

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD
UNIVERSITY OF MALTA, MSIDA
MATRICULATION EXAMINATION
INTERMEDIATE LEVEL
MAY 2014

SUBJECT: GEOGRAPHY
DATE: 14th May 2014
TIME: 4.00 p.m. to 7.00 p.m.

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 the valleys of the Maltese Islands.
 - (a) Define the term **drainage pattern**. (2 marks)
 - (b) With the help of figure 1, briefly describe the drainage pattern of Malta. (4 marks)
 - (c) How has the topography and geology of Malta influenced the drainage pattern of the Maltese Islands? (6 marks)
 - (d) Why is surface drainage in the valleys of the Maltese Islands scarce? (8 marks)

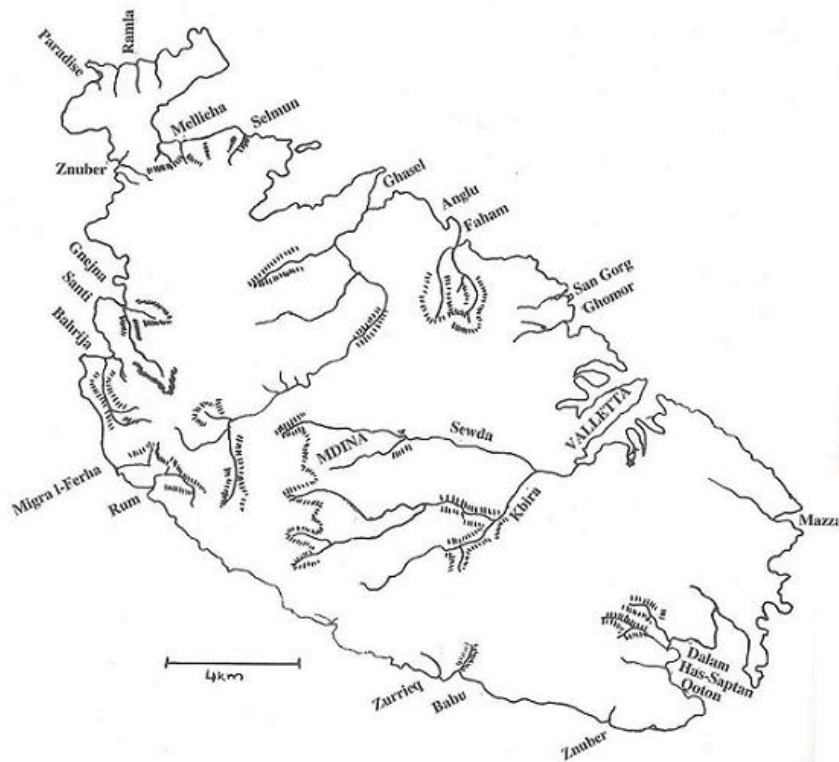


Figure 1: Main river valleys in Malta
(Source: Haslam, S.M. and Borg, J., 1998)

2. A number of local winds blow over the Mediterranean region.
 - (a) Give the meaning of **local wind**. (2 marks)
 - (b) What is the difference between local wind and prevailing wind? (6 marks)
 - (c) Choose **one** warm and **one** cold local wind from those shown in Figure 2 and explain the type of weather most commonly associated with each. (12 marks)

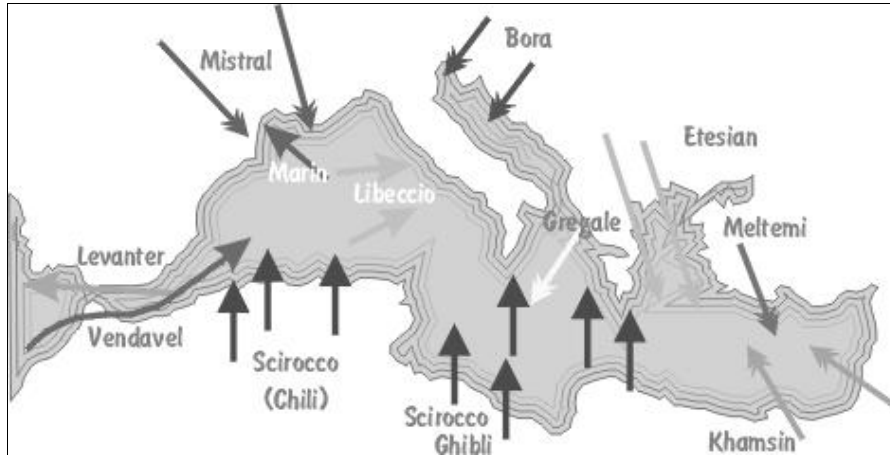


Figure 2: Local winds in the Mediterranean region
 (Source: <http://lyachtua.com>)

3. Figure 3 shows changes in the shape of the Azure Window at Dwejra, Gozo from 1981 to 2013.
 - (a) What has brought about the changes in the shape of the Azure Window? (2 marks)
 - (b) Draw a sketch diagram of the Azure Window, mark **one** major area of weakness on your sketch and label it with the correct technical term. (3 marks)
 - (c) Describe **three** processes that have brought about the changes in the shape of the Azure Window. (9 marks)
 - (d) With the help of a labelled diagram, explain the formation of the coastal feature that may eventually replace the Azure window. (6 marks)

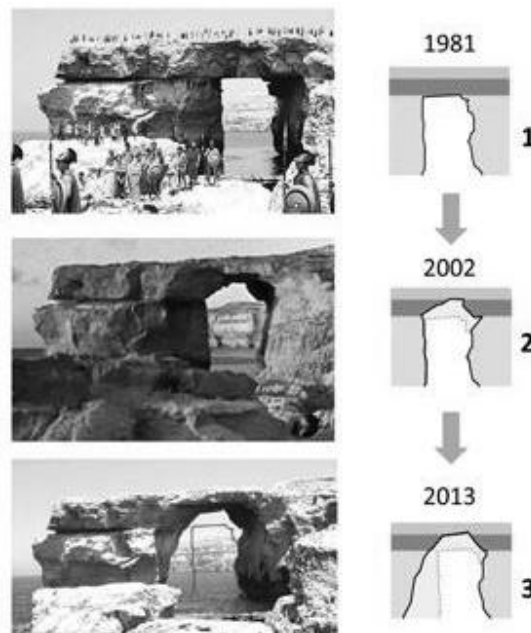


Figure 3: Changes in the Azure Window at Dwejra, Gozo
 (Source: Gatt, P.)

Section 2: Human Geographical Processes

4. (a) What is an urban land use model? (2 marks)
- (b) Compare and contrast Burgess’s and Hoyt’s models of urban structure shown in Figure 4. (12 marks)
- (c) Discuss whether the urban structure of Malta follows any one of these two models. (6 marks)

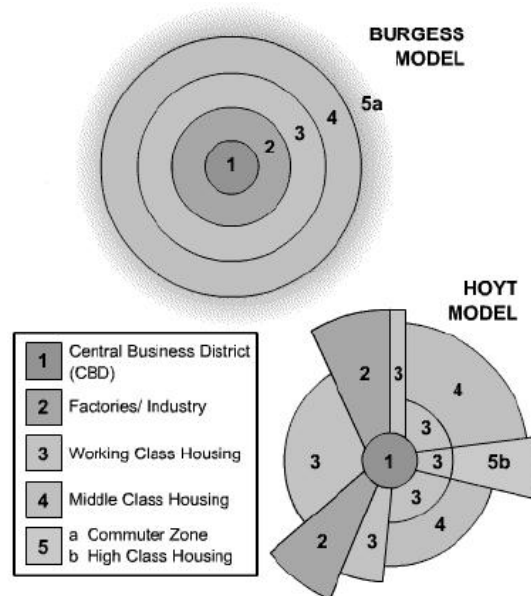


Figure 4: Urban land use models
(Source: <http://14yonena.wordpress.com>)

5. Figure 5 shows four population pyramids each representing a demographic stage.
 - (a) Describe the population structure shown by each pyramid. (8 marks)
 - (b) Explain the factors that brought about the wide top shown by the pyramid in stage 4. (8 marks)
 - (c) Which population pyramid best represents the population structure of the Maltese Islands? Give reasons for your answer. (4 marks)

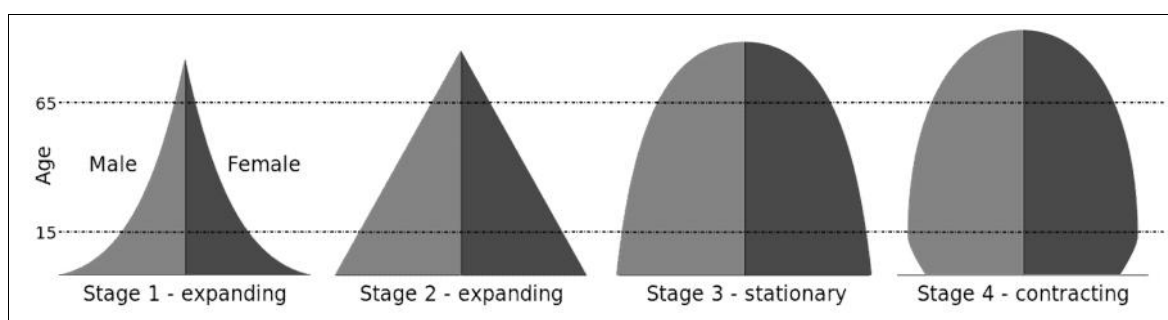


Figure 5: Four types of population pyramids
(Source: <http://en.wikipedia.org>)

6. Tourism is a very important sector of the economy of several Mediterranean countries.
 - (a) Mention **four** reasons, besides the natural attractions, why Gozo is an ideal attraction to tourists. (8 marks)
 - (b) Discuss **four** problems that are created in a small island, the size of Gozo, as a result of a concentration of tourists over two summer months. (12 marks)

Section 3: The Man-Environment Relationship

- 7. (a) Give the meaning of the terms: **optimum population**, **overpopulation** and **underpopulation**. (6 marks)
- (b) With reference to an underdeveloped country, describe **two** factors that are hindering its economic growth. (8 marks)
- (c) Figure 6 shows the use of Earth’s natural resources by the world population. Explain **two** effects of this situation on people living in underdeveloped countries. (6 marks)

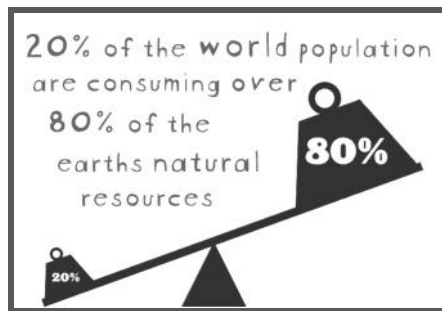


Figure 6: The use of Earth’s natural resources
(Source: <http://nowastewednesdays.com>)

- 8. (a) Give the meaning of the term acid rain. (2 marks)
- (b) What causes acid rain? (10 marks)
- (c) Explain how acid rain can threaten the state of health of the Mediterranean Sea. (8 marks)

- 9. Figure 7 shows a news post about the reaction of experts to flooding in Britain during January 2014.



Figure 7: News post about flooding in Britain
(Source: <http://www.theguardian.com>)

- (a) Discuss **four** problems caused by flooding on the human environment. (8 marks)
- (b) Describe **three** flood control measures. (6 marks)
- (c) Contrast the way in which developed and less developed countries respond to flooding. (6 marks)

Section 4: Fieldwork and Mapwork Skills

10. A student carried out a geographical investigation to study the relation between the location of bus stops and their distance from the CBD. The student listed the number of bus stops found in a given area around the CBD. Column A in the table below shows the distance from the CBD while Column B shows the number of bus stops found. The student then used the chi-squared test to investigate whether the differences between the occurrences of bus stops and their distance from the CBD are truly significant or whether these differences have occurred by chance.

Table A: Number of bus stops within a distance from the CBD

Column A Distance from CBD	Column B Number of Bus Stops
0 - 40 metres	12
41 - 80 metres	8
81 - 120 metres	7
121 – 160 metres	5
161 – 200 metres	3
201 – 240 metres	4
241 – 280 metres	2

- (a) Formulate a hypothesis that reflects the student's aim of this investigation. (2 marks)
 (b) Use the chi-squared test to check whether the results shown in Table A have occurred by chance. The relevant formula is:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where χ^2 = chi-squared; Σ = summation sign; O = observed frequency; and E = expected frequency. (14 marks)

- (c) Use Table B to read the number of degrees of freedom against the χ^2 value and state whether the probability that the data obtained by the student could be due to chance. (4 marks)

Table B: Critical values of chi-squared
 (Source: Frew, J. , 1993)

LEVELS OF PROBABILITY			
Degrees of Freedom	5%	1%	0.1%
1	3.84	6.64	10.83
2	5.99	9.21	13.82
3	7.82	11.34	16.27
4	9.49	13.28	18.46
5	11.07	15.09	20.52
6	12.59	16.81	22.46
7	14.07	18.48	24.32
8	15.51	20.09	26.12
9	16.92	21.67	27.88
10	18.31	23.21	29.59
11	19.68	24.72	31.26
12	21.03	26.22	32.91
13	22.36	27.69	34.53
14	23.68	29.14	36.12
15	25.00	30.58	37.70

11. Online newspapers are an important source of information in any project being undertaken.
- (a) Mention **two** advantages and **two** disadvantages of using online newspapers as a main source of information in carrying out a geographical investigation. (8 marks)
 - (b) Mention **four** ways how a student of geography can assess the reliability of an internet website for research purposes. (12 marks)
12. Figure 8 (on page 7) is a map showing the distribution of oil reserves in the world.
- (a) Explain how the map is showing the size of oil reserves. (2 marks)
 - (b) Describe **two** advantages and **two** disadvantages of using such a map to represent the distribution of oil reserves. (12 marks)
 - (c) Briefly describe what the map in figure 8 is showing. (6 marks)

Who has the oil?

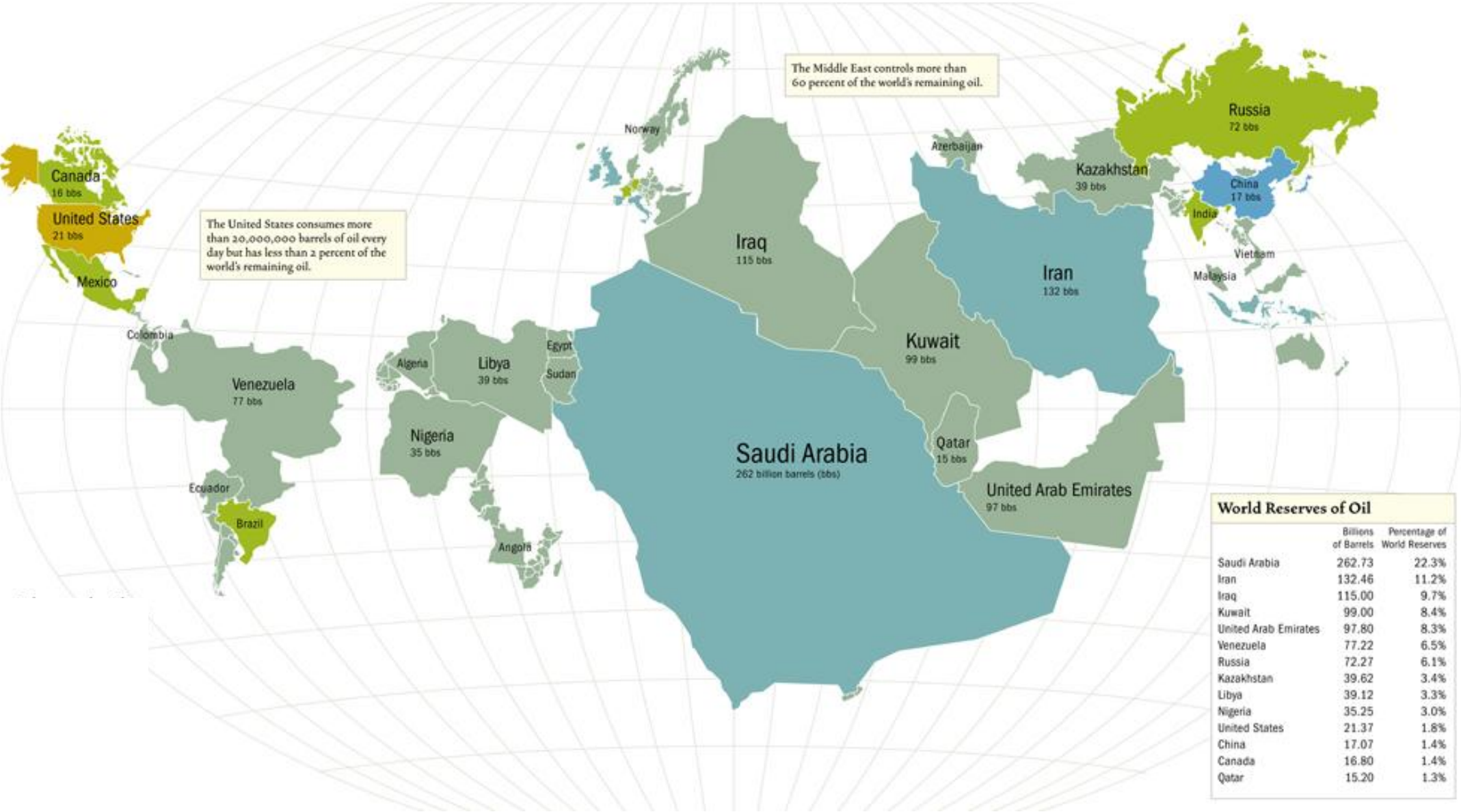


Figure 8: Oil reserves in the world
 (Source: <http://www.bp.com>)