MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION CERTIFICATE EXAMINATION
INTERMEDIATE LEVEL
MAY 2012

SUBJECT:	GEOGRAPHY
DATE:	10th May 2012
TIME:	9.00 a.m. to 12.00 noon

Directions to Candidates

Answer a total of FIVE questions: one question from each of the four Sections and a fifth question from any Section.
The use of non-programmable calculators is permitted.
All questions carry equal marks.

Section 1: Physical Geographical Processes

1. Figure 1 shows air circulation around the globe.

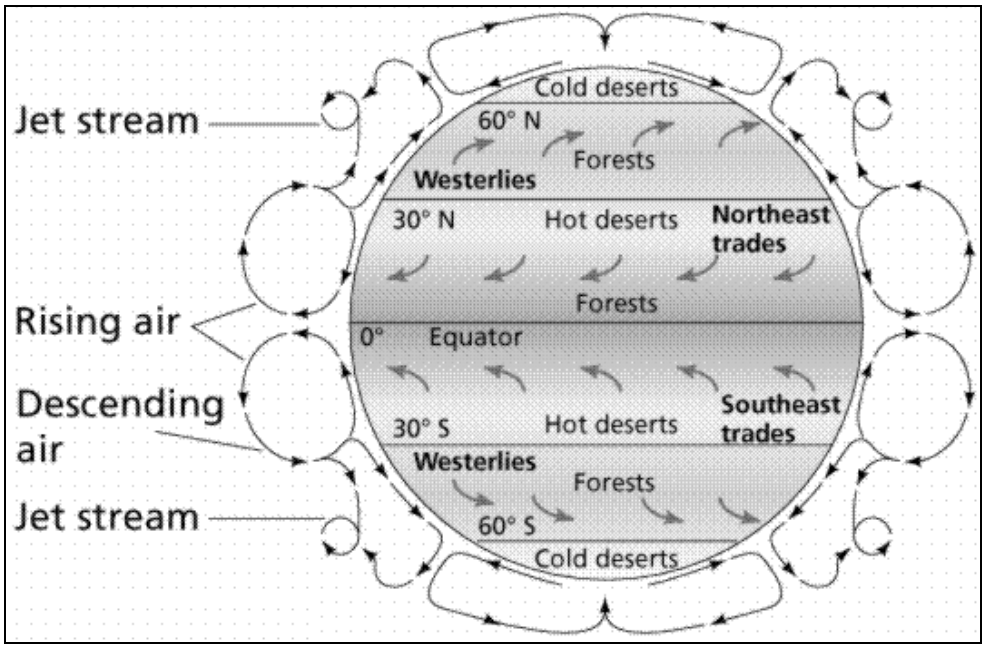

Figure 1: Global air circulation
(Source: http://universe-review.ca/I09-15-circulation2.jpg)

(a) Explain the origins of the Westerly winds between 30º and 60º North and South of the Equator. (14 marks)
(b) Briefly explain the role of global air circulation on the presence of hot deserts at 30º North and South of the Equator. (6 marks)

2. Figure 2 is a photo of Għasel valley, Mosta.

Figure 2: Għasel valley, Mosta
(Source: http://www.panoramio.com)

(a) Briefly describe the climatic conditions that led to the formation of this river valley. (4 marks)
(b) With the help of a diagram or diagrams, describe the natural erosional processes that lead to the formation of river valleys. (16 marks)

3. Figure 3 shows the location of the Mid-Atlantic ridge.

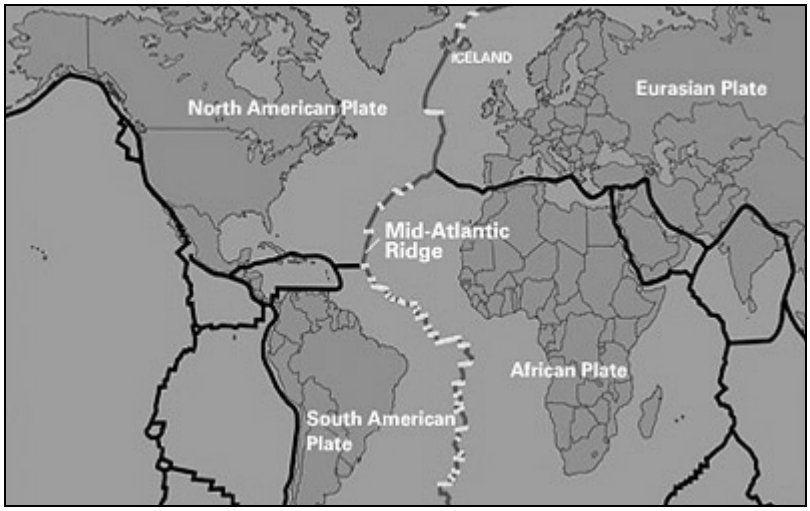

Figure 3: Geographic location of the Mid-Atlantic Ridge
(Source: http://www.mnh.si.edu/earth/text/4_3_1_0.html)

(a) With reference to the theory of plate tectonics, explain the formation of the Mid-Atlantic ridge. Use diagrams to help you answer the question. (15 marks)
(b) Describe the volcanic activity associated with mid-ocean ridges. (5 marks)

Section 2: Human Geographical Processes

4. Table 1 shows the population rank order of the top eight cities in the world sixty years apart.

Table 1: Most populated cities for 1950 and 2010.
(Source: http://geography.about.com/library/weekly/aa011201a.htm)

Rank	City	Country	Population (1950)	Rank	City	Country	Population (2010)
1	New York	USA	12.4	**1**	Shanghai	China	17.8
2	London	UK	8.8	**2**	Istanbul	Turkey	13.2
3	Tokyo	Japan	7.0	**3**	Karachi	Pakistan	12.9
4	Paris	France	5.9	**4**	Mumbai	India	12.4
5	Shanghai	China	5.4	**5**	Beijing	China	11.7
6	Moscow	Russia	5.1	**6**	Moscow	Russia	11.5
7	Buenos Aires	Argentina	5	**7**	Sao Paolo	Brazil	11.3
8	Chicago	USA	4.9	**8**	Guangzhou	China	11.0

(a) Describe the geographical shift in the location of the largest cities. (6 marks)
(b) Suggest **three** reasons for the urban population changes expressed in Table 1. (6 marks)
(c) Discuss **four** problems faced by cities experiencing rapid rural to urban migration. (8 marks)

5. Table 2 shows some results of the 2010 agricultural survey in the Maltese Islands.

Table 2: Selected categories of agricultural land-use and workers in the Maltese Islands for 2001 and 2010.
(Source: National Statistics Office, 2011)

Categories	2001	2010	% change
Number of holdings	11,959	12,529	+4.8
Utilised Agricultural Area (hectares)	9,657	11,453	+18.6
Unutilised Agricultural Area	492	253	-48.6
Garigue land (hectares)	1,471	942	-36.0
Full-time workers	1,524	1,301	-14.6
Part-time workers	12,589	17,238	+36.9

(a) Suggest reasons for the increase in the number of holdings and utilised agricultural area over the last decade. (10 marks)
(b) Explain why the number of full-time workers decreased whilst the number of part-time workers increased. (10 marks)

6. Figure 4 shows population pyramids for the northern Mediterranean and southern Mediterranean countries.
(a) Account for the change in the pyramid structures of (i) the northern Mediterranean countries and (ii) the southern Mediterranean countries between 1970 and as projected for 2025. (8 marks)
(b) Discuss the effects of these population changes on the movement of people between the northern and southern Mediterranean countries. (12 marks)

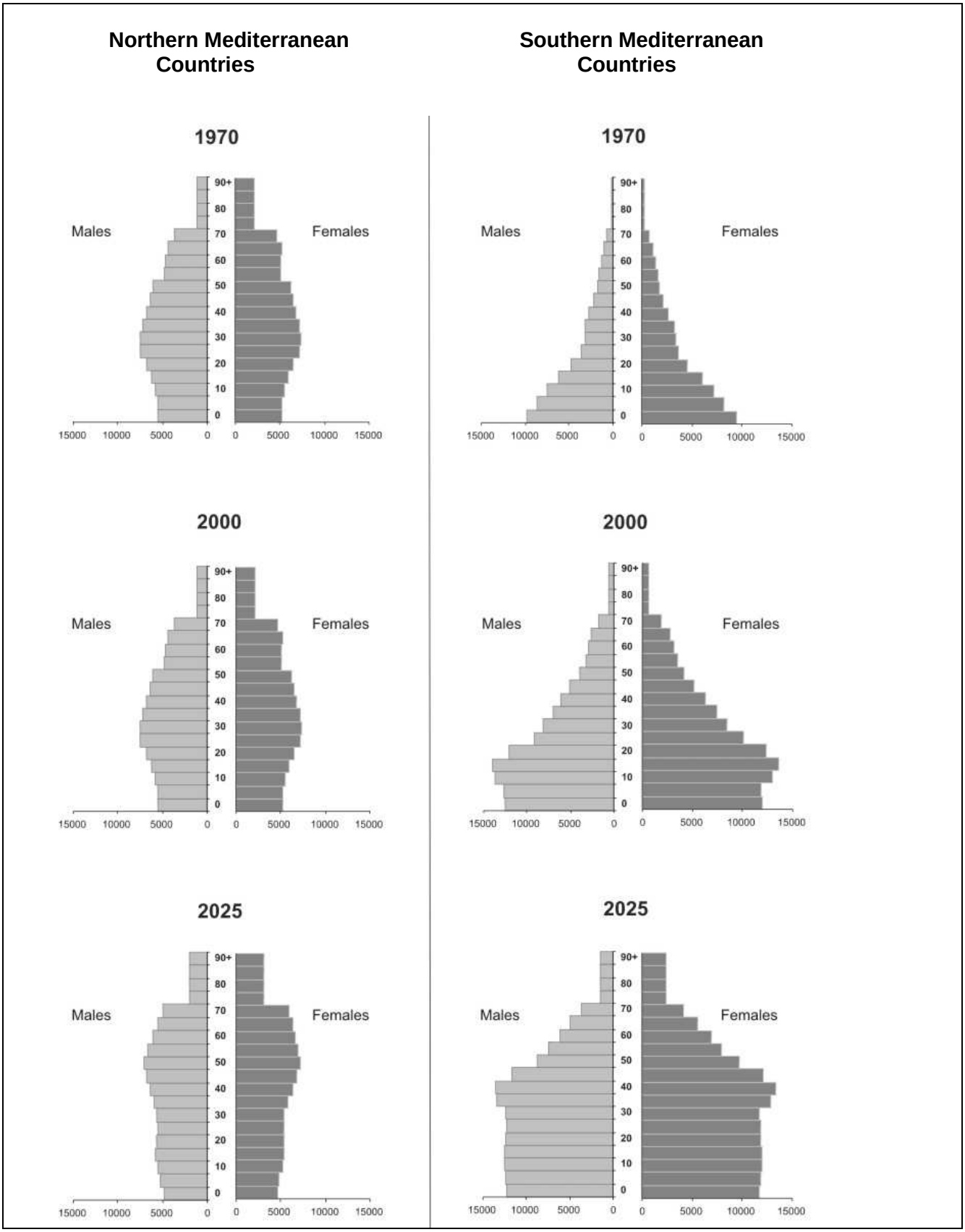

Figure 4: Population pyramids for the northern and southern Mediterranean countries *(Source: http://www.bis.gov.uk/)*

Section 3: The Man-Environment Relationship

7. The ozone layer is a belt of naturally occurring ozone gas found at about 15 to 30 kilometres above Earth.

(a) Explain the importance of the ozone layer. (4 marks)
(b) Describe the human activities that are resulting in ozone depletion in the stratosphere. (6 marks)
(c) Describe the health and environmental problems resulting from ozone depletion in the stratosphere. (10 marks)

8. Figure 5 shows the waste water treatment plant at Iċ-Ċumnija near Anchor Bay, Malta.

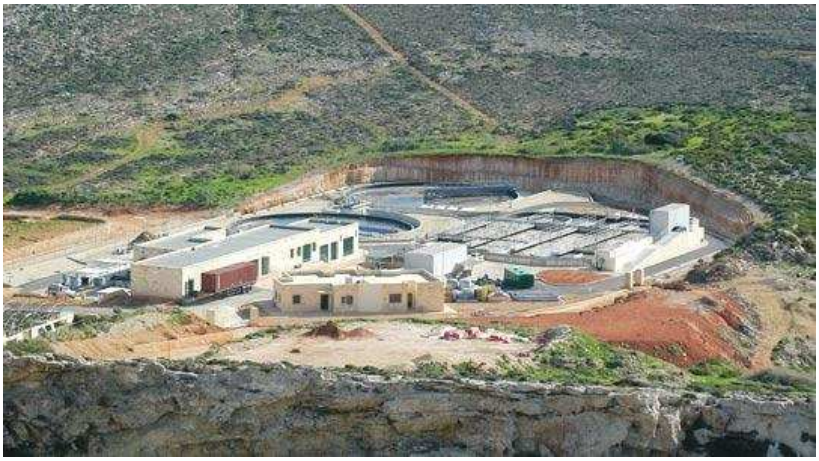

Figure 5: Iċ-Ċumnija Sewage Treatment Plant, Anchor Bay, Malta
(Source: http://www.timesofmalta.com)

(a) Briefly define the term *waste water treatment.* (4 marks)
(b) Discuss the environmental benefits of treating waste water in the Maltese Islands. (8 marks)
(c) Describe the negative environmental impact of waste water treatment plants on the natural environment. (8 marks)

9. In the Mediterranean region, sheep and goats normally graze in the open environment on areas covered with garrigue.
(a) Define the term *garrigue*. (4 marks)
(b) Explain the characteristics that assist the garrigue vegetation to adapt to the Mediterranean type of climate. (10 marks)
(c) Explain the negative impact caused by grazing sheep and goats on the garrigue environment. (6 marks)

Section 4: Fieldwork and Mapwork Skills

10. Figure 6 is a dot map showing the population of some capital cities in the world.

(a) Explain how the dots in Figure 6 represent data. (6 marks)
(b) Name **three** advantages and **three** disadvantages of showing the data in Figure 6 through the use of a dot map. (14 marks)

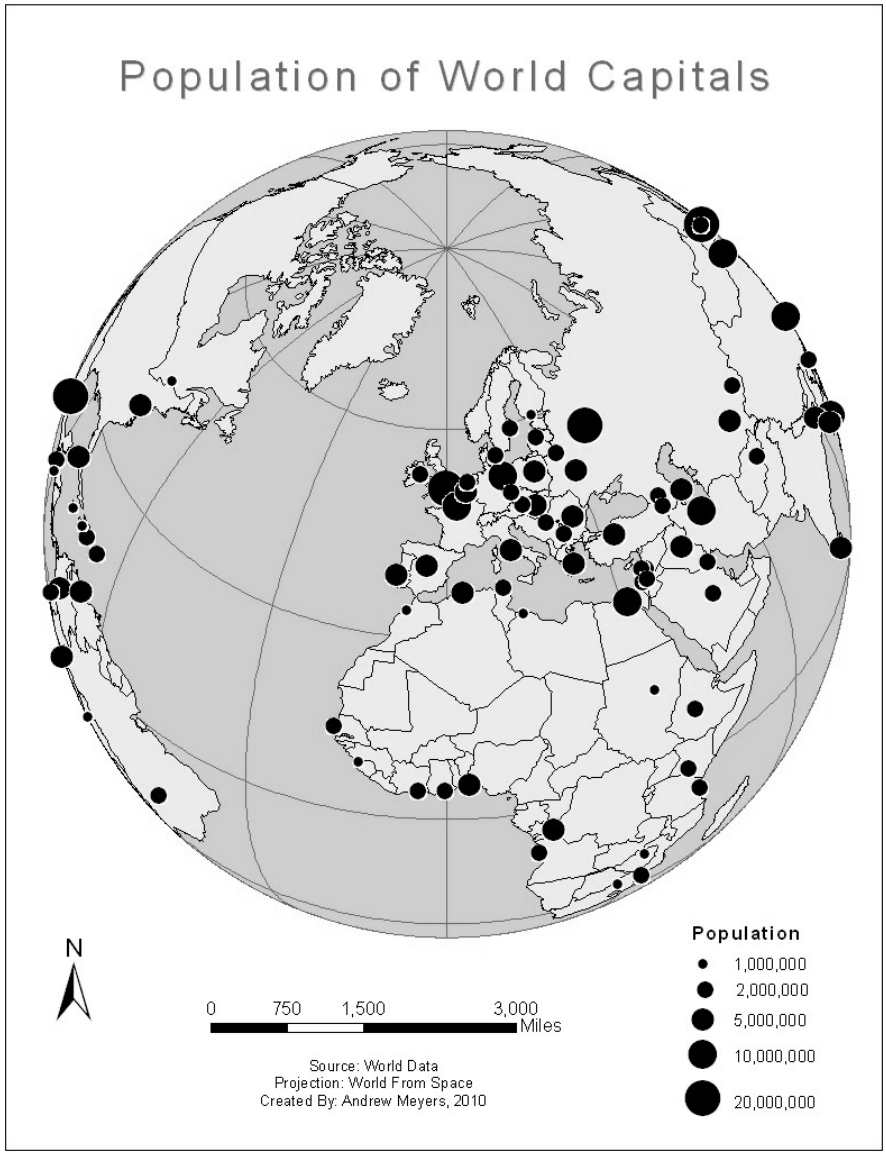

Figure 6: Dot map
(Source: http://andysmaps.blogspot.com)

11. A traffic survey was conducted on a busy main road. The results obtained are tabulated in Table 3.

Table 3: Results of a traffic survey on a main road

Category	**Frequency**
Cars	140
Motorbikes	70
Vans	55
Buses	5
Total	**270**

(Source: http://www.bbc.co.uk)

(a) What is a pie chart? (2 marks)
(b) Draw a pie chart to represent the values given in the table. Show the numerical working done to represent the various sections of the chart. (10 marks)
(c) Discuss **two** advantages and **two** disadvantages of representing the survey data on a pie chart. (8 marks)

12. (a) What is a quadrat? (2 marks)
(b) Describe in detail a geographical investigation that requires the use of a quadrat. Your answer should include:
    (i) a purpose statement,
    (ii) a detailed description of the data collection methods used to test your hypotheses, and
    (iii) the method of recording data.

    You may use sketches to illustrate your answer. (12 marks)

(c) Outline **two** threats to sampling reliability when collecting data through the use of a quadrat. (6 marks)