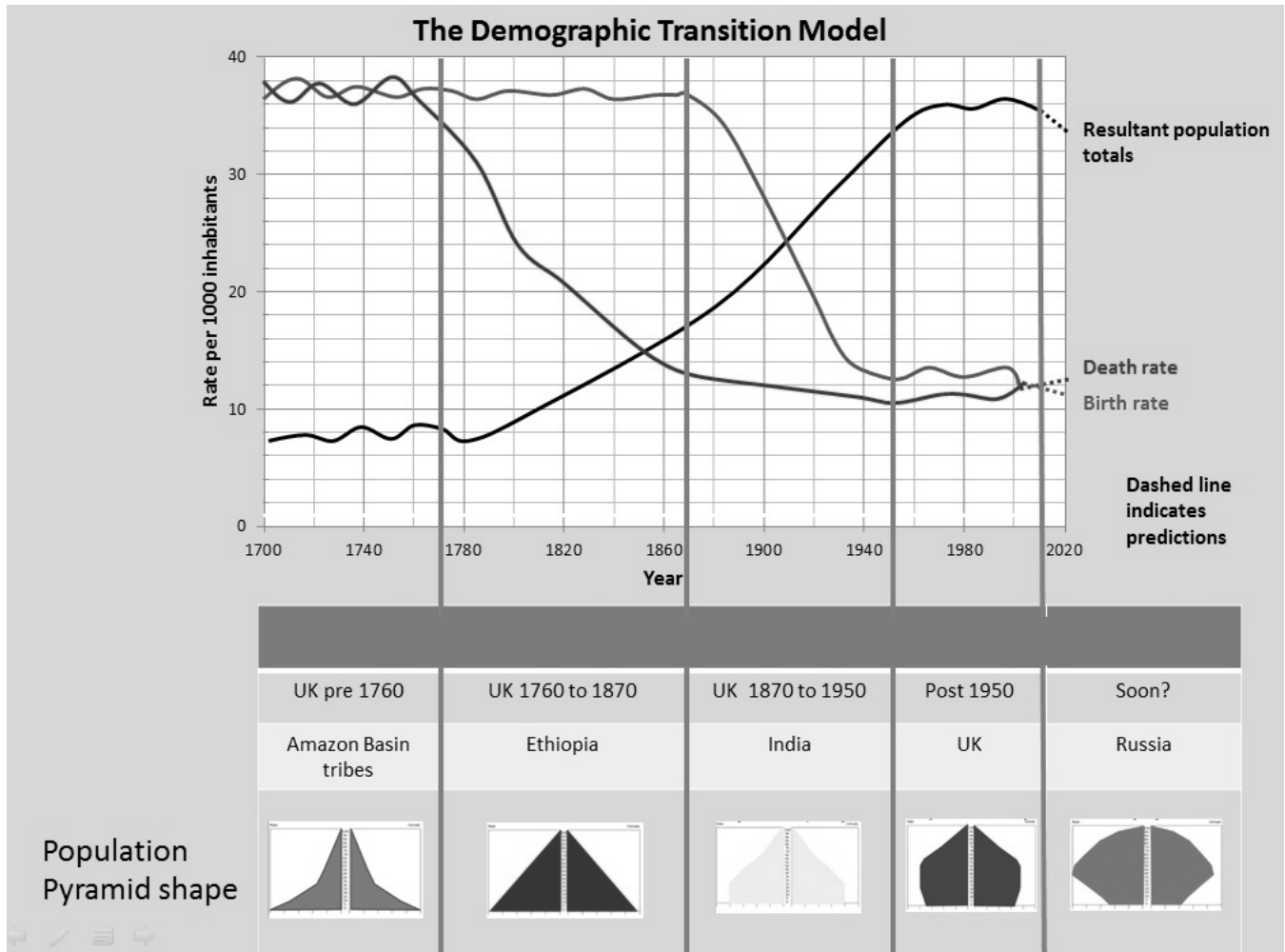


Figure 1: The Demographic Transition Model  
 Source: [www.coolgeography.co.uk](http://www.coolgeography.co.uk)

- a. Refer to Figure 1.
    - i. Explain the Demographic Transition Model. (4 marks)
    - ii. Refer to the **FIVE** examples of the “Population Pyramid Shape” provided in Figure 1. Discuss the reasons for the shape of each pyramid. (10 marks)
  - b. In 2001 India’s population crossed the one billion mark. Discuss and use examples to show the relevance of the Demographic Transition Model in contemporary India. (10 marks)
2. *In 1933 Walter Christaller suggested that there was a pattern in the distribution and location of settlements of different sizes and also in the ways in which they provided services to the inhabitants living within their sphere of influence. (Waugh, 1995).*
- a. Mention and explain the **TWO** fundamental concepts of Christaller’s Central Place Theory. (8 marks)
  - b. List **FOUR** assumptions that were used by Christaller to develop the Central Place Theory. (4 marks)
  - c. Name and explain, using illustrations where necessary, the **THREE** principles that form Christaller’s Central Place Theory. (12 marks)
3. a. Explain in detail, using examples, **TWO** influences of the physical environment on ‘Shifting Cultivation (extensive subsistence agriculture)’. (14 marks)
- b. List and describe **TWO** advantages and **TWO** disadvantages of ‘Shifting Cultivation (extensive subsistence agriculture)’ on the populations that depend on it. (10 marks)

**Section B: Issues in Resource Management**

4. *'The need for enacting policies to support renewable energy is often attributed to a variety of "barriers" or conditions that prevent investments from occurring.'* (Beck and Martinot, 2004).
- a. Explain in detail **FIVE** benefits of renewable energy. (14 marks)
  - b. List and briefly explain **FIVE** barriers that discourage the use of renewable energy. (10 marks)
5. *'Trees are a sustainable resource, provided that those cut down are replaced, or that sufficient time is allowed for natural regeneration'* (Waugh, 2002).
- a. With reference to the above statement, discuss the use of fuelwood and its environmental impacts in the developing countries. (16 marks)
  - b. List and briefly explain **FOUR** possible ways to manage forests in developing countries. (8 marks)
6. a. Define the term 'Maximum Sustainable Yield' with reference to the fisheries resources. (4 marks)
- b. Define the Common Fisheries Policy and mention **TWO** issues arising from this policy. (11 marks)
- c. State and explain **THREE** measures that need to be taken to have sustainable fishing. (9 marks)

*Please turn the page.*

**Section C: The Geography of Tourism and Recreation**

7. a. Mention **THREE** types of tourism and explain the role of each to the economy of the host country. (18 marks)
- b. Choose **ONE** type of tourism, identify possible impacts this might have on the environment and mention **THREE** conservation practices that can help achieve sustainable tourism. (6 marks)
8. *One billion tourists have travelled the world in 2012, marking a new record for international tourism – a sector that accounts for one in every 12 jobs and 30% of the world's services exports. (World Tourism Organization, 2012)*
- a. List and discuss **THREE** issues that currently influence tourism. (9 marks)
- b. Discuss the significance of the above-stated record for international tourism. (15 marks)
9. With regards to tourism in the Alpine regions of Europe;
- a. List and explain **TWO** environmental and **TWO** anthropogenic problems related to tourism. (16 marks)
- b. List **TWO** interest groups that would be concerned with the problems mentioned in (a) and explain their role in reducing these problems. (8 marks)