



SUBJECT:	<b>Geography</b>
PAPER NUMBER:	I
DATE:	13 <sup>th</sup> May 2024
TIME:	9:00 a.m. to 12:05 p.m.

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

1. In early January 2024, Denmark, Norway and Sweden were hit by extreme cold weather and snowfall. *"It isn't possible to see the door. This is absolutely crazy,"* said Ellen Brunborg, principal at Grimstad secondary school in Norway, to NRK broadcaster, whilst shoveling snow in search of the staff entrance to her school.

([www.courthousenews.com](http://www.courthousenews.com))



Figure 1: Pedestrians fight their way through the snowstorm in Norway on Wednesday, Jan. 3, 2024. Temperatures at  $-40^{\circ}\text{C}$  continued to be recorded in the Nordic region with a 25-year-old record for January night being recorded in the Swedish Arctic.

(Source: Tor Erik Schroder/NTB Scanpix)

- (a) Describe the physical conditions which contribute to the occurrence of extreme snowfall events in the Northern European regions. (12)
- (b) The prediction and management of extreme snowfall events is a critical aspect in ensuring public safety, maintaining infrastructure functionality and minimising disruptions to daily life. Discuss the prediction and management techniques available to achieve such goals. (13)

**(Total: 25 marks)**

***Please turn the page.***

2. Plate tectonics is a fundamental concept in understanding Earth's geological processes. Rift valleys are landforms that serve as a good example to illustrate the dynamic nature of the Earth's structure.
- (a) With reference to the plate tectonics theory, explain the process of rift valley formation. Illustrate your answer with the help of an annotated diagram and reference to examples. (15)
- (b) The formation of fold mountains is associated with specific plate margins. With reference to **TWO** active fold mountain ranges, explain their formation. (10)

**(Total: 25 marks)**

3. Figure 2 illustrates a series of raised beaches and a present storm beach ridge at Turakirae Head, near Wellington, New Zealand.



Figure 2: Turakirae Head, Wellington, New Zealand.  
(Source: [teara.govt.nz](http://teara.govt.nz))

- (a) Define the term raised beach. (5)
- (b) Explain the physical processes responsible for the formation of raised beaches, using annotated diagrams to support your explanation. (10)
- (c) With reference to the specific example shown in Figure 2, discuss the geomorphological features and the importance of raised beaches in understanding past sea-level changes. (10)

**(Total: 25 marks)**

4. (a) Define drainage density. (3)
- (b) Discuss the significance of drainage density as an indicator of **ONE** morphological characteristic and **ONE** hydrological characteristic of a drainage basin. (10)
- (c) Discuss **THREE** ways how climate change may alter drainage density in a drainage basin over time. (12)

**(Total: 25 marks)**

5. (a) Examine how soil pH and soil texture impact the following **TWO** biosphere processes:
- i. the role of soil texture in nutrient retention; and (8)
  - ii. the influence of soil pH on soil horizon development. (8)
- (b) Discuss **THREE** ways how soil properties may affect soil fertility. (9)

**(Total: 25 marks)**

6. A 2020 study by the Swiss Re Institute named Malta in the top five countries at risk of ecosystem collapse as a result of a decline in biodiversity services.
- (a) Discuss the primary causes of biodiversity decline in Malta and examine its impacts on **both** terrestrial and marine ecosystems. (9)
- (b) Name and describe **FOUR** strategies implemented in Malta to mitigate issues of habitat degradation and ensure biodiversity protection. (16)

**(Total: 25 marks)**



SUBJECT:	<b>Geography</b>
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Answer **FOUR** questions in total. Questions carry 25 marks each.

1. Over 70% of EU citizens live in urban areas that generate 23% of all transport greenhouse gas emissions. Several initiatives propose measures to develop sustainable urban transport systems.

(a) What is sustainable urban mobility? (5)

(b) Explain how the introduction of the Controlled Vehicular Access (CVA) System in Valletta aimed to reduce car use. (5)

(c) The Malta public transport carried a record 6.5 million passengers by bus in October 2023. (<https://timesofmalta.com>)  
Discuss the above statement with reference to recent developments in the Maltese public transport system. (7)

(d) Discuss government incentives for the integration of electric vehicles in Malta's transportation network. (8)

**(Total: 25 marks)**

2. "Data reveals 7% of tropical primary rainforest has been lost since the turn of the century. In 2022, the world lost 4.1 million hectares of tropical primary rainforests — areas of critical importance — equivalent to a rate of 11 football pitches a minute."

(*World Resources Institute, 2023*)

(a) Explain why tropical forest resources are important. (8)

(b) With reference to **ONE** named tropical rainforest, discuss **THREE** negative environmental consequences of deforestation. (9)

(c) Discuss **FOUR** ways to effectively manage tropical forests. (8)

**(Total: 25 marks)**

3. The Green Revolution transformed 20<sup>th</sup> century agriculture and rural economies of developing countries.

(a) Define the Green Revolution. (4)

(b) Describe **THREE** successes of the Green Revolution. (6)

(c) Discuss **FIVE** negative environmental impacts that resulted from the Green Revolution in developing countries. (15)

**(Total: 25 marks)**

***Please turn the page.***

4. Fish landings are the catches of marine fish landed in foreign or domestic ports. Figure 1 shows the fish landings by EU/EEA vessels on EU/EEA territory in 2021 and 2022 in terms of quantity (top) and value (bottom).

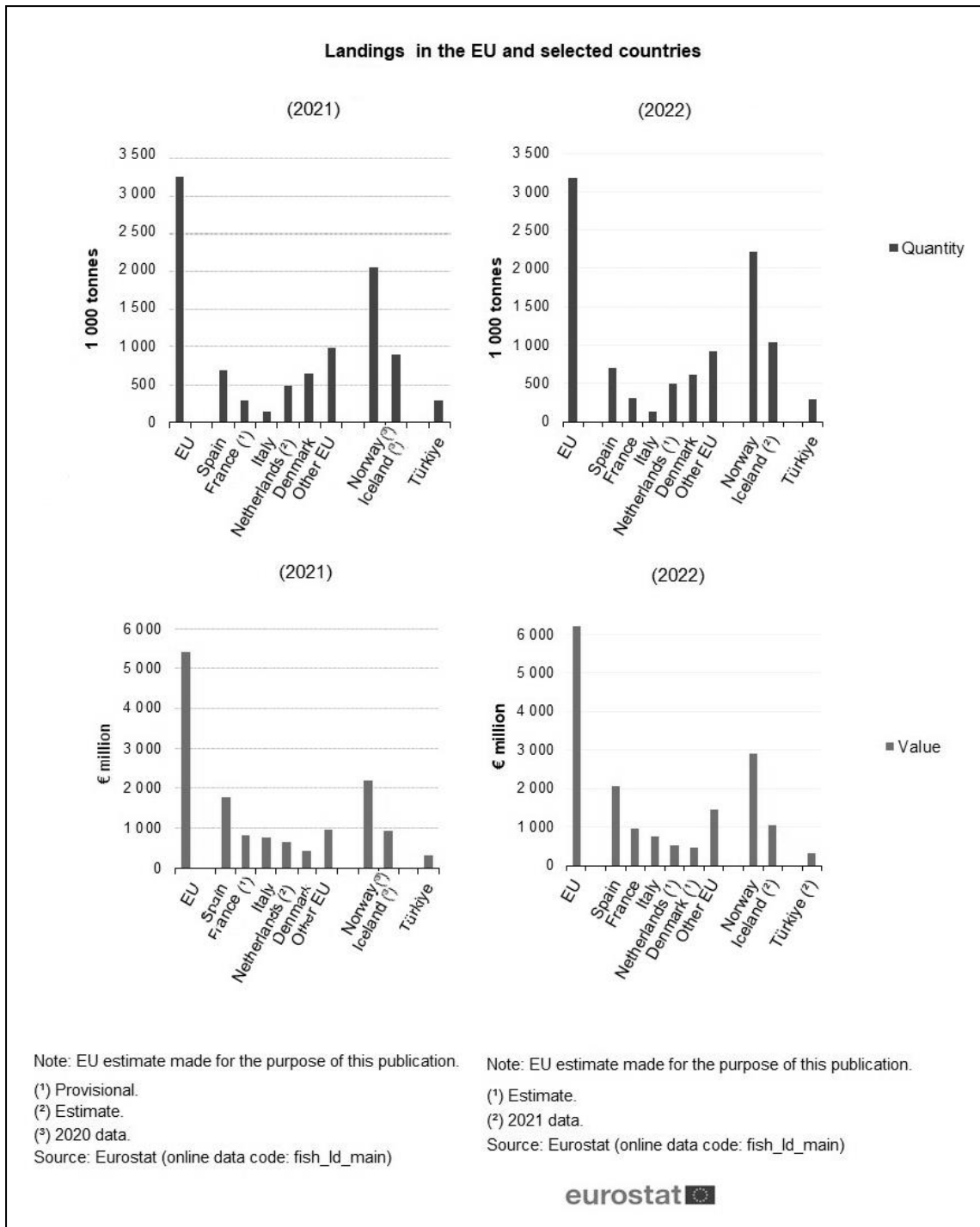


Figure 1: Fish landings by EU/EEA vessels on EU/EEA territory in 2021 and 2022 for quantity (top) and value (bottom). (Adapted from: <https://ec.europa.eu/eurostat/statistics-explained>)

- (a) Interpret the key findings from the graphs shown in Figure 1. (8)
- (b) Name the EU’s main policy on fishing, and explain its major concepts. (8)
- (c) The total output generated by the aquaculture industry in Malta in 2022 grew by 40.7% over the output recorded in 2021 (NSO, 2023). Discuss this statement in relation to **THREE** environmental impacts of the aquaculture industry in the Maltese Islands. (9)

**(Total: 25 marks)**

5. Myrdal's cumulative causation concept finds practical application within the tourism industry.
- (a) Describe Myrdal's concept of cumulative causation. (5)
- (b) Explain the applicability of Myrdal's concept of cumulative causation in the tourism industry and provide **TWO** examples to support your answer. (7)
- (c) Discuss the relevance of Myrdal's cumulative causation concept in the context of fostering sustainability within the tourism industry. (7)
- (d) Explain the role the European Union (EU) has in supporting sustainable tourism. (6)

**(Total: 25 marks)**

6. Table 1 shows the municipal waste generated in Malta by year and type of waste.

Table 1: Malta's municipal waste generation by year and waste type

<b>Municipal waste type</b>	<b>2020</b>	<b>2021<sup>1</sup></b>	<b>2022</b>
	(in tonnes)		
Paper and cardboard	19,536	19,196	16,308
Plastic	2,726	2,752	2,834
Metals	2,061	1,875	1,712
Glass	7,096	7,412	8,316
Wood	8,884	9,079	7,877
Waste electrical & electronic equipment <sup>2</sup>	3,052	3,366	2,875
Mixed packaging	29,367	28,256	27,774
Mixed municipal waste	149,219	151,135	166,420
Bulky waste	68,067	56,528	58,095
Bio-waste - garden and park	4,737	4,175	4,692
Bio-waste - kitchen and canteen	27,859	24,556	22,589
Clothes and textiles	1,475	1,835	1,172
Other <sup>2</sup>	7,063	6,157	7,730
<b>Total</b>	<b>331,142</b>	<b>316,324</b>	<b>328,394</b>
<sup>1</sup> Revised			
<sup>2</sup> Includes hazardous waste.			
Note: Totals may not add up due to rounding.			

(Adapted from: <https://nso.gov.mt/municipal-waste-2022-2/>)

- (a) With reference to Table 1 above, describe the major trends in municipal waste generation from 2020 to 2022. (5)
- (b) Describe **FOUR** current waste collection methods in the Maltese Islands. (8)
- (c) Discuss the importance of waste separation at source. (7)
- (d) Over 204 million beverage containers were collected in the first year of operation of Malta's national Beverage Container Refund Scheme (BCRS) which commenced in November 2022.

(<https://bcsmalta.mt>)

- Evaluate the success and implications of this recycling initiative in the Maltese Islands. (5)

**(Total: 25 marks)**