



SUBJECT:	Geography
PAPER NUMBER:	I
DATE:	14 th December 2020
TIME:	4:00 p.m. to 7:05 p.m.

Answer **FOUR** questions in total. Questions carry equal marks.

1. The oceans regulate seawater temperature and density around the world through a global system of oceanic circulation, as illustrated in Figure 1.

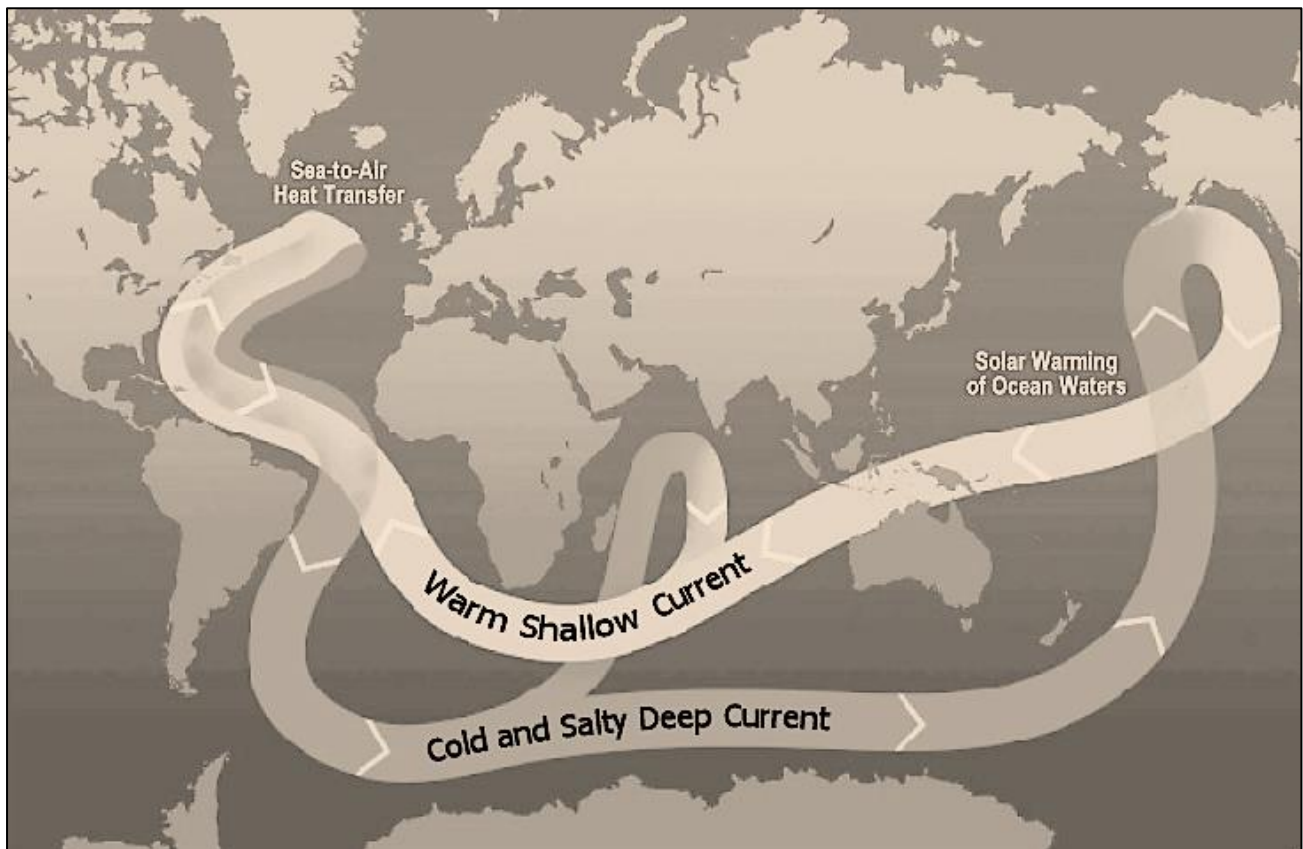


Figure 1: Global system of oceanic circulation.
(Source: https://energyeducation.ca/encyclopedia/Thermohaline_circulation)

- (a) With reference to Figure 1, name and explain the physical processes responsible for the development of this type of global oceanic circulation. (9)
- (b) In what way does global oceanic circulation affect global climate? (10)
- (c) Climate change is projected to impact on this type of global oceanic circulation. Explain **TWO** potential impacts driven by climate change on oceanic circulation. (6)

2. (a) Define soil 'catena' and with the help of an annotated diagram, explain the physical factors which are responsible for the development of this phenomenon. (15)
 - (b) Why is a soil catena considered to be an 'open system'? (10)
3. Figure 2 illustrates how beach profiles are dynamic resilient landforms which adjust quickly to changing conditions brought by annual seasonal trends.

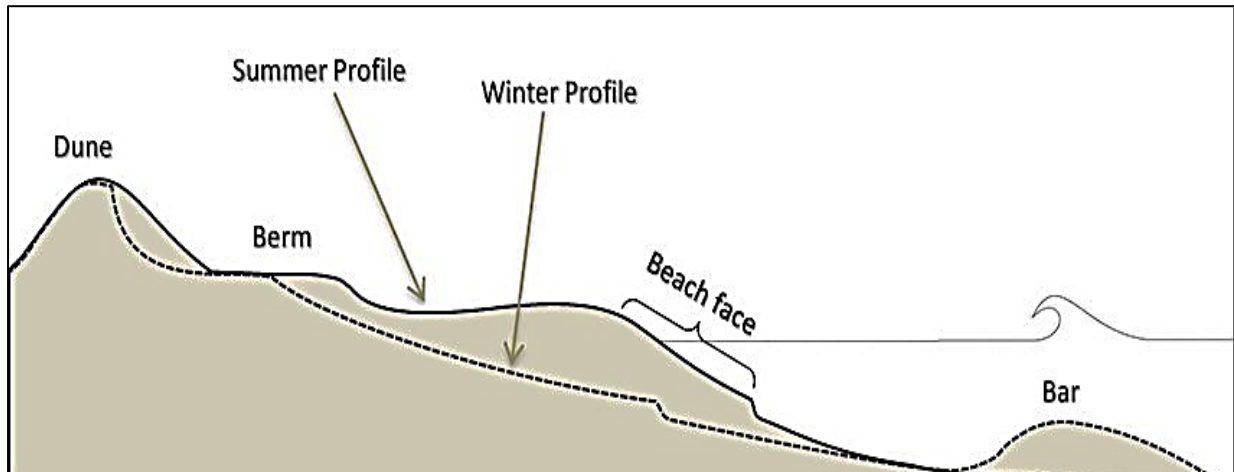


Figure 2: Changing beach profile due to seasonal trends.
(Source: Adapted from Psuty et al., 2018)

- (a) With reference to Figure 2, define the following terms:
 - (i) beach profile; (2)
 - (ii) berm; (2)
 - (iii) dune. (2)
- (b) Describe the physical processes responsible for the change of the beach profile between the summer and winter seasons. (10)
- (c) With reference to the Maltese Islands, discuss the factors (natural and/or anthropogenic) which have contributed to loss of beach material on the islands. Provide **THREE** examples to substantiate your answer. (9)

4. The response of a river discharge to a precipitation event is frequently illustrated in a hydrograph, such as the one displayed in Figure 3. River discharge response depends on a number of physical and human characteristics present in the river basin.

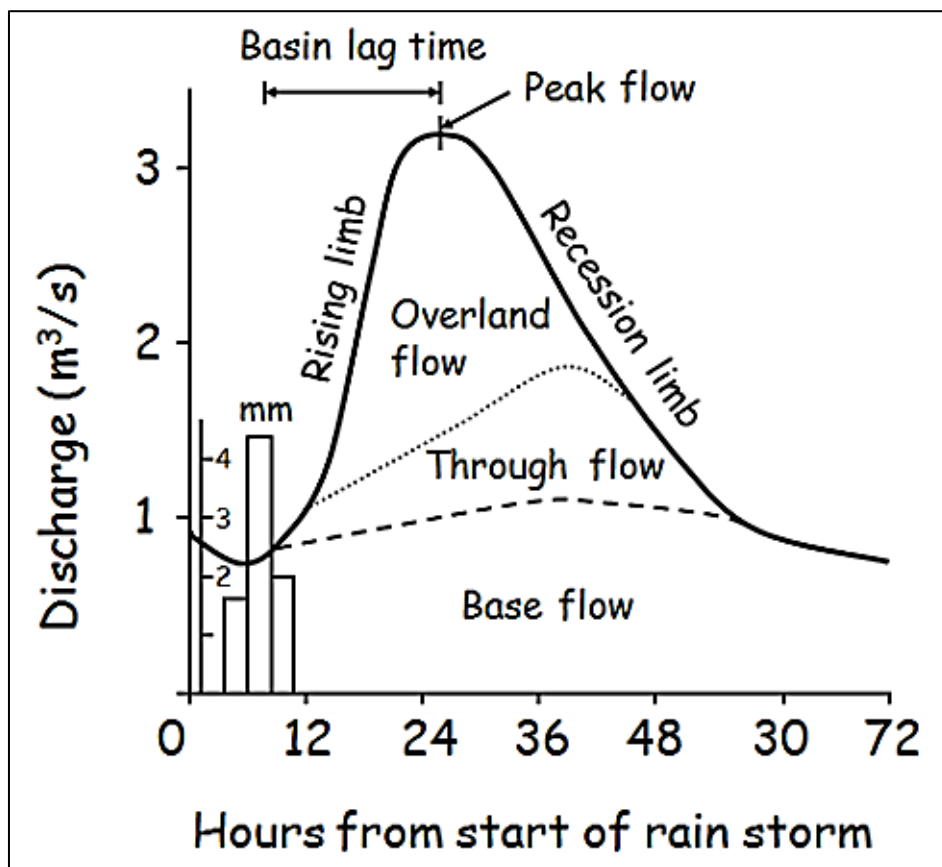


Figure 3: A storm hydrograph
 (Source: <https://www.jkgeography.com/river-discharge.html>)

- (a) With the help of simplified sketches, illustrate and discuss the discharge response in river basins with the following characteristics:
 - (i) an elongated basin shape; (8)
 - (ii) a circular basin shape. (8)

- (b) Discuss **THREE** types of anthropogenic activities in the river basin that can impact the discharge of a river. (9)

Please turn the page.

5. Across the Maltese Islands, 28.5% of the land area is covered by one (or more) designations of protected areas. Included in this is 13.1% (over 41km²) of the land area which forms part of the EU Natura 2000 Network of protected areas. Furthermore, 35.5% of Maltese Waters (4,138km²) have been designated as marine protected areas (Environment and Resource Authority, 2016).

With reference to the above statement, discuss with examples the functions of the following protected areas or legislation:

- (a) Natura 2000 sites; (5)
 - (b) Special Areas of Conservation (SACs); (5)
 - (c) Marine Protected Areas (MPAs); (5)
 - (d) Special Protection Areas (SPAs); (5)
 - (e) Habitats Directive. (5)
6. The choice of irrigation methods in arid and semi-arid regions is a challenging and complex one (Figure 4). The Food and Agriculture Organisation (FAO) states that 'There is, altogether, no "best system" for various crops, soils and farm unit sizes. The aim should be not the "best system" but a spectrum of options that may be appropriate for the circumstances'. (FAO, 2019)



Figure 4: Water saving irrigation in Israel's Negev Desert
(Source: Adapted from FAO, 2019)

- (a) Describe challenging circumstances for irrigation development in arid and semi-arid regions. (8)
- (b) How can sustainable management of water storage and water quality minimise these challenges? (8)
- (c) Discuss how irrigation is an important means of development in arid and semi-arid regions. (9)



SUBJECT:	Geography
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DATE:	15 th December 2020
TIME:	4:00 p.m. to 7:05 p.m.

Answer **FOUR** questions in total. Questions carry equal marks.

1. As cities have grown in area and population in the 20th century, geographers and sociologists have tried to identify and explain variations in spatial patterns. Urban models have been put forward to provide explanations for such patterns. Two of these were the Burgess Model in 1924 and the Hoyt Model in 1939. Burgess based his model on Chicago whilst Hoyt based his model on eight housing variables for 142 cities in the United States of America.

- (a) List the **FIVE** land uses shown in Figure 1. (5)

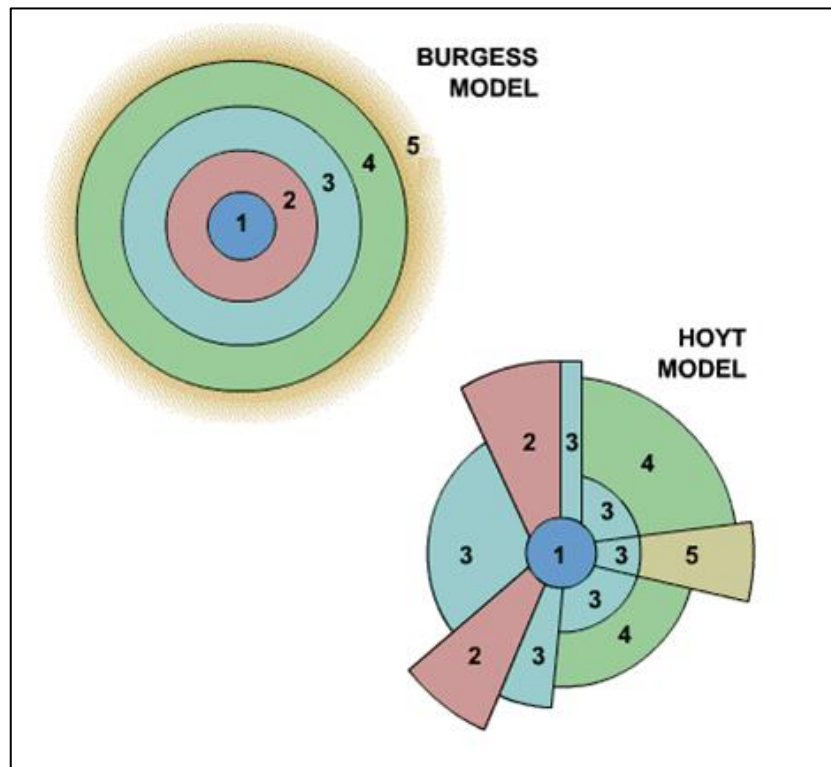


Figure 1: Burgess and Hoyt Model
(<https://14yonena.wordpress.com/2012/04/19/urban-land-use-models-2/>)

- (b) List **TWO** assumptions that are applicable for both models and another **TWO** assumptions that specifically apply for the Hoyt model. (4)
- (c) Describe the key characteristics of the Hoyt model. (8)
- (d) Explain the most important criticism and limitations of the Burgess model. (8)

2. Figure 2 shows the fish landings in selected countries and in EU-28 in 2017.

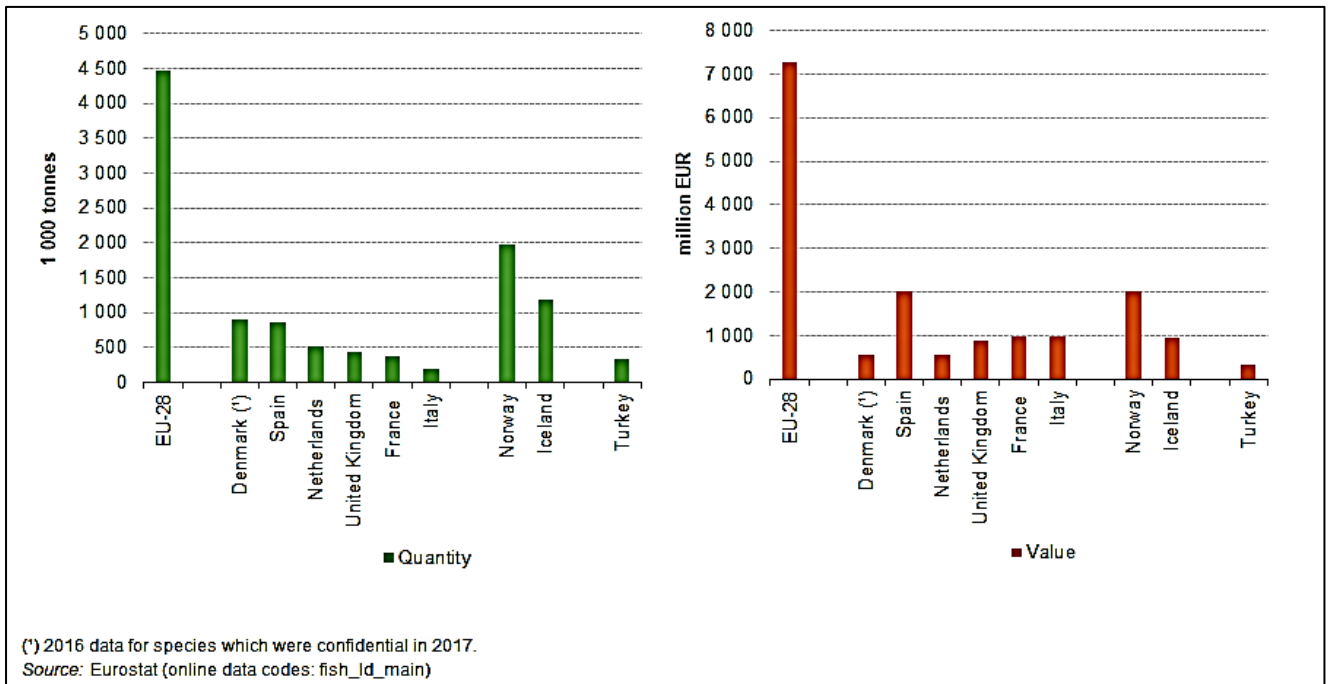


Figure 2: Fish landings in EU-28 and other selected countries in 2017
 (https://ec.europa.eu/eurostat/statistics-explained/index.php/Fishery_statistics#Landings)

- (a) Explain the term 'fish landings'. (3)
- (b) Interpret the key findings of Figure 2. (4)
- (c) Explain **THREE** environmental consequences of commercial fishing practices. (6)
- (d) List **TWO** common practices to manage fisheries. (4)
- (e) Discuss the key purpose and concepts of the Common Fisheries Policy (CFP). (8)

3. Health inequities are systematic differences in the health status of different population groups. These differences arise from inequalities within and between societies (WHO, 2019).

(a) Interpret the main findings of Figure 3. (7)

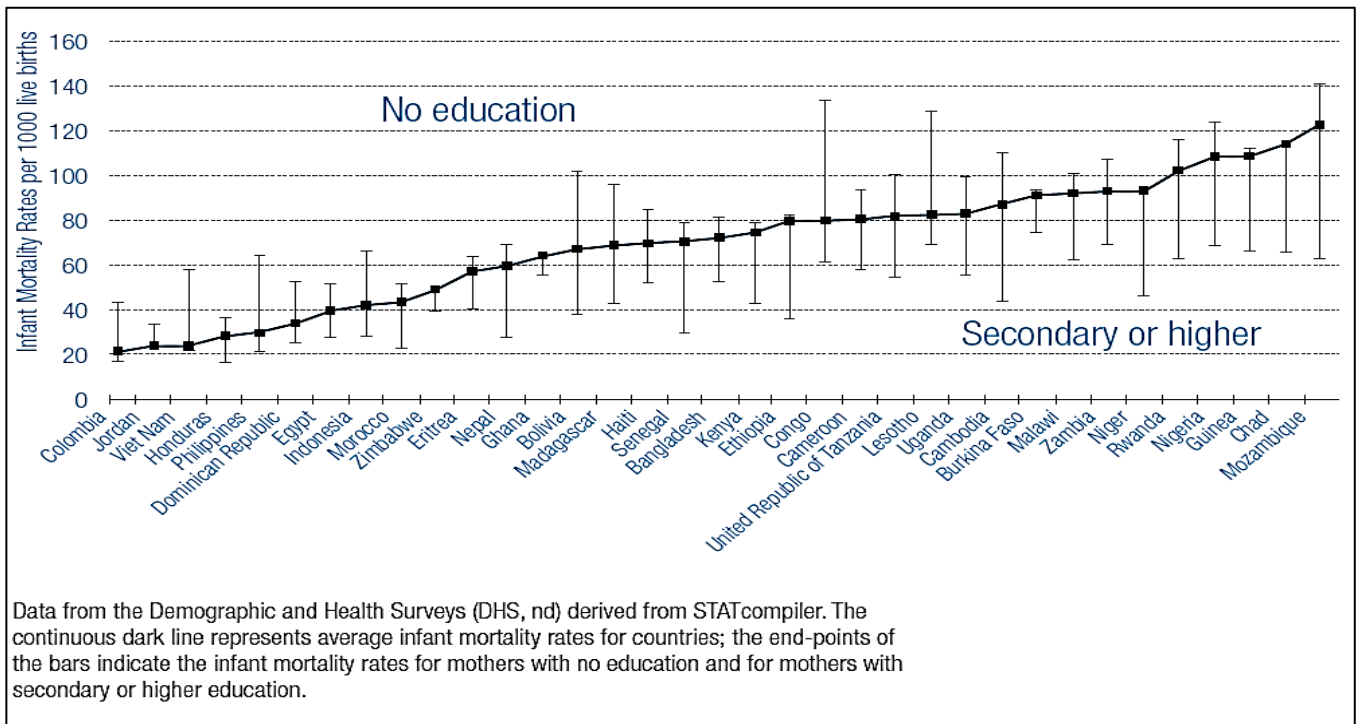


Figure 3: Inequity in infant mortality rates between countries and within countries by mother's education (WHO, 2008).

(b) In addition to education levels, discuss **THREE other** drivers of health inequities. (9)

(c) Discuss **THREE** impacts of globalisation on global health. (9)

Questions continue on next page

4. Logging is the process of cutting and processing trees to produce timber to supply the world's markets for furniture, construction and other products. The practice of logging ranges from large-scale commercial timber plantations to individuals harvesting fuelwood. (Yale School of Forestry and Environmental Studies, 2020)

(a) Describe the key findings in Table 1 below. (5)

	Growing stock (2015)		Net annual increment (2010) in forest available for wood supply
	Timber in Forests and other wooded land	Forest available for wood supply	
	1,000m³ over bark		
EU28	26,035,561	23,148,685	744,198
Belgium (*)	168,121	170,060	4,610
Bulgaria	699,000	492,000	14,361
Czechia	791,244	670,898	20,463
Denmark	125,697	115,701	6,263
Germany	3,663,000	3,492,665	118,590
Estonia	483,500	425,500	11,514
Ireland (*)	74,698	104,000	6,678
Greece (*) (**)	205,771	170,385	4,511
Spain	1,214,079	943,981	35,479
France (*)	2,596,749	2,697,000	82,871
Croatia	420,790	388,770	8,144
Italy (*)	1,448,300	1,285,958	32,543
Cyprus (*)	10,514	3,556	47
Latvia	666,900	616,100	19,680
Lithuania	518,100	418,000	11,030
Luxembourg (*)	25,961	25,756	650
Hungary (*)	355,709	330,680	9,775
Malta (*) (**)	80		0
Netherlands	80,900	64,700	2,738
Austria	1,155,000	1,121,000	25,136
Poland	2,540,000	2,190,000	62,300
Portugal (*)	187,800	154,000	19,087
Romania	1,935,300	1,293,368	29,260
Slovenia	422,000	393,900	9,165
Slovakia	532,100	439,600	13,465
Finland	2,327,748	2,099,415	93,379
Sweden	2,995,500	2,389,692	79,347
United Kingdom (*) (**)	380,000	652,000	23,113
(*) 2010 data for growing stock in forests and on other wooded land (**) 2010 data for growing stock in forest available for wood supply Net annual increment:			

Table 1: Timber Resources
(Adapted from Eurostat, 2019)

(b) Describe **THREE** benefits and **THREE** negative consequences of using timber as a resource. (12)

(c) Discuss **TWO** ways how timber can be managed in a more sustainable manner. (8)

5. Table 2 shows the direction of trade for Malta in 2017 and 2018.

	January-December (€ million)					
	2017			2018		
	Arrivals/ Imports	Dispatches/ Exports	Balance of Trade	Arrivals/ Imports	Dispatches /Exports	Balance of Trade
Europe	3,870.3	1,496.9	-2,373.5	4,427.1	1,575.2	-2,852.0
<i>of which:</i>						
European Union	3,298.9	1,424.9	-1,874.0	4,025.7	1,479.2	-2,546.5
<i>of which:</i>						
United Kingdom	403.0	78.5	-324.5	499.3	61.1	-438.2
Euro Area	2,673.2	1,176.1	-1,497.1	3,315.2	1,195.2	-2,119.9
<i>of which:</i>						
Italy	1,233.1	399.9	-833.2	1,394.9	321.3	-1,073.6
Germany	423.5	402.6	-20.9	439.2	420.7	-18.5
Spain	238.5	53.2	-185.3	307.7	51.7	-256.0
France	229.9	238.0	8.1	293.8	268.8	-25.0
Greece	138.6	6.6	-132.1	238.5	8.0	-230.5
Netherlands	198.1	23.7	-174.4	284.7	73.8	-210.9
Asia	947.5	640.7	-306.9	920.4	594.1	-326.3
<i>of which:</i>						
China	200.3	37.7	-162.7	221.0	32.2	-188.8
India	130.3	12.8	-117.5	142.4	11.4	-131.0
Kazakhstan	1.0	0.1	-0.9	17.0	0.0	-17.0
Israel	124.1	2.7	-121.4	119.4	2.0	-117.4
Japan	62.9	141.6	78.6	66.8	150.1	83.3
North and Central America	506.3	184.2	-322.1	267.2	173.3	-93.9
<i>of which:</i>						
United States of America	254.9	144.1	-110.8	192.0	141.2	-50.9
Canada	244.8	26.3	-218.5	72.9	19.3	-53.6
Africa	284.7	586.2	301.5	258.9	449.9	191.0
<i>of which:</i>						
Egypt	138.4	160.1	21.7	99.5	75.5	-24.0
Australia and Oceania	34.9	7.7	-27.1	14.1	5.6	-8.5
South America	38.3	8.4	-29.9	54.8	46.7	-8.1
Notes:						
1. Arrivals/Dispatches relate to transactions with EU Member States.						
2. Imports/Exports relate to transactions with Non-EU Member States						
3. Totals may not add up due to rounding.						

Table 2: Direction of trade for Malta in 2018 and 2018
(adapted from NSO, 2019)

(a) Describe the key trends in the direction of trade for Malta as shown in Table 2. (6)

(b) Define the terms 'visible trade' and 'invisible trade'. (4)

(c) Explain the situation and applicability of 'visible trade' and 'invisible trade' in Malta. (5)

Question continues on next page

(d) Describe the key local transport developments in the past decades that have helped trade in Malta. (6)

(e) Briefly explain the role of the World Trade Organisation (WTO). (4)

6. Figure 4 shows the prevalence of severe food insecurity by region in 2016.

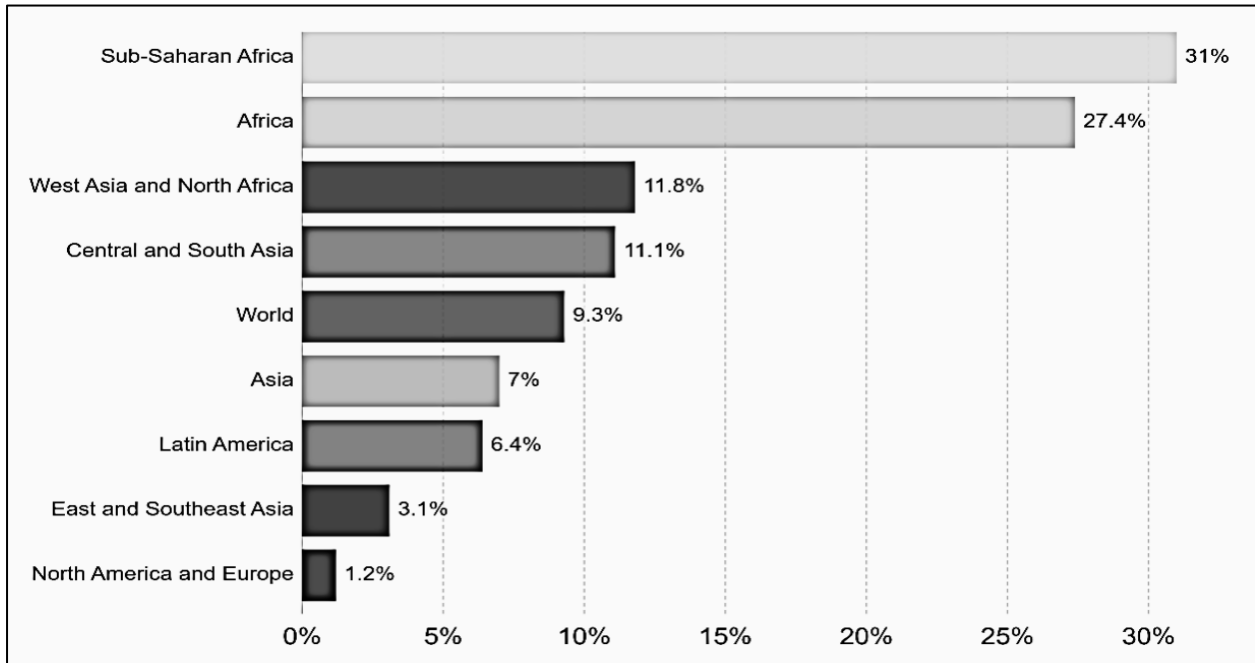


Figure 4: The prevalence of severe food insecurity in 2016
 (https://ourworldindata.org/hunger-and-undernourishment)

(a) Define the term 'food insecurity'. (2)

(b) Discuss the key findings of Figure 4. (3)

(c) Discuss **THREE** factors that drive food insecurity. (6)

(d) Aid programmes are a potential resource to tackle the problem of food insecurity.

(i) Explain **TWO** types of aid programmes. (4)

(ii) Briefly describe **THREE** problems associated with aid programmes. (6)

(e) Explain the role that the World Bank has in aiding food insecurity. (4)