



L-Università
ta' Malta

MATSEC
Examinations Board



Marking Scheme

IM Geography

First Session 2024

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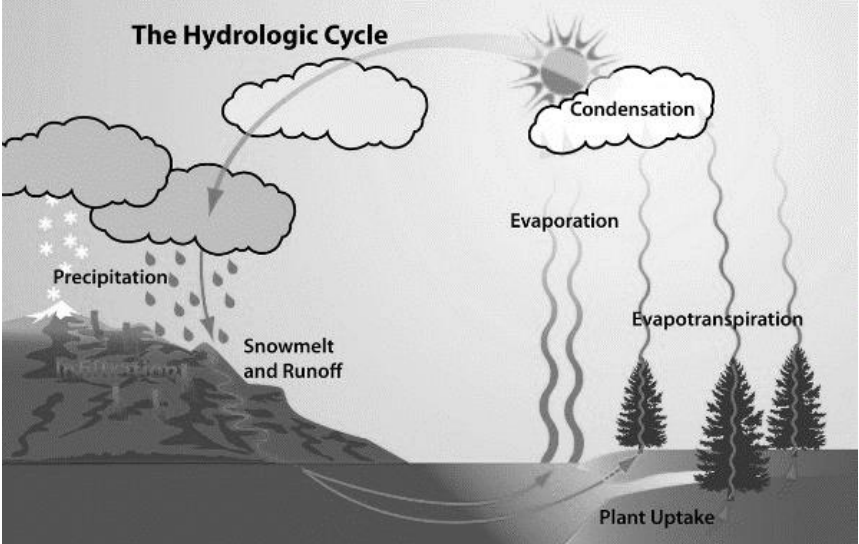
In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with the MATSEC Examinations Board when in doubt.

SECTION A

Question Number			Answer	Remarks	Mark
1	a	i	A depression is an area of low pressure. It is often formed at the boundary between warm and cold air masses and forms a wedge of warm air inside the cold air mass. These wedges are the result of oscillations in the lower atmosphere but are often governed by upper air circulation patterns, including Rossby waves. These pockets of relatively warm air masses travel generally westwards under the influence of the temperate westerly wind system. The forward edge of the warm air mass forms a warm front while the cold front marks the trailing edge of the depression. Fronts are characterised by unstable weather resulting in precipitation.		5
		ii	Areas of high pressure are called anticyclones. An anticyclone is formed when a high-pressure region is surrounded by low pressure areas. These high pressure zones are often the result of air descending from higher elevations. Anticyclones typically result in stable, fine weather, with clear skies.		5
	b	i	Isobars are lines on a weather map that show where the air pressure is the same. They are usually spaced by 4 millibars. When isobars are close together, it means there are strong winds, and when they are far apart, it means there are light winds. Isobars also show high and low pressure areas.		3
		ii	If you face along an isobar or contour with lower pressure on your left, wind will be blowing in the direction you are facing. On a surface map, wind will cross the isobar at an angle toward lower pressure because of the frictional drag of the Earth's surface; on an upper air chart, it will be parallel to the contour.		3
		iii	When isobars are close together, it signifies a steep pressure gradient and strong winds. Conversely, widely spaced isobars indicate a gentle pressure gradient and lighter winds. Areas where isobars form closed loops indicate high-pressure systems (anticyclones) or low-pressure systems (cyclones).		3
	c		The Central Mediterranean is dominated by a high-pressure system bringing calm conditions and sunny skies. On the other hand, northern Europe is dominated by an intense, well-developed, low-pressure system located over the Baltic Sea. This is bringing cold moderate to strong winds over the Scandinavian peninsula and even north-western Europe. Another low-pressure system is developing off the Norwegian coast and this is expected to migrate towards northern Europe over the next days.		6
	Total: 25 Marks				

2	a	<p>Core – inner core is solid while the outer core is semi-liquid. Largely composed of nickel and iron.</p> <p>Mantle – Largely plastic in character. Composed of rocks rich in silica and magnesium. Thermal currents within the mantle are responsible for crustal plate movement.</p> <p>Crust – rigid and brittle in character. Composed largely of rocks rich in silica and aluminium. The crust is broken into a series of plates which move under the influence of thermal currents in the mantle below it.</p>	3 marks x 3	9
	b	The heat from radioactive processes within the planet's interior causes the plates to move, sometimes toward and sometimes away from each other. This movement is called plate motion, or tectonic shift.		4
	c	The Mediterranean Basin is dominated by the subduction of the African plate underneath the Eurasian plate. This prevails mostly in the Eastern Basin while the Western Basin is more complicated where fragments of plates have been displaced through divergent and compressive forces.		8
	d	<p>Any TWO of the following:</p> <ul style="list-style-type: none"> • Submarine trenches (e.g. off the southern coast of Crete); • Mountain ranges (Alps, Apennines, Atlas, Rif systems); • Volcanos above or below sea level (Etna, Stromboli, Vesuvius, Vulcano, Marsili, Santorini, etc.); • Faulting systems (several examples even from Malta). 	2 marks x 2	4

Total: 25 Marks

3	a	 <p style="text-align: center;"><i>WordPress.com</i></p>		5
	b	i	<p>Precipitation patterns are expected to change substantially over the next few decades. Some regions will gain precipitation while others shall experience drought. The main problem is that such events will probably become prolonged resulting in widespread drought and, conversely, flooding in prone areas.</p>	5

	ii	Increased global temperatures will accelerate evapotranspiration causing stress to entire biomes. Marginal areas dominated by insufficient precipitation will shift permanently to fully arid conditions and become official deserts. The water vapour content in the atmosphere should lead to greater heat retention and greater unpredictability. Extreme climatic events, however, can be expected. In some localities, evapotranspiration may result in greater incidence of convectional, highly intense rainfall.		5
	iii	Intense rainfall will result in heavier surface runoff. In such cases, there will be less time for rainwater to enter into groundwater through infiltration. The expected decrease in vegetation cover will also result in less interception of falling rainfall and reduced uptake by the roots of such vegetation.		5
	c	Describe any ONE of the following: <ul style="list-style-type: none"> • Save energy at home. Much of our electricity and heat are powered by coal, oil and gas. • Change your home's source of energy. • Walk, bike or take public transport. • Switch to an electric vehicle. • Consider your travel. • Reduce, reuse, repair and recycle. 		5
Total: 25 Marks				
4	a	Deforestation refers to the decrease in forest areas across the world that are lost for other uses such as agricultural croplands, urbanization, or mining activities. Greatly accelerated by human activities since 1960, deforestation has been negatively affecting natural ecosystems, biodiversity, and the climate.		3
	b	Soil erosion is a gradual process of movement and transport of the upper layer of soil (topsoil) by different agents - particularly water, wind, and mass movement - causing its deterioration in the long term.		2
	c	Some of the points to be discussed: <ul style="list-style-type: none"> • Deforestation is a major cause of soil erosion, perhaps the main cause. • Trees and their roots provide the soil with an anchor, as well as shelter from the wind and rain. • When forests are wiped out, the land becomes exposed, leaving it vulnerable to being washed or blown away by elements. 		12
	d	Description of any THREE of the below: <ul style="list-style-type: none"> • Afforestation; • Crop Rotation; • Terrace Farming; • Dams; 		8

- Shelter / Wind Breakers;
- Embankments.

Total: 25 Marks

SECTION B

Question Number	Answer	Remarks	Mark																																																								
5	<p>a</p> <table border="1"> <thead> <tr> <th>District</th> <th>1921</th> <th>1957</th> <th>1967</th> <th>1985</th> <th>2005</th> <th>2011</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>Southern Harbour</td> <td>79,000</td> <td>91,000</td> <td>88,000</td> <td>87,000</td> <td>81,000</td> <td>79,000</td> <td>86,000</td> </tr> <tr> <td>Northern Harbour</td> <td>52,000</td> <td>105,000</td> <td>103,000</td> <td>114,000</td> <td>119,000</td> <td>120,000</td> <td>157,000</td> </tr> <tr> <td>South Eastern</td> <td>20,000</td> <td>37,000</td> <td>35,000</td> <td>42,000</td> <td>59,000</td> <td>64,000</td> <td>78,000</td> </tr> <tr> <td>Western</td> <td>24,000</td> <td>36,000</td> <td>36,000</td> <td>45,000</td> <td>57,000</td> <td>58,000</td> <td>65,000</td> </tr> <tr> <td>Northern</td> <td>15,000</td> <td>23,000</td> <td>24,000</td> <td>32,000</td> <td>57,000</td> <td>64,000</td> <td>94,000</td> </tr> <tr> <td>Gozo and Comino</td> <td>23,000</td> <td>28,000</td> <td>26,000</td> <td>26,000</td> <td>31,000</td> <td>31,000</td> <td>39,000</td> </tr> </tbody> </table> <p>This diagram is utilising colour to denote the different census districts. Candidates may not have used colours during the examination and would have offered monochrome trendlines. This would be perfectly acceptable.</p>	District	1921	1957	1967	1985	2005	2011	2021	Southern Harbour	79,000	91,000	88,000	87,000	81,000	79,000	86,000	Northern Harbour	52,000	105,000	103,000	114,000	119,000	120,000	157,000	South Eastern	20,000	37,000	35,000	42,000	59,000	64,000	78,000	Western	24,000	36,000	36,000	45,000	57,000	58,000	65,000	Northern	15,000	23,000	24,000	32,000	57,000	64,000	94,000	Gozo and Comino	23,000	28,000	26,000	26,000	31,000	31,000	39,000	5 marks x 2	10
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b	<p>Candidates are expected to describe the population increases and dips in the population per district through the years. They are to describe the relative increase and decrease in population in comparison to the other districts.</p>		10																																																								
c	<p>Description of any ONE of the below.</p> <p>In the case of a natural increase in population:</p> <ul style="list-style-type: none"> • Promotion of family planning measures; • Empowerment of women through education; • Government economic dis/incentives aimed at restricting family sizes; • Promotion of emigration. <p>If population increase is through immigration:</p> <ul style="list-style-type: none"> • Restriction in the issue of visas and residency permits to third country nationals (non EU); 		5																																																								

		<ul style="list-style-type: none"> • If the immigration is illegal it has to be addressed by enforcement and political discussions with countries of origin for possible repatriation; • If immigration is composed of refugees and asylum seekers, relocation to other EU countries may be achieved through burden-sharing agreements. 		
Total: 25 Marks				
6	a	<p>Candidates may commence with a brief discussion of the geophysical context of the harbour areas as a fine example of a ria coast providing a series of deep sheltered creeks. This enabled the development of a maritime tradition dependent on trade since early antiquity.</p> <p>In addition to this, Malta’s strategic location controlling the central Mediterranean Sea-lanes, made the islands indispensable to any naval power hoping to control the Mediterranean. Malta’s strategic value was further enhanced by the completion of the Suez Canal which resulted in a substantial rise in maritime traffic linking Europe (especially Great Britain) to Asia. This led to an economic boom for Malta. Most people were employed in work related to economic activities around the Grand Harbour e.g., port workers. The development of the fortress economy resulted in the expansion of the dockyards and the rise of a skilled labour force dependent on ship repair. These workers demanded residences close to their source of employment such that the population of the Three Cities increased substantially. Post-war reconstruction occurred along the peripheries stretching out of the densely populated areas taking up lands which were previously rural in character. Fgura is an example of this process and now links the Three Cities to Haz Zabbar.</p> <p>A similar process occurred on the western part of the Grand Harbour but this was more focused on the development of the services sector (primarily tourism). Settlements around the Grand Harbour sprawled and merged to become one whole conurbation.</p>		10
	b	<p>A discussion on any TWO problems of the below:</p> <ul style="list-style-type: none"> • pressure on utilities; • increased waste; • pressure on the transport system; • increased pollution levels. 	5 marks x 2 Accept other correct problems	10
	c	<p>A brief explanation on any ONE of the below:</p> <ul style="list-style-type: none"> • engage in sustainable mobility; • reduce single car use; • manage waste and promote recycling; • provide alternative sources to utilities e.g., more than one energy source; • use renewables and promote water recycling through the management of sewage systems; 	Accept other correct solutions	5

		<ul style="list-style-type: none">• Monitor and control pollution levels through dis/incentives.		
				Total: 25 Marks

7	a	<p>Hard stone and soft stone. Candidates need highlight the differences between the two.</p> <p>Hard stone quarries mine the dense crystalline Lower and Upper Coralline Limestones (Zonqor and Qawwi ta' Fuq). They often use explosives to loosen the rock face and crush the regolith into gravel and sand utilised by the construction industry in concrete slurries. Hard stone locations: Mellieha, Mosta, Gharb, Qala, Qrendi, Zurrieq.</p> <p>Soft stone quarries use Globigerina Limestone (Franka) which they cut into building blocks of regular sizes. No explosives are used. The blocks are cut by large mechanical saws. Soft stone locations: Gharb, Mqabba, Zurrieq, Mosta, Naxxar.</p>	4 marks x 2	8
	b	<p>An explanation on any TWO of the below:</p> <ul style="list-style-type: none"> • utilisation of local materials; • contributes to the economy; • increased employment opportunities; • use of local skilled labour to work the stone. <p>A brief explanation should include how they are beneficial e.g., use of local material means that material is not imported, savings on logistical issues and expenses.</p>	4 marks x 2 Accept other correct benefits	8
	c	<p>An explanation on any ONE of the below:</p> <ul style="list-style-type: none"> • landscape eyesores; • environmental pollution including deteriorating air quality; • take up of arable land or natural land which is severely limited; • noise pollution especially where explosives are used; • damage to neighbouring properties through the use of explosives; • Heavy, dusty, lorries create problems along the roads leading to these quarries. 		5
	d	<p>A description of any ONE of the below.</p> <p>During operation:</p> <ul style="list-style-type: none"> • severe limitation or elimination of the use of explosives employed in hard rock quarrying operations; • the employment of low noise machinery; • proper enforcement of lorry load coverings which are currently poorly applied; • other dust abatement measures like wheel washing as lorries leave quarries; • compensate for the quarry area by planting trees in an area equivalent to the quarry size. <p>After decommissioning:</p> <ul style="list-style-type: none"> • The spent quarry should not be left as a gaping hole in the 		4

		<p>surrounding landscape but filled back by clean, inert waste from site excavations by the construction industry;</p> <ul style="list-style-type: none"> • Reduction of the negative impact on the landscape by the conversion of the quarry site into arable or horticultural land use. The site can also be converted into wild wooded areas as in Qortin in Gozo; • Wherever quarries are re-utilised as industrial zones, vigilance is required to prevent infiltration of hazardous chemicals leaching into groundwater. This can be achieved by creating sealed sumps which collect polluted stormwater runoff and by the application of protective membranes. 		
Total: 25 Marks				
8	a	<p>An explanation on any THREE of the below:</p> <ul style="list-style-type: none"> • leisure, e.g., agri-tourism, cultural tourism, sun and sea etc; • business and conference travel; • education; • sports tourism. <p>The candidate's explanation should include a brief description of what e.g., sun and sea involve, such as tourists visit because of the weather which makes Malta attractive nearly all year round with mild temperatures in Winter and hot temperatures in Summer. The Mediterranean Sea is warm, making the Maltese Islands an attractive venue for tourists.</p>	<p>3 marks x 3</p> <p>Accept other correct answers</p>	9
	b	<p>A discussion on any TWO of the below:</p> <ul style="list-style-type: none"> • pressure on utilities, • traffic congestion, • building more hotels, • waste management problems, • loss of culture due to tourist influence. <p>The candidate's discussion should include a brief description; e.g., pressure on utilities – an increase in population means that there will be more use of energy and there will be more pressure on the sewage systems.</p>	<p>5 marks x 2</p> <p>Accept other correct answers</p>	10
	c	<p>An explanation on any ONE of the below:</p> <ul style="list-style-type: none"> • reduce seasonality in tourist arrivals during the year; • advertise Malta to upmarket tourists who spend more but have lower numbers; • prepare utilities in advance for the peak periods; • improve the traffic system – introduce sustainable mobility practices; • prevent converting hotels into residences necessitating building of 	<p>Accept other correct answers</p>	6

Marking Scheme (First Session 2024): IM Geography

		new hotels; • improve waste management.		
				Total: 25 Marks