L-Università ta' Malta

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**ADVANCED MATRICULATION LEVEL
2022 SECOND SESSION**

SUBJECT:	**Geography**
PAPER NUMBER:	I
DATE:	29th August 2022
TIME:	9:00 a.m. to 12:05 p.m.

Answer **FOUR** questions in total. Questions carry 25 marks each.

1. Figure 1 shows the synoptic weather chart of 25th January, 2021.
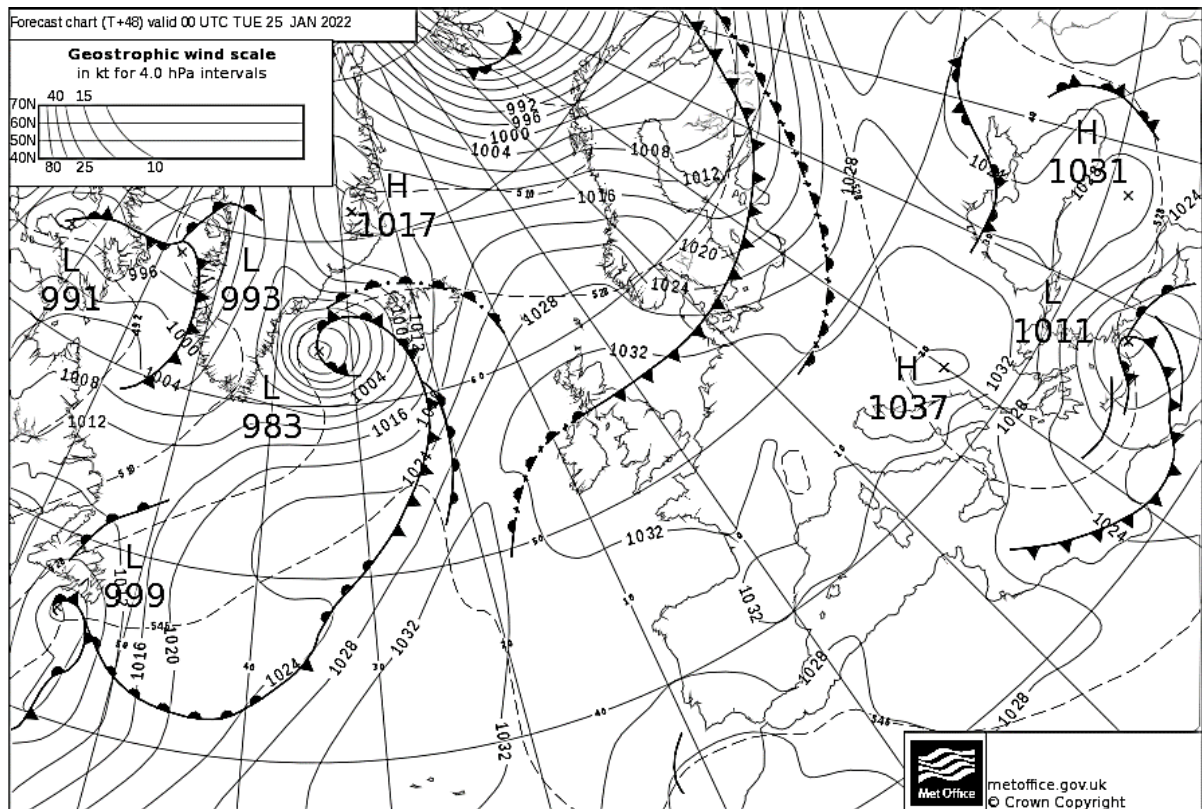

Figure 1: Synoptic weather chart of 25.01.2022
(Source: Met Office, UK, 2022)

(a) With specific reference to the weather chart symbols used in Figure 1, describe the atmospheric system prevailing over Western Europe and the Atlantic Ocean. (16)

(b) With reference to atmospheric processes, describe the weather conditions that have developed over the Western Mediterranean. (9)

(Total: 25 marks)

2. (a) With the help of a labelled diagram, name the main divisions of the internal structure of the Earth and describe their physical characteristics. (13)

   (b) Landform formation on the Earth's outer layer is highly connected to tectonic processes happening internally within the Earth. Explain this statement in relation to:
   (i) mid-ocean ridges; and
   (ii) rift valleys. (12)
   (Total: 25 marks)

3. Figure 2 (a) and (b) show some coastal constructional landforms at Drakes Estero Estuary in California.

Figure 2: Drakes Estero estuary outlet at the Point Reyes National Seashore, California.
(Source: National Park Service, nps.gov.com)

With the aid of a labelled diagram/s, describe the physical characteristics and coastal processes responsible for **TWO** constructional landforms illustrated in Figure 2 (a) and (b). (25)

4. A high percentage of the river's energy is lost to transport and deposit large quantities of sediment load present in the channel.

   (a) How is sediment load generated in a river and how does velocity along a river course influence its load transport? (13)

   (b) With the help of an annotated diagram, describe the origin and physical characteristics of the **THREE** types of sediment load present in a river channel. (12)
   (Total: 25 marks)

5. (a) Name and describe the properties of the **THREE** main types of soil on the Maltese Islands. Explain how geological and climatic factors have influenced their formation. (15)

   (b) The long-term sustainability and conservation of the Maltese soils is increasingly under threat. Discuss the main factors that are threating the conservation of soils in the Maltese Islands. (10)
   (Total: 25 marks)

6. Figure 3 illustrates how physical processes contribute to the origin of the three categories of rocks on Earth. With reference to Figure 3, name the **THREE** rock categories labelled A, B and C, and describe how these are classified according to the physical processes which contributed to their origin. (25)
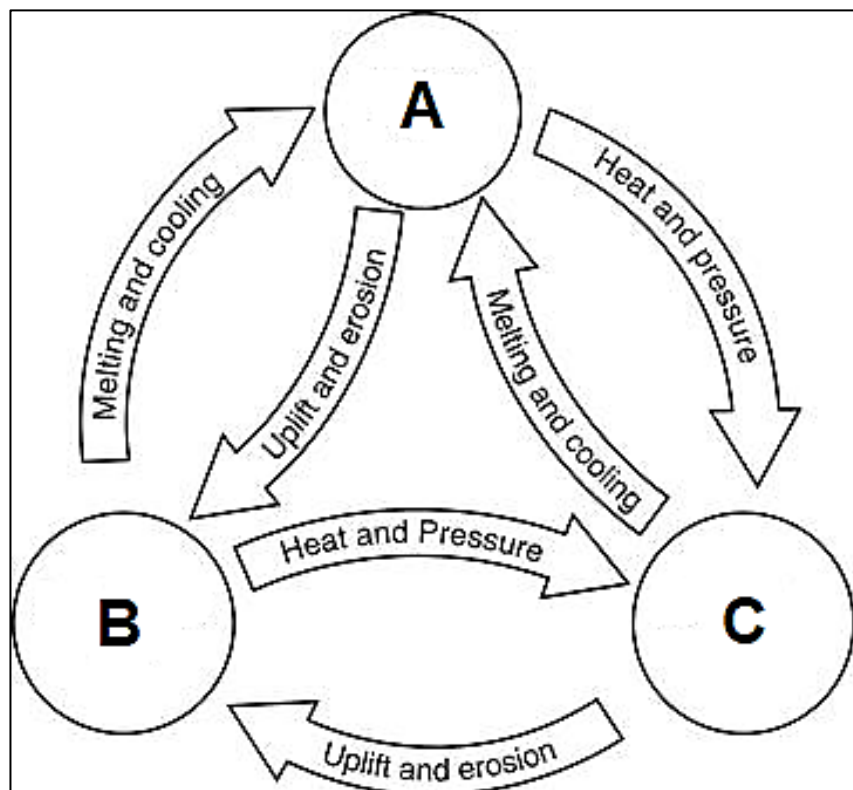

Figure 3: Development of the three rock categories.
(Adapted from: http://www.science-scene.org/)

Please turn the page.

7. The coastal scree slopes (rdum) of the Maltese Islands are designated as areas of high protection and conservation.

   (a) With reference to **TWO** locations, explain the geological and geomorphological processes responsible for the development of coastal scree cliffs in the Maltese Islands. (13)

   (b) Discuss **THREE** specific environmental measures/legislations under which coastal scree cliffs are protected. (12)

   (Total: 25 marks)

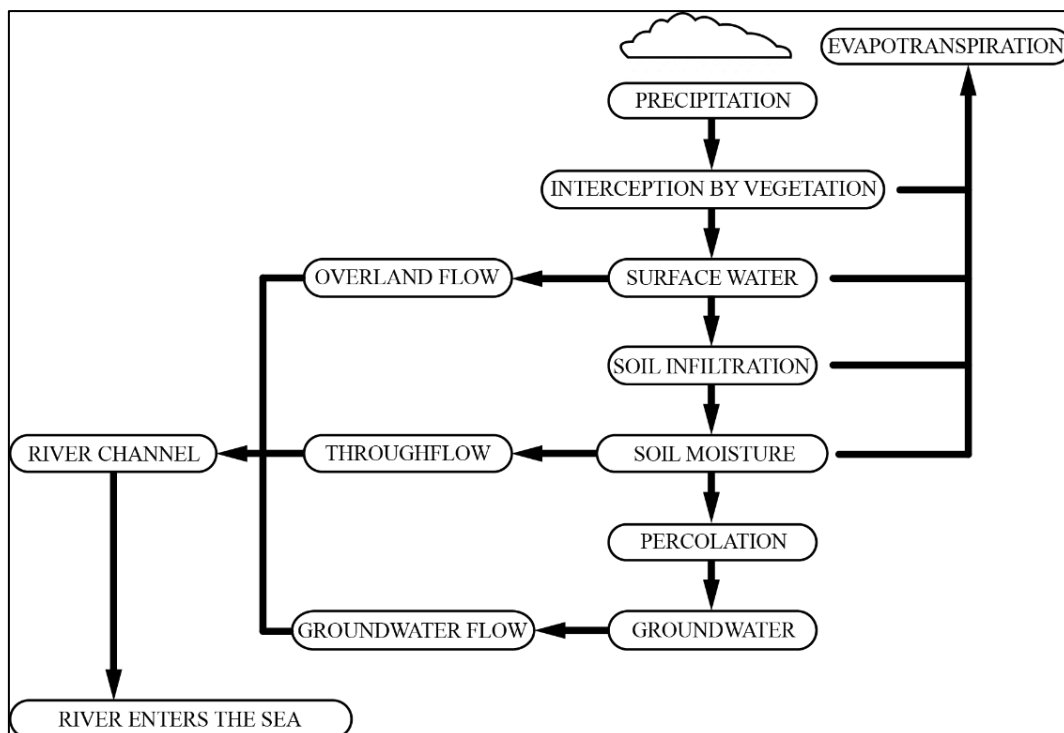8. Figure 4 is a system diagram of a drainage basin.

Figure 4: Drainage basin system
(Adapted from: http://www.bbc.co.uk/scotland/education.gif)

   (a) Explain the term 'system diagram' and describe the purpose of using such a type of diagram in geography. (6)

   (b) How can weather seasonality influence the water flow system in a drainage basin? (10)

   (c) Explain **THREE** ways by which human activity can affect the time taken for water to pass through the drainage basin system. Give reasons for your answer. (9)

   (Total: 25 marks)

L-Università
ta' Malta

SUBJECT:	**Geography**
PAPER NUMBER:	II
DATE:	30th August 2022
TIME:	9:00 a.m. to 12:05 p.m.

Answer **FOUR** questions in total. Questions carry 25 marks each.

1. Figure 1 shows the distribution of households by household size and region for 2014 and 2019.
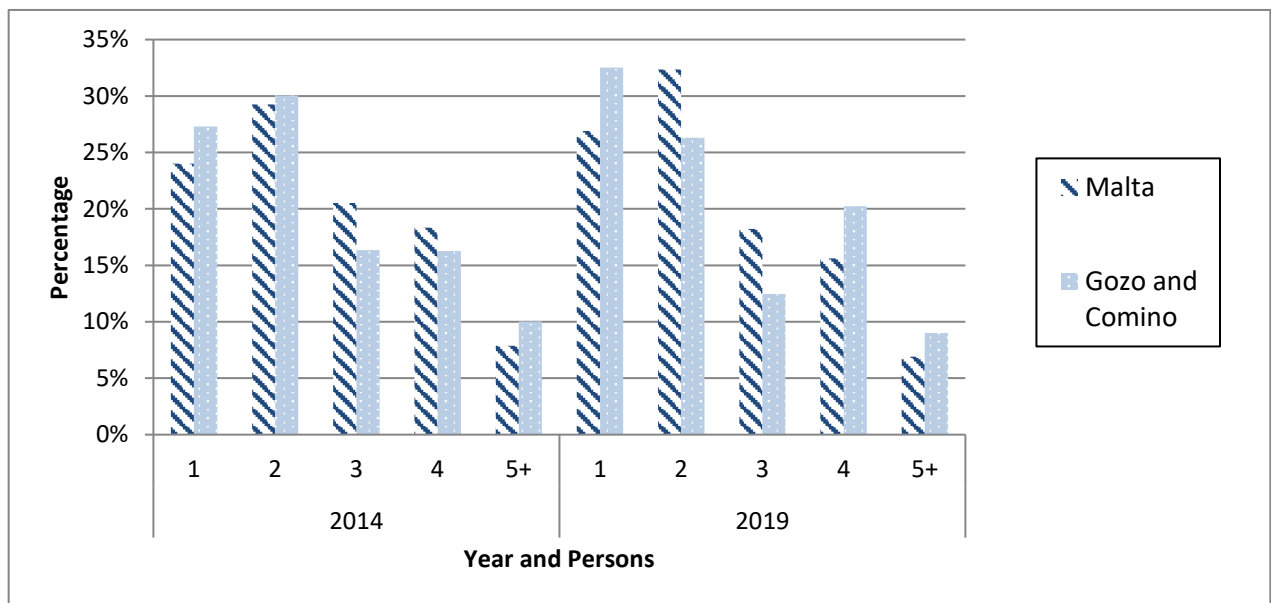

Figure 1: Distribution of households by household size and region in 2014 and 2019
(*Adapted from: https://nso.gov.mt/*)

(a) Explain the principal findings of Figure 1. (6)

(b) Table 1 on page 2 shows the number of households across the six districts in the Maltese Islands in 2019.

    (i) Describe the purpose of a Lorenz Curve and explain how it can be used with reference to the data in Table 1. (4)

    (ii) Work out the rank, number of households percentage and the cumulative percentages of the data in Table 1. Show all your workings. (8)

    (iii) Using the result obtained for the cumulative percentages in part (bii), plot a Lorenz curve, and comment on the results. (7)

This question continues on next page.

Households by region in 2019	
District	**Number of households**
Southern Harbour	31,940
Northern Harbour	66,892
South Eastern	27,462
Western	22,292
Northern	34,837
Gozo and Comino	13,260

Table 1: Households by region in 2019
(*Adapted from: NSO Regional Statistics Malta 2021 Edition*)

(Total: 25 marks)

2. Figure 2 shows the EU catches by marine fishing area in 2019, through the percentage of total live weight caught in each fishing area.
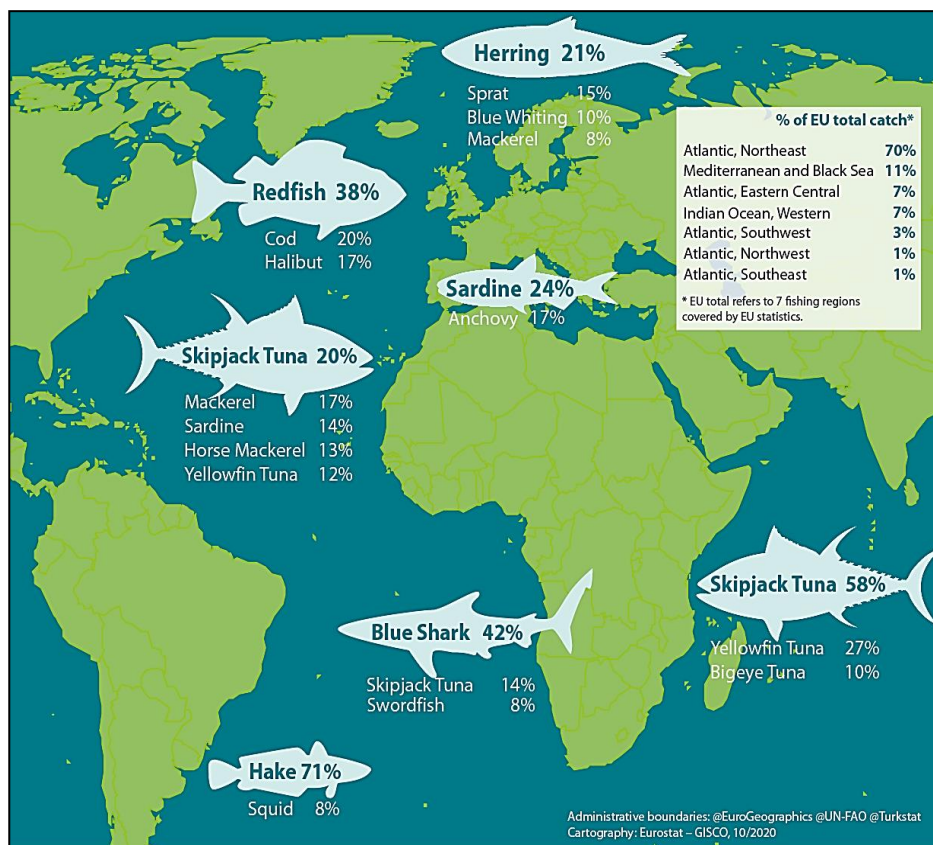

Figure 2: EU catches by marine fishing area in 2019 (% of total live weight caught in each fishing area)
(*Source: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20201016-3*)

(a) Describe the main findings of Figure 2. (5)

(b) Discuss **THREE** environmental concerns associated with the dumping of fish waste in the sea. (6)

(c) Together with the problem of fish waste disposal, there are several other environmental concerns linked with the fishing industry. Briefly explain **THREE** common practices used to manage fisheries. (6)

(d) Describe the principal purpose and concepts of the Common Fisheries Policy (CFP). (8)
(Total: 25 marks)

3. The availability of energy has transformed the course of humanity over the last few centuries. Not only have new sources of energy been unlocked – first fossil fuels, followed by a diversification to nuclear, hydropower and now other renewable technologies – but also in the quantity we can produce and consume. *(Ritchie and Roser, 2020)*

(a) Describe how non-renewable energy consumption varies across the globe. (5)

(b) Define the concept of 'energy resource combination' and briefly outline the benefits that can arise from such a concept. (5)

(c) Describe **FIVE** ways how technology affected (and is affecting) resource use. You can refer to both developed and developing countries in your answer. (10)

(d) Briefly explain **FIVE** socio-economic advantages of renewable energy. (5)
(Total: 25 marks)

4. (a) With the help of a diagram, describe Butler's tourist resort life-cycle model. Give **ONE** example where such a model can be applied with respect to the development of a coastal holiday resort. (15)

(b) There are several multiplier effects associated with the tourism sector. Explain the 'multiplier effect' concept and provide **THREE** examples to support your answer. (10)
(Total: 25 marks)

5. Throughout the years, different geographers have developed models of land use to give a better understanding of structure and segregation in urban areas. One such example is the Burgess Model developed in 1924.

(a) Define the term segregation, and list **TWO** factors that cause segregation in urban areas. (6)

(b) Using a sketch diagram, explain the key concepts of the Burgess Model. (9)

(c) The Burgess model was built from Burgess's observations of several American cities, notably Chicago. List **FIVE** assumptions of this model. (5)

(d) Describe **FIVE** limitations of the model with reference to its applicability in the contemporary world. (5)
(Total: 25 marks)

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6. Figure 3 is a diagram of the importance of the primary, secondary, tertiary and quaternary sectors of the economy in countries at different levels of development and changes observed over time and space.
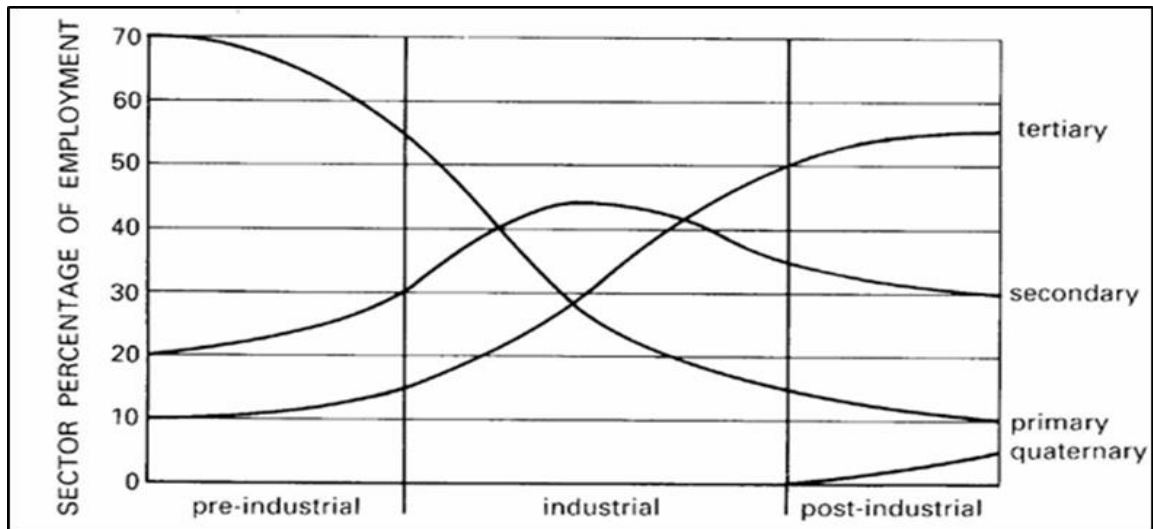

Figure 3: Clarke-Fisher Model
(*http://www.cram.com/flashcards/gcse-geography-unit-2-5907202*)

(a) Explain the changes in employment in the different sectors of the economy in time as shown by Figure 3. (5)

(b) Discuss the applicability of Myrdal's model in the different sectors of the economy. (6)

(c) List and describe **FOUR** environmental impacts resulting from the secondary sector of the economy. (8)

(d) Define the quaternary sector of the economy. Give **TWO** examples of employment within this sector and discuss its relevance within the Maltese economy. (6)

(Total: 25 marks)

7. Figure 4 shows Grohnde Nuclear Power Plant in Germany.

Figure 4: A nuclear energy power plant in Grohnde, Germany.
(*Source: https://www.nuklearesicherheit.de/en/nuclear-facilities*)

(a) Define nuclear energy and explain its main usage. List **TWO** countries where nuclear energy is commonly used. (5)

(b) Outline **FOUR** factors that affect the location of nuclear power plants. (8)

(c) Discuss **TWO** positive and **TWO** negative issues associated with nuclear power plants.(8)

(d) Explain the role of the International Atomic Energy Agency (IAEA). (4)

(Total: 25 marks)

8. In 2020, we observed the largest one-year debt surge since World War II, with global debt rising to $226 trillion as the world was hit by a global health crisis and a deep recession (International Monetary Fund, 2021).

(a) Explain the concept of international debt and discuss the key factors that make international debt a problem. (20)

(b) Briefly explain the significance of the World Trade Organisation (WTO). (5)

(Total: 25 marks)