MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2016

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	I
DATE:	2nd September 2016
TIME:	9.00 a.m. to 11.05 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

Examine Table 1 showing the main climatic characteristics of the Maltese Islands.

Month	Bright Sunshine (hours)	Daytime Temperature		Sea Temperature (ºC)	Rainfall (mm)
		(ºC)	(°F)		
January	5.46	15	59	14.5	90.1
February	6.36	15	59	14.5	60.8
March	7.33	18	64.4	14.5	44.7
April	8.46	20	68	16.1	24.0
May	9.99	24	75.2	18.4	8.9
June	11.23	29	84.2	21.1	3.8
July	12.15	32	89.6	24.5	0.9
August	11.36	32	89.6	25.6	8.8
September	9.00	29	84.2	25.0	40.4
October	7.22	25	77	22.2	123.6
November	6.50	21	69.8	19.5	76.8
December	5.20	18	64.4	16.7	100.2

Table 1: Mean monthly values of main climatic parameters for the Maltese Islands

a. Why would the trends of climate parameters displayed in Table 1 classify as a Mediterranean climate? (4 marks)

b. Compare the mean monthly values for temperature (^{0}C) for daytime and sea temperatures and gives reasons for such differences throughout the year. (6 marks)

c. Explain the physical processes responsible for the trends throughout the year of the following weather elements:
    i.   Rainfall;
    ii. Hours of bright sunshine. (14 marks)

Question 2

Sea level has a direct effect on the type of marine ecosystems which develop along the shores of the Maltese Islands.

a.   Name and define the three littoral zones which categorise our local marine ecosystems.   (6 marks)

b.   Choose TWO of the littoral zones defined in (a) and describe the ecological communities related to each littoral zone.   (2 x 9 marks)

Question 3

Garigue is considered one of the main terrestrial communities of the Maltese Islands.

Answer the following questions with reference to garigue:

a.   Discuss its characteristics and give relevant examples of locations where one can find garigue communities.   (10 marks)

b.   List and explain the main causes of degradation affecting such an ecosystem.   (7 marks)

c.   How can this terrestrial community be better protected?   (7 marks)

Section B: Human Geography of the Maltese Islands

Question 4

a.   List and describe the TWO main types of agricultural land in Malta.   (4 marks)

b.   List and discuss FIVE problems that are encountered by Maltese farmers.   (10 marks)

c.   January 2016 started with relatively high temperatures and low precipitation.
     i.   Identify and briefly discuss the possible reason for this phenomenon.   (5 marks)
     ii.   Discuss the implications that such abnormal weather conditions have on Maltese crops.
                                                                                                                            (5 marks)

Question 5

Figure 1 shows an aerial photo of San Gwann, Gzira and Msida. The aerial photo illustrates the urban development in these localities.

Figure 1 Aerial photo of San Gwann, Gzira and Msida (Flickr – Vella, 2008)

a. List and briefly describe FIVE environmental issues that arise in relation to such development.

(10 marks)

b. Apart from the environmental issues described in [a], briefly discuss TWO other consequences (not environmentally related) of urban spread. (4 marks)

c. List and briefly describe FIVE possible ways that can help improve the environment in similar urban areas. (10 marks)

Please turn the page.

Question 6

a.   With reference to Table 2
   i.   Describe the trends for Malta's imports.   (8 marks)
   ii.   Describe the trends for Malta's exports.   (8 marks)

b.   Compare your descriptions in [i] and [ii], and identify prevailing patterns in view of the resource
   limitations of the Maltese Islands.   (8 marks)

				€ 000
	2010	2011	2012	2013
Imports				
Europe	3,208,047	4,227,172	4,894,405	4,109,833
of which:				
European Union	2,716,622	3,357,503	3,950,140	3,288,889
of which:				
United Kingdom	359,693	362,579	372,597	308,446
Euro Area	2,195,131	2,665,201	3,335,575	2,684,002
EFTA Countries	110,149	159,497	137,659	151,897
Other European Countries	381,276	710,171	806,607	669,046
Africa	151,484	35,751	197,175	256,439
America	276,936	353,518	278,895	387,938
Asia	611,710	641,914	769,904	827,603
Australia and Oceania	80,150	20,430	34,367	18,033
Ships and aircraft stores, and bunkers	1,935	60,657	12,724	83,210
Total	4,330,261	5,339,442	6,187,471	5,683,057
Exports				
Europe	1,199,227	1,578,998	1,646,425	1,535,062
of which:				
European Union	1,149,144	1,301,851	1,295,760	1,245,776
of which:				
United Kingdom	131,438	150,414	124,586	107,786
Euro Area	906,756	1,033,590	1,041,953	953,466
EFTA Countries	26,515	33,379	29,703	28,544
Other European Countries	23,569	243,768	320,962	260,742
Africa	182,665	234,301	776,834	617,349
America	228,778	226,742	255,415	224,734
Asia	686,467	1,092,134	1,020,417	1,059,622
Australia and Oceania	11,149	5,205	6,313	9,780
Ships and aircraft stores, and bunkers	501,052	681,636	733,205	478,664
Total	2,809,339	3,819,015	4,438,608	3,925,210

Note: Totals may not add up due to rounding.

Table 2. Direction of Trade (NSO 2014)

N.B EFTA stands for European Free Trade Association Countries (Iceland, Liechtenstein, Norway, and Switzerland).

Section C: Fieldwork and Statistical Techniques

Question 7

With the help of diagrams and examples where necessary, explain the following in detail:

a.   What is a 'scatter graph'? Draw a diagram to illustrate your answer.   (6 marks)

b.   Scatter graphs can show three different types of correlation. Explain, with the use of diagrams, each of these correlations.   (15 marks)

c.   Explain, with the use of examples, when one should use a scatter graph.   (3 marks)

Question 8

'There are various diagrams which can be used to visualise different types of data.' With reference to this statement, illustrate and explain the below terms.   (24 marks)

a. Flow diagrams

b. Pictograms

c. Rose diagram

d. Desire Lines

Question 9

a.   Explain what is meant by 'interviews', and why these are used in geography. Use examples to illustrate your answer.   (3 marks)

b.   Using a case-study (real or made-up) of your choice, explain:
   i.   which form of interview/s you would opt for;   (7 marks)
   ii.   how you would prepare for the interview/s;   (7 marks)
   iii.   how you would conduct the interview/s.   (7 marks)

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MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2016

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	II
DATE:	3rd September 2016
TIME:	9.00 a.m. to 11.05 a.m.

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

Section A: Atmospheric Processes

Question 1

a.   With the help of an annotated diagram, explain how global air circulation behaves in a tri-cellular model. (12 marks)

b.   With reference to the model explained in (a), discuss how such air circulation patterns affected the climate pattern at the following latitudes:
  i.   Equator;
  ii. Poles. (2 x 6 marks)

Question 2

Figure 1 is a famous Native American proverb, which reminds us that some extreme events are not anymore just a natural phenomenon. Human mismanagement of the environment is making these extreme events a harder reality to solve.
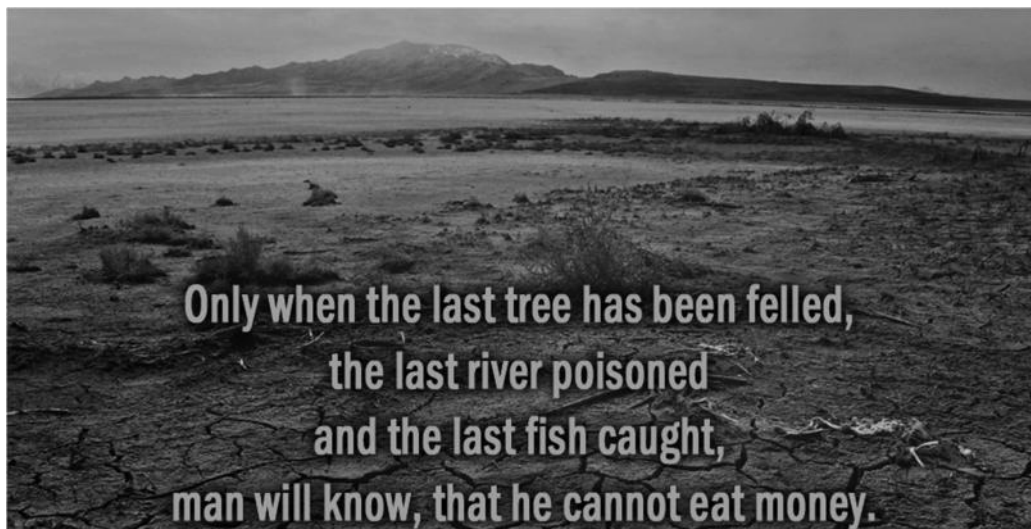

Figure 1: A Native American proverb about man's utilisation of the environment.

With reference to drought as an example of an extreme event:

a.   Outline the main causes of drought.   (10 marks)

b.   What are the environmental and economic impacts resulting from drought?   (14 marks)

Question 3

"Without the Montreal Protocol and associated agreements, atmospheric levels of ozone depleting substances could have increased ten-fold by 2050." (Achim Steiner, UN Under-Secretary-General and UNEP Executive Director, 2014)

a.   Explain the term 'ozone depleting substances'. Provide examples in your answer.   (7 marks)

b.   What is the Montreal Protocol?   (7 marks)

c.   Discuss the likely consequences on life on earth resulting from ozone layer depletion.   (10 marks)

Section B: Geomorphology

Question 4

a.   Define the following terms:
         i.   High tide;
         ii.   Low tide;
         iii.   Ebb tide;
         iv.   Flood tide.   (4 x 2 marks)

b.   With the help of an annotated diagram, explain the physical processes which cause tides.
                                                             (10 marks)

c.   In what way does the shape of the shoreline and bathymetry affect tidal values? Give reasons for your answer.   (6 marks)

Question 5

a.   Describe the aeolian processes responsible for sand transportation in deserts. Provide sketches to illustrate your answer.   (12 marks)

b.   Depositional features in hot arid deserts vary widely in size and form. With reference to the formation of sand dunes, discuss this statement with the help of diagrams.   (12 marks)

Question 6

a.   With the help of diagram/s and a written description, compare how streams within a drainage basin were ordered differently according to the methods developed by Strahler and by Shreve.

(12 marks)

b.   Explain the relationship between the following:
    i.   number of streams and order;
    ii.   mean stream length and stream order;
    iii.   mean basin area and stream order.   (3 x 4 marks)

Section C: Biospheric Processes

Question 7

"An Ecosystem is a natural unit in which the life-cycles of plants, animals and other organisms are linked to each other and to the non-living constituents of the environment to form a natural system". (Waugh, 2002)

Taking into consideration the energy flows in the ecosystem and with the help of diagrams discuss:
i.   Food chains;
ii.   Trophic levels.   (2 x 12 marks)

Question 8

a.   Explain the term 'weathering' in soil formation.   (4 marks)

b.   "Weathering involves a number of specific processes which may operate in isolation but which are more likely to be found in conjunction with one another" (Waugh, 2000:42).

With reference to the above statement and by giving examples where possible, explain the following processes in detail:
    i.   Oxidation;
    ii.   Hydration;
    iii.   Hydrolysis;
    iv.   Carbonation.   (5x4 marks)

Question 9

Explain in detail how human activities are contributing to the expansion of deserts through desertification and identify measures that can be used to mitigate this phenomenon.   (24 marks)

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MATRICULATION EXAMINATION
ADVANCED LEVEL
SEPTEMBER 2016

SUBJECT:	GEOGRAPHY
PAPER NUMBER:	III
DATE:	5th September 2016
TIME:	9.00 a.m. to 11.05 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

a. With the help of a labelled diagram, define the THREE principles of the Central Place Theory.

(12 marks)

b. List FOUR assumptions of the Central Place Theory. (8 marks)

c. Mention and discuss TWO main components that were necessary to develop the Central Place Theory. (4 marks)

Question 2

Primitive Subsistence Farming is a type of agricultural practice.

a. Define 'Primitive Subsistence Farming' and give TWO examples where it is practised. (8 marks)

b. List and describe FOUR characteristics of 'Primitive Subsistence Farming'. (8 marks)

c. Discuss TWO challenges of 'Primitive Subsistence Farming'. (8 marks)

Question 3

Figure 1 shows the locations of industrial activities related to the development of Nutella ®.

a.   Define the term Multi-national Companies.   (4 marks)

b.   Describe Figure 1, and explain the significance of the locations of each activity as related to the sectors of the economy. In your answer make direct reference to the geographical implications of the company's headquarters, main sales offices, international suppliers and factories.

(12 marks)

c.   List and briefly explain TWO issues related to Multi-national Companies.   (8 marks)

Figure 6. The Nutella® global value chain

Source: Ferrero, Sourcemap and various on-line sources.

Figure 1: Location of industrial activities related to the development of Nutella ®

Section B: Issues in Resource Management

Question 4

a.   Define the following terms:
     i.   Finite resources;
     ii.   Renewable resources.   (2x 4 marks)

b.   Malta should be reaching the 2020 goals in terms of renewable energy production. Choose TWO renewable resources of energy that could be viable for Malta, and discuss their advantages and disadvantages.   (16 marks)

Question 5

Discuss in detail the possible factors that might influence the locations and use of power station types; coal; oil, HEP and nuclear.   (24 marks)

Question 6

"Human economic activities release increasingly more carbon dioxide, sulphur dioxide and nitrogen oxide into the atmosphere. These gasses then form acids in solution in rainwater" (Waugh, 2002).

a.   Taking the above statement into consideration, describe the causes and effects of acid rain.
                                                                          (10 marks)

b.   Identify possible solutions in order to reduce acid rain and discuss the factors that prohibit their full implementation.   (14 marks)

Section C: The Geography of Tourism and Recreation

Question 7

Figure 2 shows a thematic map of international tourism with number of arrivals.

Figure 2: International tourism with number of arrivals (Workbank, 2016)

a.   Define the term 'international tourism'.   (4 marks)

b.   Describe Figure 2, and discuss the emerging patterns.   (14 marks)

c.   List and briefly explain THREE reasons why some countries attract more tourists than others.
                                                                                                                         (6 marks)

Question 8

a.   Explain Myrdal's concept of cumulative causation in the tourist industry. Use a diagram to support your answer.   (18 marks)

b.   Provide an example where such a concept can be applied. Briefly discuss this example.   (6 marks)

Question 9

a.   In 2015, over 1.2 billion tourists travelled abroad (World Tourism Organisation UNWTO, 2016).
        i. List and briefly describe FIVE reasons why tourists travel in the Mediterranean region.
                                                                                                                         (10 marks)
        ii. List and describe TWO benefits that Malta, as a host country, enjoys from incoming tourists.
                                                                                                                         (10 marks)

b.   Mention TWO negative impacts of tourism that influence Malta.   (4 marks)