

Cambridge IGCSE[™]

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

800720941

ENVIRONMENTAL MANAGEMENT

0680/12

Paper 1 Theory

February/March 2022

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer all questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do not use an erasable pen or correction fluid.
- Do not write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [].

This document has 20 pages. Any blank pages are indicated.

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[Turn over

Section A

1 (a) Draw **one** line from each rock type to the correct rock classification.

One rock type has been done for you.

		rock type		rock classification	
		basalt			
				igneous	
		limestone			
		marble		metamorphic	
	:	sandstone			
		slate		sedimentary	
		Siale			[4]
(b)	Suggest w	vhy sedimentar	ry rocks can contain fossils.		
					[1]
(c)	Give reaso	ons why the ge	ology of an area affects the decision	on to extract rocks fro	om the ground.
					[2]
(d)	Strip minir	ng is an examp	le of surface mining.		[_]
	State one	other example	of surface mining.		
					[1]
					[Total: 8]

Fisl	Fishing is a major industry.						
(a)	(i)	Suggest two reasons why some fish are described as bycatch. 1					
		2					
		[2]					
	(ii)	A report stated that 72 billion kg of fish caught each year are bycatch. This is 40% of the total annual fish catch.					
		Calculate the total annual fish catch.					
		total annual fish catch kg [1]					
(b)	Exp	plain the negative impacts that net type and mesh size can have on fish stocks.					
	net	type					
	mes	sh size					
		[4]					
		[Total: 7]					

2

3 (a) In many countries, buildings need to be heated to make them comfortable to live in.

To reduce heat transfer to the surroundings, buildings are made using insulating materials.

The U-value is a measure of how quickly a building material transfers heat. A building material with a low U-value transfers heat slowly and is **more** insulating.

The table shows U-values for different building materials.

building material	U-value
brick wall	2.00
double-glazed window	2.20
single-glazed window	5.10
triple-glazed window	0.80
wooden door	3.00

Rank the building materials in order starting with the **most** insulating. One has been completed for you.

	rank	building material
most insulating	1	
	2	
	3	
	4	wooden door
least insulating	5	

-1	2	1
		4

(b) Insulation is one strategy for reducing energy consumption in buildings.

Suggest three other strategies for reducing energy consumption in buildings.

2	
3	

[3]

[Total: 5]

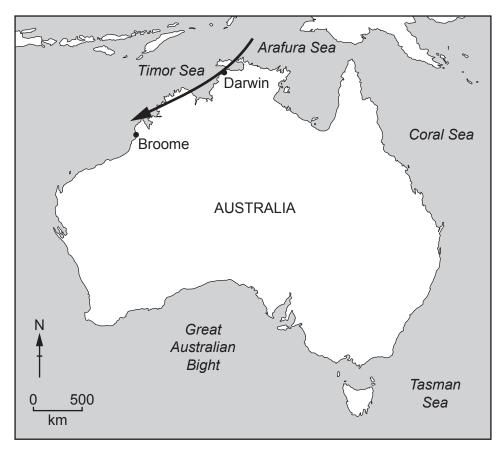
Section B

4 In March 2018, Cyclone Marcus affected part of Australia.

The route of this major tropical cyclone is shown on the map.

Key

direction of Cyclone Marcus



(a)	Describe the route of Cyclone Marcus using the map.					
	[3]					

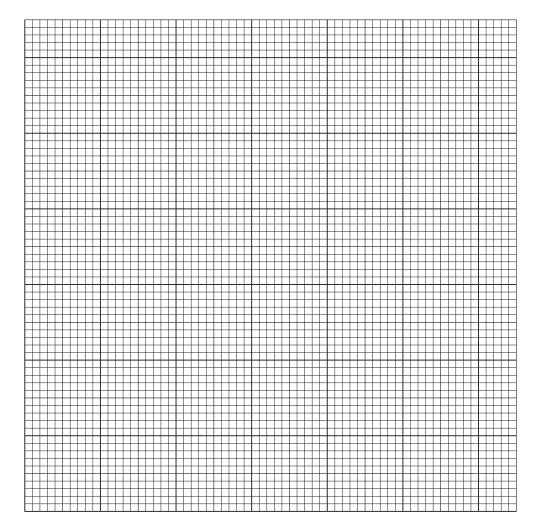
(b)	State the conditions required for a tropical cyclone to form.
	[3]
(c)	Cyclone Marcus was the most powerful tropical cyclone to affect the area in over 40 years. However, it caused no deaths.
	Suggest two impacts of Cyclone Marcus.
	1
	2
	[2]
(d)	Cyclone Marcus caused no deaths. A weaker tropical cyclone in Myanmar in 2008 caused over 135 000 deaths.
	Suggest reasons for the difference in the number of deaths between these two tropical cyclones.
	[4]

[Total: 12]

5 The table shows engine emissions data for medium-sized cars from one manufacturer between 1965 and 2017.

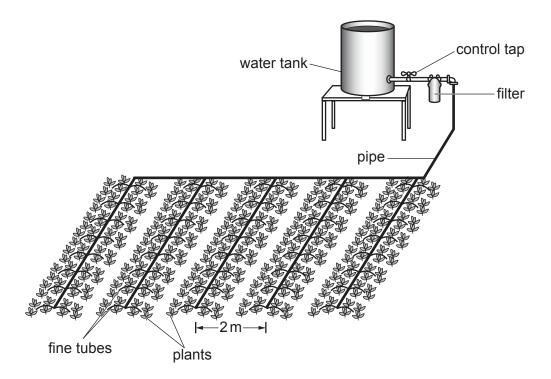
year of manufacture	hydrocarbon emissions /g perkm	carbon monoxide (CO) emissions /g perkm	oxides of nitrogen (NOx) emissions /gperkm
1965	14.16	140.1	5.8
1975	1.45	14.5	3.2
2003	0.01	2.3	0.2
2017	0.01	2.2	0.1

(a) (i) Plot a bar chart for the oxides of nitrogen (NOx) emissions.



	(ii) Use the table to estimate the percentage decrease in carbon monoxide (CO) emfor medium-sized cars manufactured in 2017 compared with 1965.								
		Circle one correct answer.							
			64%	70%	85%	98%	[1]		
	(iii)	The rate or years.	f reduction of er	ngine emissions	for medium-size	d cars has decrease	ed in recent		
		Suggest w	rhy.						
							[1]		
(b)		Some scientists think that reducing car engine emissions is not enough to reduce the level of air pollution in cities.							
Describe other strategies to reduce the level of air pollution caused b						nused by cars in a ci	ity.		
							[3]		
							[Total: 9]		

6 The diagram shows a trickle drip irrigation system.

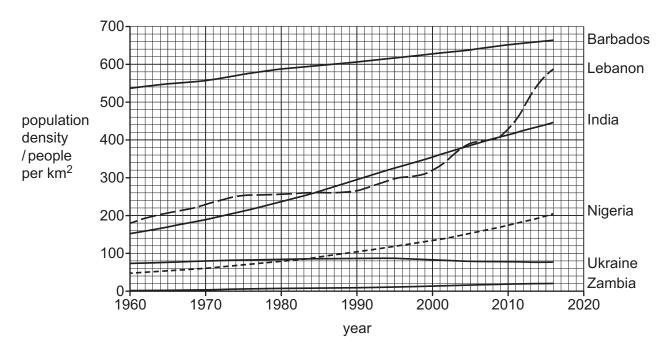


(a) (i) Describe the function of the components shown in the diagram.

control tap	
filter	
fine tubes	

	(ii)	Explain benefits of using trickle drip irrigation.	
		[4]
(b)	Mar	aging water supply is one way of increasing crop yield.	
(b)		aging water supply is one way of increasing crop yield.	
(b)			
(b)		cribe other ways of increasing crop yield.	

7 The graph shows the change in population density in six countries between 1960 and 2016.



(0)	/i\	State the na	ama of the	oountr.	that has:
(a)	(1)	State the na	ame of the	country	that has:

•	the greatest population density in 2016

•	the greatest increase in population density between 1960 and 2016.

(ii) Determine the change in population density in India between 1960 and 2016.

						[1]
(iii)	Suggest reasons for the changes in population 2016.	n density in	Ukraine	between	1990	and

[2]

.....[2

(b)	Bulgaria is a country in Europe. Bulgaria has a decreasing population.
	Suggest how a decreasing population can benefit the natural environment of Bulgaria.
	[5]
	[Total: 10]

8 The diagram shows a pyramid of numbers for an aquatic ecosystem.

birds and
/ mammals \
/ predator fish \
small fish
insects and zooplankton
phytoplankton

(a)	(i)	Use the diagram to identify:
		a producer

a primary consumer	
--------------------	--

[2]

(b) A local newspaper printed a safety announcement.

Important safety announcement

Scientific tests have found some predator fish from a local lake contain high concentrations of the toxic substance, mercury.

People are advised to reduce their consumption of these fish and find other sources of food.

The local lake water has been tested. Low levels of mercury were found in the water. The water meets current safety standards for concentrations of mercury.

Explain why the predator fish contain high concentrations of mercury.
[4

(c) The local lake was also sampled for four other toxic substances.

The table shows the concentration of the toxic substances in the lake water at different sample points around the lake.

	concentration of toxic substance				
sample point	chromium /arbitrary units	nickel /arbitrary units	cadmium /arbitrary units	lead /arbitrary units	
А	2.5	5.6	4.9	7.2	
В	2.1	6.4	3.2	5.2	
С	1.1	1.2	1.1	2.3	
D	1.2	1.4	1.0	1.1	
E	0.2	1.3	1.0	0.9	
F	0.3	1.0	1.0	0.7	
average concentration	1.2	2.8	2.0		

(i)	Complete the table to calculate the average concentration for lead in the lake.	[1]
(ii)	Identify the sample point and toxic substance with the lowest concentration.	
	sample point toxic substance	[1]
(iii)	Identify the sample point and toxic substance with the highest concentration.	
	sample point toxic substance	[1]
(iv)	Scientists are concerned that toxic substances are leaching into the lake.	
	Suggest how the information in the table supports this conclusion.	

(d) A student says:

Management of the marine ecosystem is **not** given a high priority by countries and should be controlled by more international agreements.

To what extent do you agree with this statement? Explain your answer.		
[6]		

[Total: 19]

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