L-Università ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

INTERMEDIATE MATRICULATION LEVEL
2021 SECOND SESSION

SUBJECT:	**Geography**
DATE:	9th October 2021
TIME:	4:00 p.m. to 7:05 p.m.

Directions to Candidates

Answer a total of **FOUR** questions: **TWO** questions from **EACH** of the two Sections.
The use of non-programmable calculators is permitted. **ALL** questions carry equal marks.

SECTION A: PHYSICAL GEOGRAPHICAL PROCESSES

1. Almost 40 years ago, scientists Joe Farman, Brian Gardiner, and Jonathan Shanklin made a sobering discovery that human activities were depleting the ozone layer, and a hole had formed over Antarctica.

   (a) Outline the main characteristics of the ozone layer and explain the main causes responsible for the development of an ozone layer hole over Antarctica. (10)
   (b) What international measures have been implemented to replenish the ozone layer and what challenges were experienced by this international effort in recent years? (15)

   (Total: 25 marks)

2. The natural water supply of the Maltese Islands depends heavily on rainwater percolating through the islands' limestone rock.

   (a) With the help of an annotated diagram, explain how the geology of the Maltese Islands influences the formation of the aquifers. (15)
   (b) Discuss **TWO** threats that are currently leading to a deterioration of the groundwater reserves of the Maltese Islands. (10)

   (Total: 25 marks)

Please turn the page.

3. Figure 1 labels the main hydrological features in a drainage basin.

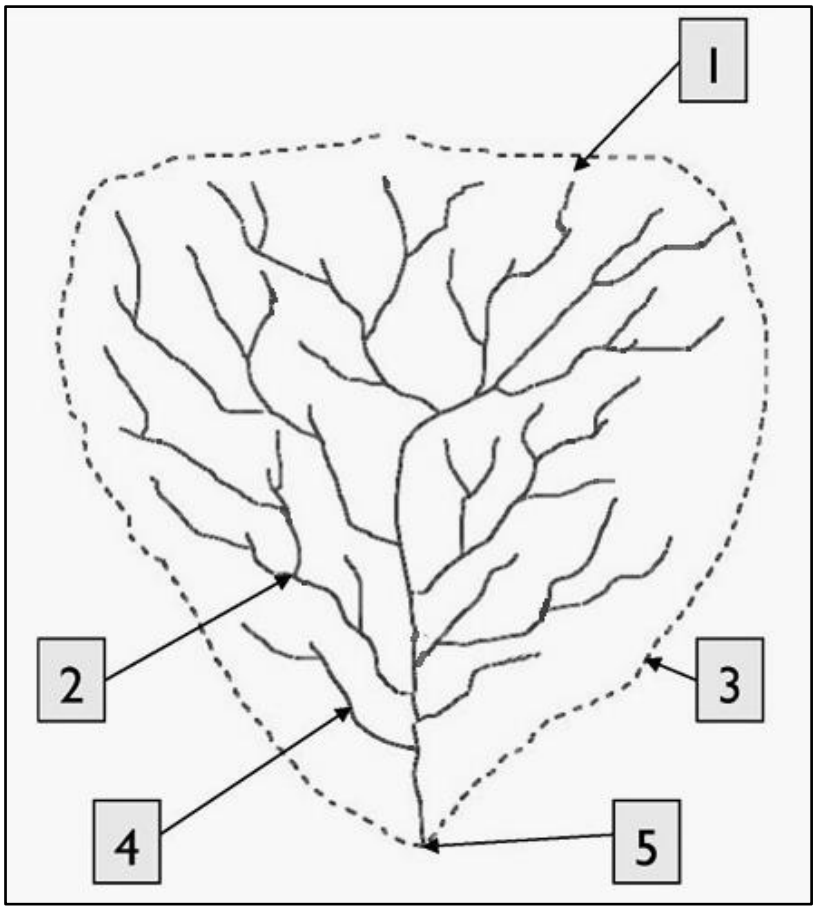

Figure 1: Drainage basin

(a) Name and define the **FIVE** labelled features. (10)
(b) Explain how the drainage basin operates as an open system. (15)

(Total: 25 marks)

4. Figure 2 is a schematic diagram showing global high-and low-pressure belts, which form as a result of atmospheric circulation cells.

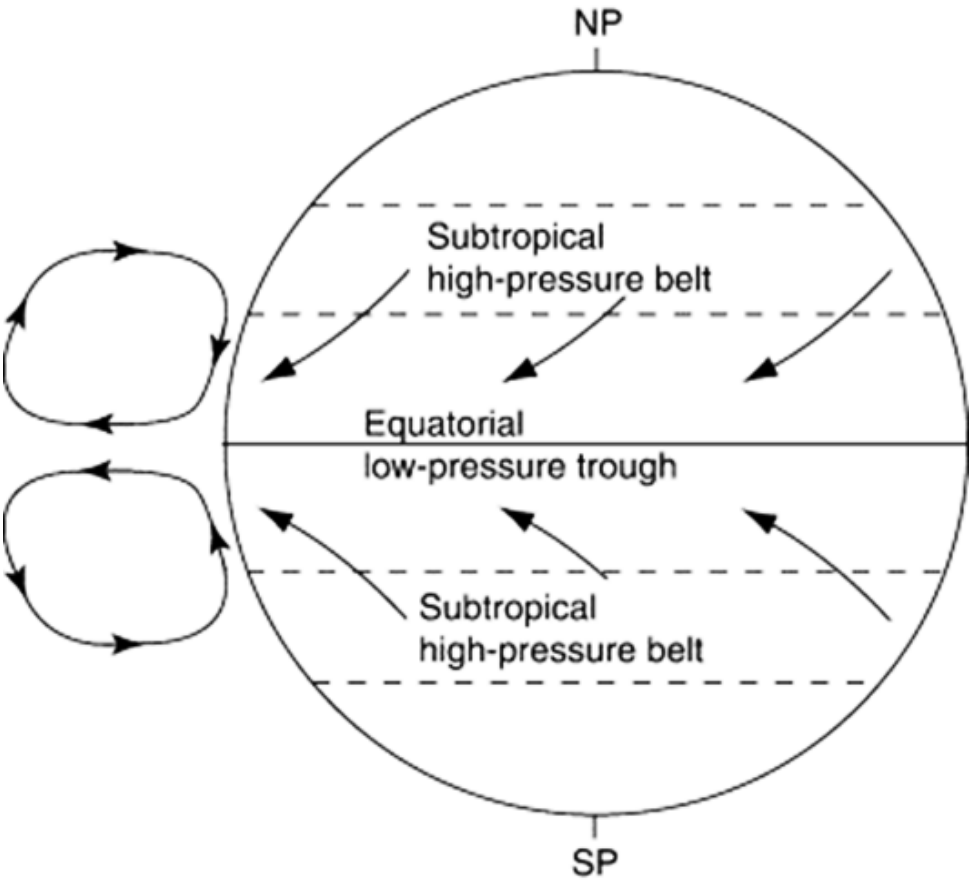

Figure 2: Atmospheric circulation at the tropics.
(Source: Hastenrath, 2003)

(a) Name the atmospheric circulation cells shown in Figure 2 and describe their characteristics. (5)

(b) Discuss the relationship between the presence of these atmospheric circulation cells and the following environmental conditions:

i. hot temperatures and high precipitation all year round at the Equator; (10)

ii. development of deserts in the sub-tropical latitudes. (10)

(Total: 25 marks)

Please turn the page.

5. Figure 3 shows fossil evidence across different continents in support of Alfred Wegner's theory of continental drift.

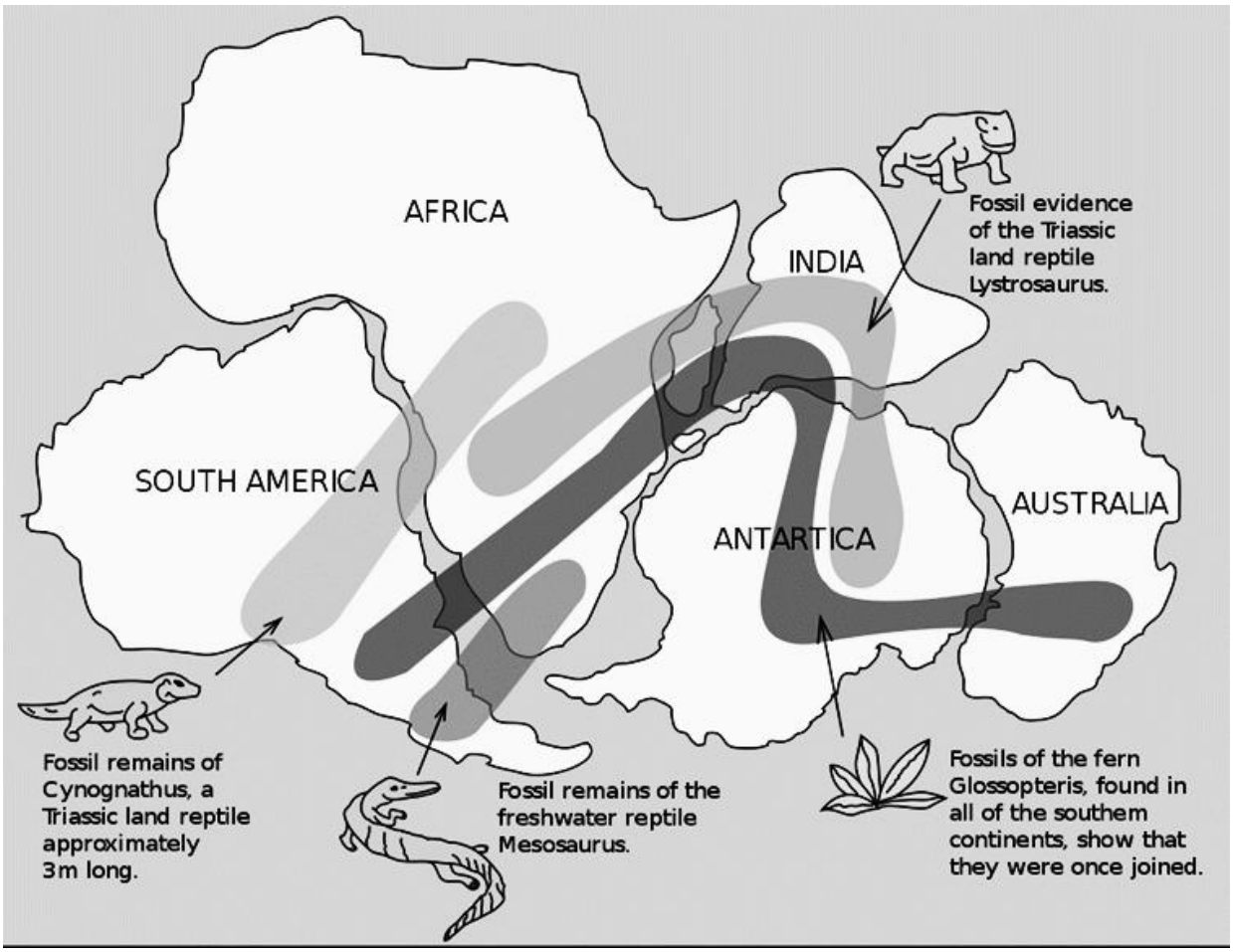

Figure 3: Fossil evidence across different continents.
(Source: nationalgeographic.org)

(a) Give an outline of the theory of Continental Drift. (8)
(b) Explain the evidence that supports this theory. (8)
(c) Briefly describe the different types of plate boundaries. (9)

(Total: 25 marks)

SECTION B: HUMAN GEOGRAPHICAL PROCESSES

6. Figure 4 below shows four population pyramids for Malta, for the years 1950, 1980 and 2010, and a projected pyramid for 2040.

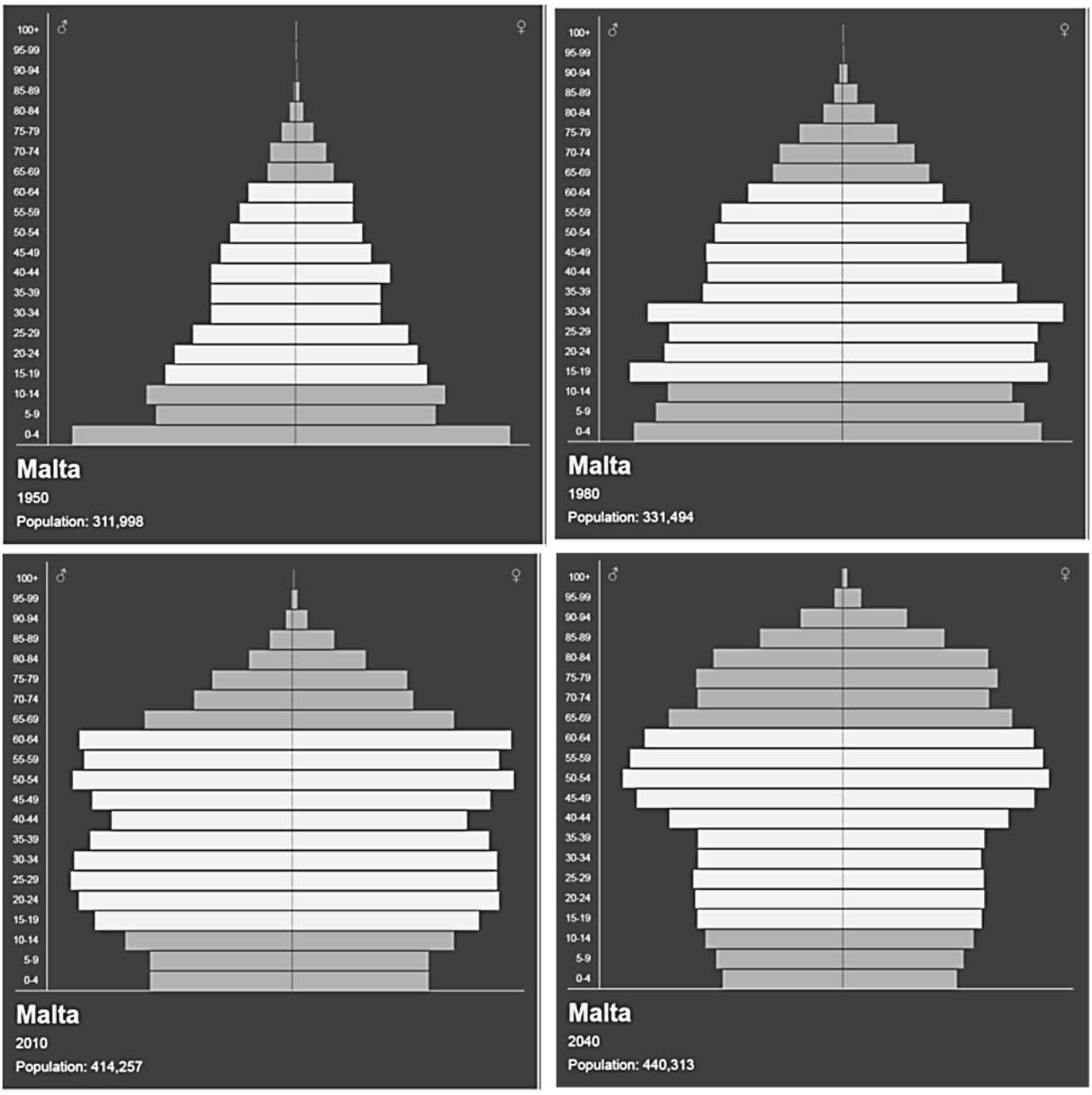

Figure 4: Population pyramids for Malta 1950, 1980, 2010 and 2040.
(Source: https://population-pyramid.net/en/pp/malta)

(a) Define the term 'population pyramid'. (4)

(b) Describe, by making reference to the population pyramids, the changes in projection birth, death rate, and natural increase in the Maltese Islands between 1950 and projected 2040. (12)

(c) Explain the potential economic and environmental related pressures associated with the population pyramid projected for 2040. (9)

(Total: 25 marks)

Please turn the page.

7. (a) Sketch a diagram to illustrate the concept of a Settlement Hierarchy. (5)
   (b) Identify **TWO** settlements in the Maltese Islands which are good examples of different levels of the Settlement Hierarchy and discuss their main characteristics. (8)
   (c) Discuss **TWO** main problems of major cities in:
      i. developed and; (6)
      ii developing countries. (6)

8. Table 1 shows the main type of crops grown on arable land within the Maltese Islands.

Table 1: Distribution of arable land (ha) by type and region

Type of arable land	**Malta**	**%**	**Gozo and Comino**	**%**	**Total for Maltese Islands**	**%**
Total arable land	**6,565**	**100.0**	**2,402**	**100.0**	**8,967**	**100.0**
of which:						
Potatoes	659	10.0	30	1.3	**689**	7.7
Flowers and seeds	22	0.3	11	0.5	**34**	0.4
Forage plants	3,340	50.9	1,950	81.2	**5,290**	59.0
Fallow land	816	12.4	142	5.9	**959**	10.7
Vegetables	1,728	26.3	268	11.2	**1,996**	22.3

(Source: Farm Structure Survey 2013)

   (a) Describe the main differences in arable crop types between the island of Malta and the islands of Gozo and Comino, as shown in Table 1. (5)
   (b) Identify and explain the differences between pastoral agriculture and arable agriculture and give examples of **each** type of farming activity. (10)
   (c) Discuss **TWO** major problems associated with the agricultural industry in Malta. (10)

(Total: 25 marks)

9. (a) What is the Demographic Transition Model (DTM)? (5)
   (b) Sketch a labelled diagram to illustrate the different stages of the DTM. Explain **each** stage and identify **ONE** country for **each** stage. (15)
   (c) Briefly discuss the criticism of the DTM. (5)

(Total: 25 marks)

10. The topic of waste is not much loved. In the early 2000s the problem became clear in Malta when the term 'mini Magħtab' was local slang for any pile of rubbish. At the same time the authorities realised Magħtab could not grow any higher. Malta's 'mountain' had literally reached its peak. (Camilleri-Fenech, 2018)

   (a) Identify and discuss **TWO** major issues that are associated with waste in Malta. (10)
   (b) Discuss what is being done in Malta to improve the waste problem. (10)
   (c) Identify and explain possible ways in which waste can be considered a resource. (5)

(Total: 25 marks)