

AM 13/I.12s

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION CERTIFICATE EXAMINATION

ADVANCED LEVEL

SEPTEMBER 2012

---

<b>SUBJECT:</b>	GEOGRAPHY
<b>PAPER NUMBER:</b>	I
<b>DATE:</b>	4th September 2012
<b>TIME:</b>	9.00 a.m. to 11.00 a.m.

---

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

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

1. The limestone landscape of the Maltese Islands encourages the formation of cave structures.
  - a. Explain the physical processes that are responsible for the formation of such landforms. (10 marks)
  - b. Cave ecosystems thrive in a very particular environment. Describe the main characteristics that make up this environment and how it affects its ecosystem. (10 marks)
  - c. Why are cave ecosystems considered fragile? (4 marks)
  
2. Soil erosion constitutes a major ongoing problem all over the Maltese countryside.
  - a. Discuss **THREE** human factors that are contributing to soil erosion in the Maltese Islands. (12 marks)
  - b. Discuss the vital role of rubble walls in agricultural management and in the conservation of soil resources. (12 marks)
  
3. The major terrestrial communities on the Maltese Islands are classified on the basis of vegetation.
  - a. Explain this statement by naming and describing the major terrestrial communities found in the Maltese Islands. Mention examples of places where each community is found. (15 marks)
  - b. Explain how human activities are threatening the biodiversity of the major terrestrial communities of the Maltese Islands. (9 marks)

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

4. “By 2020 renewable energy should account for 20% of the EU's final energy consumption... To meet this common target, each Member State needs to increase its production and use of renewable energy ...”(European Commission, DGTREN 2008)
- a. Identify and elaborate on **THREE** reasons why the EU has set the above stated targets. (12 marks)
  - b. Define and discuss **THREE** measures that are being taken at the local level with regards to the consumption of energy in order for Malta to meet the stated targets as an EU member state. (12 marks)
5. “Malta’s stock of vacant property is an unused economic asset worth €7 billion...” (The Times, 2011).
- a. State and briefly discuss **THREE** possible causes that lead to vacant property in Malta. (6 marks)
  - b. State **THREE** advantages that would arise from the use of vacant property. (6 marks)
  - c. Discuss **TWO** existing and/or possible policies and practices that can help increase the use of vacant property in Malta. (12 marks)
6. Figure 1 shows the location of quarries in Malta.

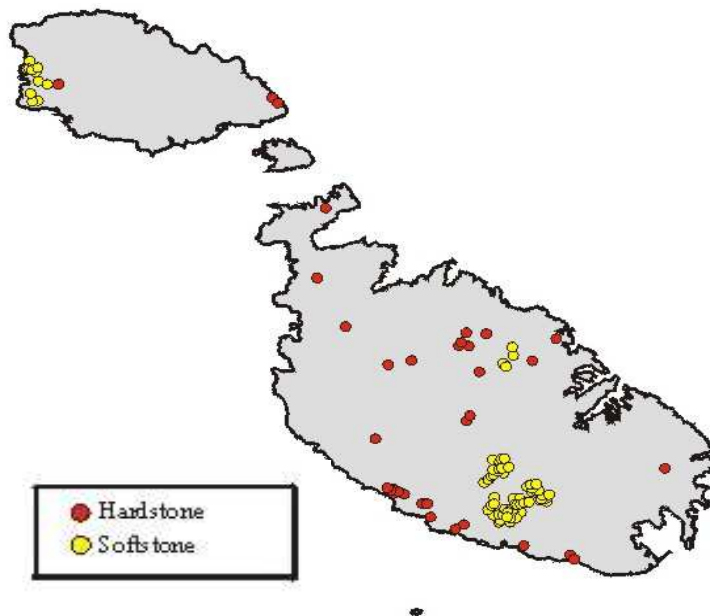


Figure 1: Location of quarries in Malta.  
Source: Malta Resources Authority, 2011.

- a. Identify **TWO** differences between “hardstone quarries” and “softstone quarries” and state the uses of each. (6 marks)
- b. ‘Quarrying is a finite resource and an important aspect of the Maltese economy.’ Provide arguments in view of this statement in order to explain the importance of this resource. (10 marks)
- c. State and define **FOUR** possible ways that can help in the preservation and management of used quarries. (8 marks)

**SECTION C: Fieldwork and Statistical Techniques**

7. a. Explain what is meant by ‘Spearman Rank Correlation’ and ‘Chi-Squared test’. (4 marks)
- b. Information was collected to analyze the correlation between the distance from the sea and annual temperature range from 10 weather stations. Table 1 shows the results that were obtained. State the null hypothesis ( $H_0$ ) and the alternative hypothesis ( $H_1$ ). (2 marks)

Station	Temperature range °C	Distance from sea (km)
1	12.5	115
2	15.0	110
3	23.0	400
4	24.0	520
5	24.0	980
6	27.0	980
7	35.0	1290
8	38.0	850
9	32.0	1230
10	28.0	1140

Table 1: Results obtained from the 10 weather stations

- c. Using the Spearman’s rank formula below, work out the correlation between the two data sets. Show all your workings. (15 marks)

$$r_s = 1 - \frac{6\sum d^2}{n^3 - n}$$

where:  $d$  = the difference between each rank of corresponding values, and  
 $n$  = the number of pairs of values.

- d. Compare the calculated  $r_s$  with the critical values in Figure 2. What are your conclusions regarding the significance of this test using the 5% significance level? (3 marks)

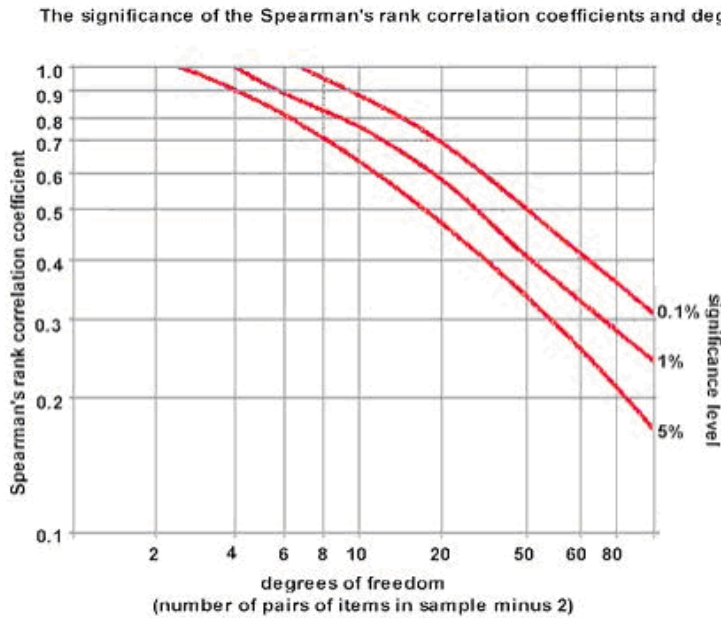


Figure 2: Spearman's rank critical values of significance

8. a. Explain in detail the 'Lorenz curve' (10 marks).
- b. Table 2 shows the percentage of the World population and the area of the different continents. Work out the cumulative percentage of both the population and area in rank order. Using the result of the cumulative percentages, plot the Lorenz Curve on the graph paper provided. Show all your workings. (12 marks)

<u>Continents</u>	<u>World Population (%)</u>	<u>Area (%)</u>
Asia	59.5	29.79
Africa	16.23	20.30
Europe	10.71	6.95
North America	7.67	16.27
South America	5.58	11.96
Australia	0.3	5.17
Antarctica	0.01	9.56

Table 2: The World Population in different continents.

- c. Briefly discuss the result obtained in question 2b (2 marks).

9. Table 3 shows the total rainfall in the Maltese Islands during 2011.

Month	Rainfall (mm)
January	70.8
February	123.2
March	33.0
April	20.2
May	6.9
June	4.4
July	0.3
August	0.0
September	1.5
October	66.4
November	197.9
December	106.7

Table 3: Total Rainfall in the Maltese Islands in 2011

Source: <http://www.maltaweather.com/archives.shtml>

- a. Define the term 'central tendency'. (2 marks)
- b. With reference to Table 3, first **explain** and then **calculate** the following terms (12 marks):
  - mean
  - median
  - mode
- c. Using the data in Table 3, draw a bar chart on the graph paper provided. (8 marks)
- d. Explain the purpose of a bar chart. (2 marks).

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD  
UNIVERSITY OF MALTA, MSIDA

MATRICULATION CERTIFICATE EXAMINATION  
ADVANCED LEVEL  
SEPTEMBER 2012

---

**SUBJECT:** GEOGRAPHY  
**PAPER NUMBER:** II  
**DATE:** 5th September 2012  
**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: Atmospheric Processes**

1. (a) Define “Tropical desert climate” and give **TWO** examples of places where it can be found. (5 marks)
- (b) Describe the temperature and rainfall characteristics of a tropical desert climate. (14 marks)
- (c) Briefly discuss the processes responsible for the formation of such a climate. (5 marks)
2. (a) Mention and discuss the main factors responsible for the circulation of oceanic currents. (12 marks)
- (b) Discuss the ways in which oceanic circulation significantly affect climate. (12 marks)
3. The diagram below (Figure 1) displays a cross-section of the atmospheric processes responsible for the formation of a cyclone.

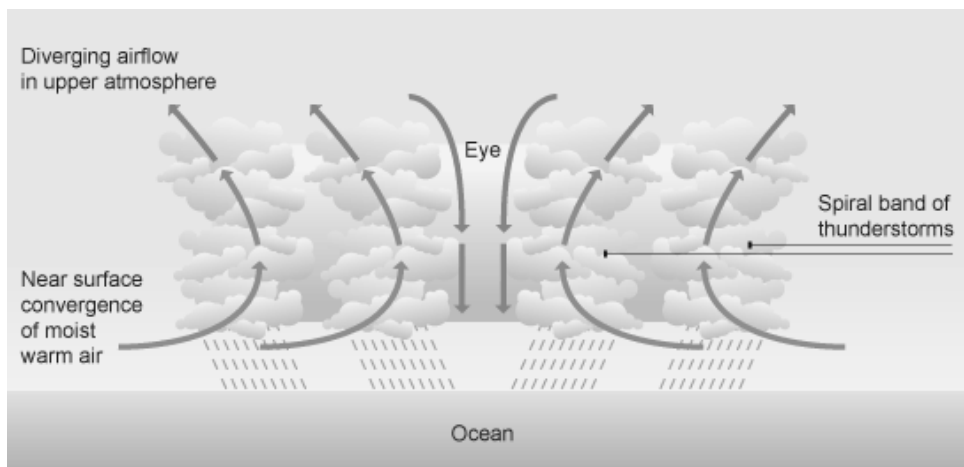


Figure 1: Cross-section of a cyclone (Hutchinson K.J., 2010)

- (a) Define 'cyclone' and, with reference to Figure 1, give a detailed description of the atmospheric processes responsible for the formation of a cyclone. (12 marks)
- (b) A country hit by a cyclone may suffer from a number of risks such as risks to the country's environment, its economy and its people. Explain in more detail these three different types of risks. (12 marks)

**Section B: Geomorphology**

4. Figure 2 shows a diagram of processes of wind transportation.

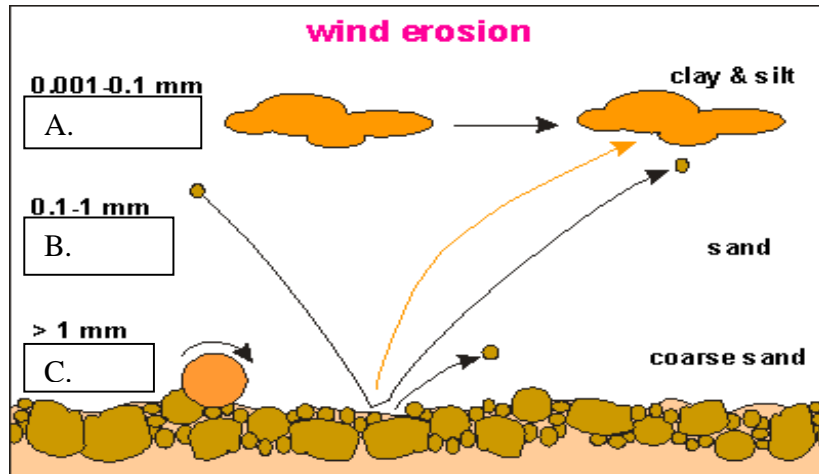


Figure 2: Process of wind transportation.  
 Source: <http://www.seafriends.org.nz/oceano/beach.htm>

- (a) Name the movement of material in A. B. and C. in the diagram. Give a detailed description of each type of movement. (13 marks)
- (b) Figure 3 shows different dune types.

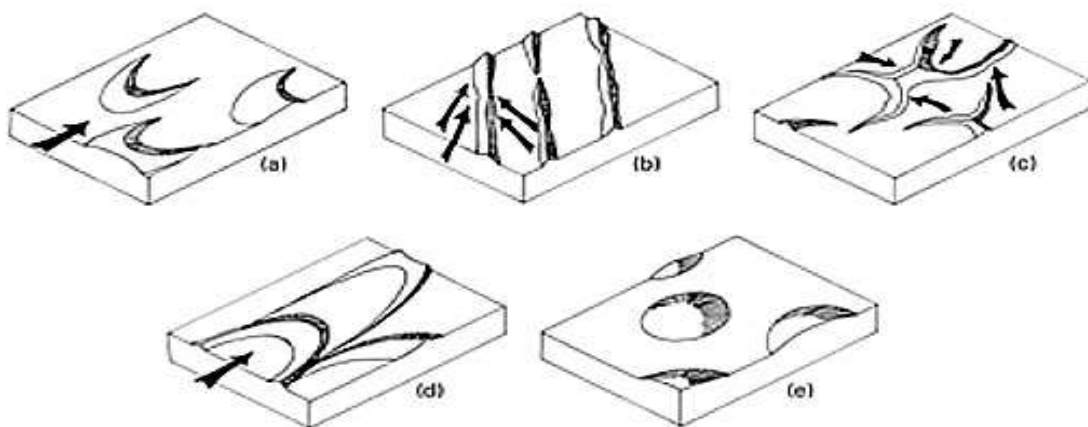


Figure 3: Different dune types  
 Source: [http://www.fas.org/irp/imint/docs/rst/Sect17/Sect17\\_5.html](http://www.fas.org/irp/imint/docs/rst/Sect17/Sect17_5.html)

- i. Name each dune type marked from (a) to (e) in Figure 3. (5 marks)
- ii. From Figure 3, select **TWO** dune and explain how they are formed. (6 marks)

5. Figure 4 shows the formation of the tides.

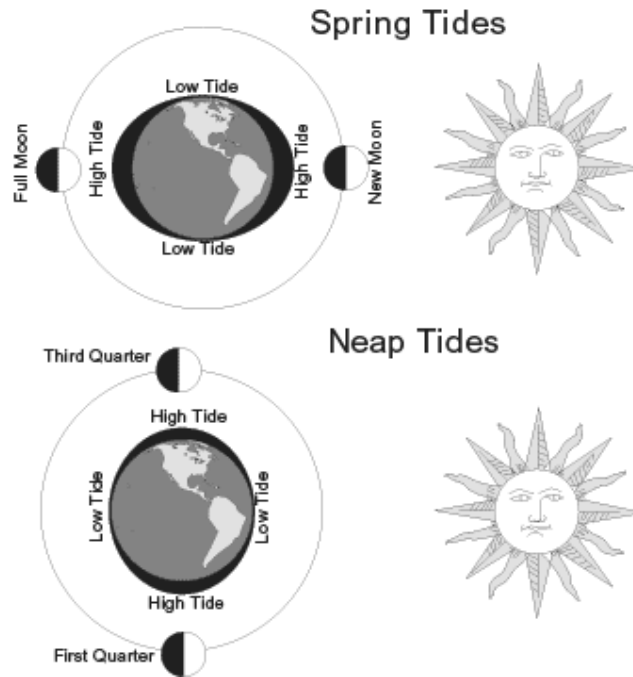


Figure 4: Formation of tides

- (a) With reference to Figure 4 explain the difference between ‘spring tide’ and ‘neap tide’. (14 marks)
  - (b) Explain the ways in which the following factors may affect tidal processes:
    - i. Shape of the coastline. (5 marks)
    - ii. The sloping profile of the coast. (5 marks)
6. (a) “A river will try to adopt a channel shape that best fulfils its two main functions: transporting water and sediment” (Waugh, 1995).
- i. With reference to the transported material in a river, define the term ‘load’. (3 marks)
  - ii. Describe the different type of load processes present in a river channel. (9 marks)



- (b) Figure 5 displays a widely used method of stream ordering. With the help of the diagram, name the technique used and describe how streams within a drainage basin are ordered according to this technique. (12 marks)

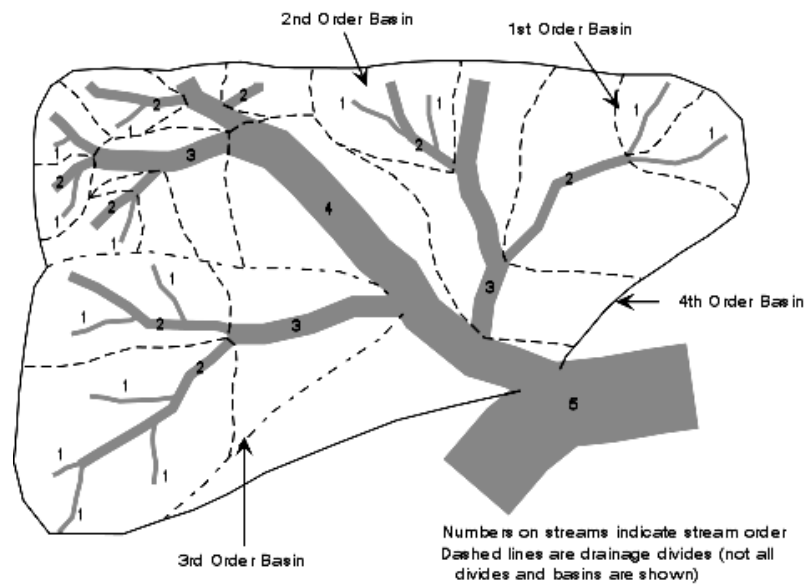


Figure 5: A stream ordering technique

### Section C: Biospheric Processes

7. “[Translocation is one of the] numerous processes that are involved in the formation of soil and the creation of the profiles, structures and other features described. [It] is the movement of soil components in any form or direction” (Waugh, 2002).

Name and describe the **SIX** different movements of soil components that occur through translocation. (24 marks)

8. “Soil degradation is the result of human failures to understand and manage the soil” (Waugh, 2002).

(a) State and explain **THREE** main causes of soil erosion. Explain your answers.

(15 marks)

(b) State and explain **THREE** methods of conserving soil. (9 marks)

9. Choose **ONE** of the following:

Either **TROPICAL RAIN FOREST** or **SAVANNA**.

(a) List 3 places in the World where the biome that you have selected may be found.

(3 marks)

(b) Describe the biome that you have selected giving particular reference to:

- i. Climate, (4 marks)
- ii. Vegetation and (4 marks)
- iii. Soil. (4 marks)

(c) Draw diagrams showing the soil profile of your selected biome (9 marks).

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD  
UNIVERSITY OF MALTA, MSIDA

MATRICULATION CERTIFICATE EXAMINATION  
ADVANCED LEVEL  
SEPTEMBER 2012

---

<b>SUBJECT:</b>	GEOGRAPHY
<b>PAPER NUMBER:</b>	III
<b>DATE:</b>	6th September 2012
<b>TIME:</b>	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**

- Define and discuss the main scope behind the Brandt Report. (12 marks)
  - Do you think that with the current financial instability a similar report would help solve the global crisis? Discuss why. (12 marks)
- Industrial location can be defined as the optimal point where an industry is established in terms of its demand and supply. With the use of diagrams where needed, discuss this statement in terms of Weber's model of industrial location. (14 marks)
  - Identify a case study of a successful location-based industry, and explain and discuss the factors that made it successful. (10 marks)
- Mention **THREE** of Ravensteins seven 'laws of migration'. (6 marks)
  - Discuss the **THREE** laws mentioned in (a) in view of migration trends in the Mediterranean region. State what the possible consequences are onto the host countries. (18 marks)

**Section B: Issues In Resource Management**

- Explain in detail the term 'Resource Base'. (8 marks)
  - Discuss **FOUR** advantages and **FOUR** disadvantages of non-renewable energy. (16 marks)
- Explain the anthropogenic and natural causes of acid rain. (8 marks)
  - State and briefly describe **FIVE** effects of acid deposition on the environment. (10 marks)
  - Describe **THREE** solutions that help reduce acid deposition. (6 marks)

6. (a) Define the term 'Sustainable Development'. (2 marks)
- (b) Discuss how the idea of Sustainable Development originated. (4 marks)
- (c) By giving examples, explain why some natural resources are renewable under any condition, whereas others are being lost due to anthropogenic effects. (18 marks)

### SECTION C: THE GEOGRAPHY OF TOURISM AND RECREATION

7. 'Perceptions of a place and consumer taste tend to influence whether a location is attractive for tourists or not.'
  - (a) State whether you agree with this statement and discuss using examples. (12 marks)
  - (b) Identify possible negative impacts that tourism can have on a country and mention possible conservation measures to safeguard the country's heritage. Use examples to sustain your arguments. (12 marks)
  
8. 'Honeypots such as African Safari Parks tend to have a negative impact on wildlife.'
  - (a) Identify and discuss **FIVE** possible negative effects of such practices in these locations. (10 marks)
  - (b) Mention **FIVE** benefits that such practices have in these areas. (10 marks)
  - (c) Briefly discuss the possible conservation measures that can be implemented in order to provide an equilibrium in such situations. (4 marks)
  
9. 'Growth in leisure time, disposable incomes and increased mobility have led to an increased demand for tourism and recreational activities.'
  - (a) Discuss this statement in the light of the current economic situation at a global level. (10 marks)
  - (b) Explain Butler's model in terms of its role in the economic development of a host country. (14 marks)