

Directions for Section 2

This section has FOUR parts

Part A	Questions 51–60	(10 marks)
Part B	Questions 61–62	(14 marks)
Part C	Questions 63–64	(12 marks)
Part D	Questions 65–66	(14 marks)

- Complete your answers to Section 2 Part A in the boxes provided on the separate answer sheet
- Complete your answers to Section 2 Parts B–D in the spaces provided on pages 29 to 39
- Write your Centre Number and Student Number at the top of pages 29, 33 and 37

Instructions for answering questions in Section 2 Part A

- **Completing the boxes**

Write firmly and clearly. Your answer must be written from left to right. Use block letters for words. Numbers must be used for numerical answers. Decimal points and negative signs must be clearly shown in separate boxes. Do NOT let any part of the letter or number touch the sides of the answer boxes.

Sample 1: $-7 \div 2 =$

-	3	.	5		
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Sample 2: How many days are in a week?

7	
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 days

Sample 3: What is the fifth month?

M	A	Y			
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If you think you have made a mistake, put a line through the incorrect answer and write the correct one above the box.

M A Y

J	U	N	E		
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PART A

Complete your answers to Questions 51–60 on the Section 2 Part A Answer Sheet. Answer each question with ONE word only.

- 51 Name the component of an electric circuit represented by this symbol.



- 52 Name the organ that produces eggs in humans.

- 53 Complete the following general word equation.



- 54 The human body's functions are coordinated by two main systems. One is the endocrine system. Name the other system.

- 55 Name the section of a chromosome that carries information for a particular characteristic.

- 56 Name the smallest unit of an element.

- 57 Litmus, phenolphthalein and some plant extracts are examples of chemicals that change colour when added to acid or alkali.

Name this group of chemicals.

- 58 A common group of chemical compounds contains these substances:



Name this group of chemical compounds.

59 State the scientific name for substances that can combine in a chemical reaction.

60 Use the following key to answer the question.

- | | | | |
|----|---|-------|--------------|
| 1. | Rock fizzes with dilute acid | ..... | limestone |
| | Rock does not fizz with dilute acid | ..... | go to 2 |
| 2. | Crystals can be seen without a hand lens | ..... | go to 3 |
| | Crystals cannot be seen without a hand lens | ..... | go to 4 |
| 3. | Small pebbles visible | ..... | conglomerate |
| | Grains all look like sand | ..... | sandstone |
| 4. | Rock will burn | ..... | go to 5 |
| | Rock will not burn | ..... | shale |
| 5. | Can be scratched with a fingernail | ..... | peat |
| | Cannot be scratched with a fingernail | ..... | coal |

Kim wants to identify a rock. She cannot see any crystals with the naked eye. She performs two tests on the rock and observes that it does not react with dilute acid and it does not burn.

From the key, identify the rock.

End of Section 2 Part A

Go on to Part B

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PART B

- Write your Centre Number and Student Number at the top of this page
- Complete your answers in this booklet

Marks**Question 61** (4 marks)

Construct a table to indicate which of the following factors are biotic and which are abiotic:

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Bacteria, oxygen, temperature, humans, soil acidity, water, insects.

Question 62 (10 marks)

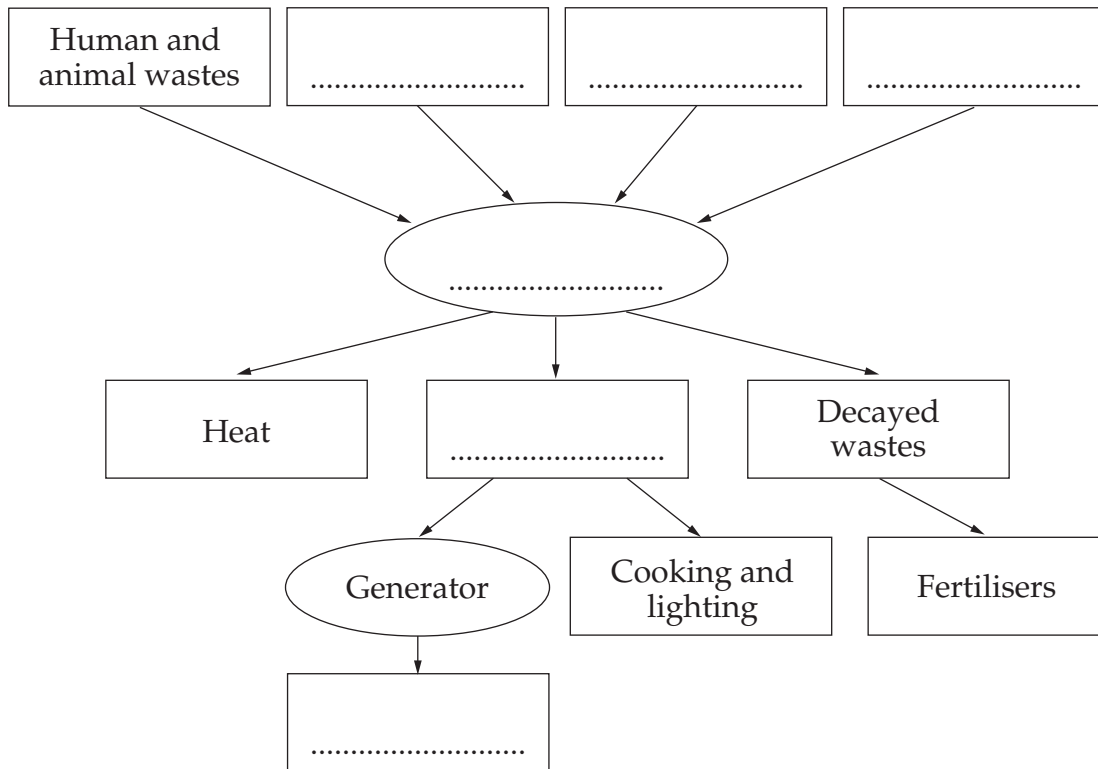
Marks

The people of Xinbu, a village in China, are now generating electricity and producing their own fertilisers using biogas digesters.

A biogas digester is a place where plant and animal wastes decay to produce heat and methane gas. The wastes used include human and animal wastes, sugar, grass and bananas. The methane gas produced is used for cooking, lighting and generating electricity. The decayed wastes are then recycled as fertilisers for their crops.

(a) Use the information above to complete the flowchart.

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Question 62 (continued)

Marks

(b) Assess TWO impacts on the environment of using biogas digesters.

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End of Section 2 Part B

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PART C

- Write your Centre Number and Student Number at the top of this page
- Complete your answers in this booklet

Marks

Question 63 (6 marks)

Design an experimental investigation to test the following idea:

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When you drop a heavy ball it will take the same amount of time to reach the ground as a lighter ball.

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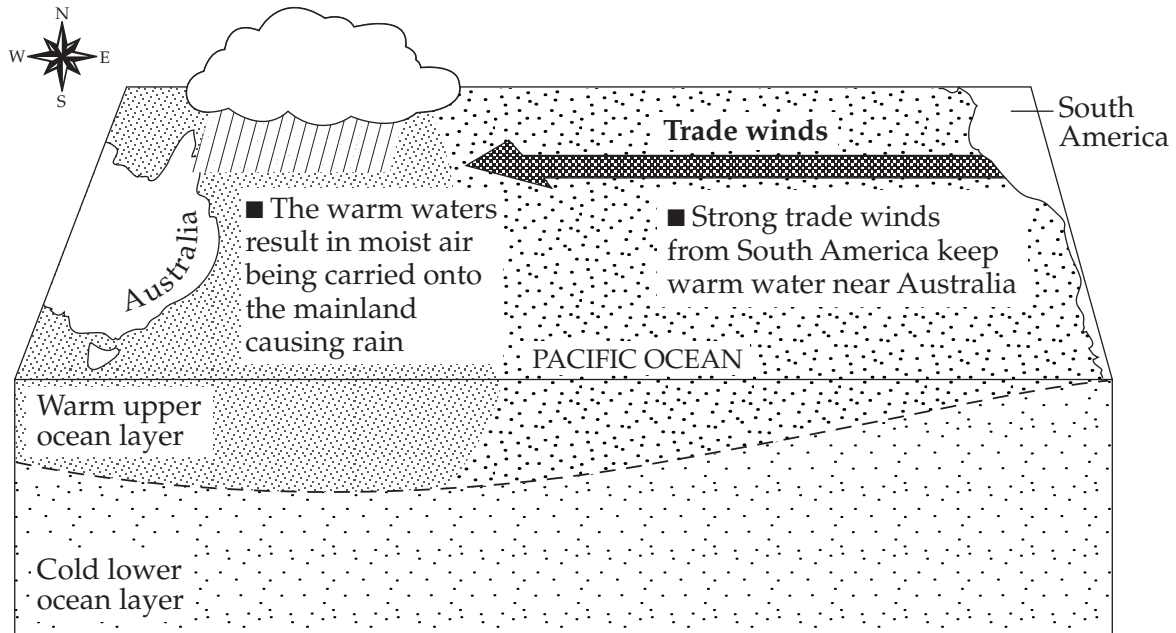
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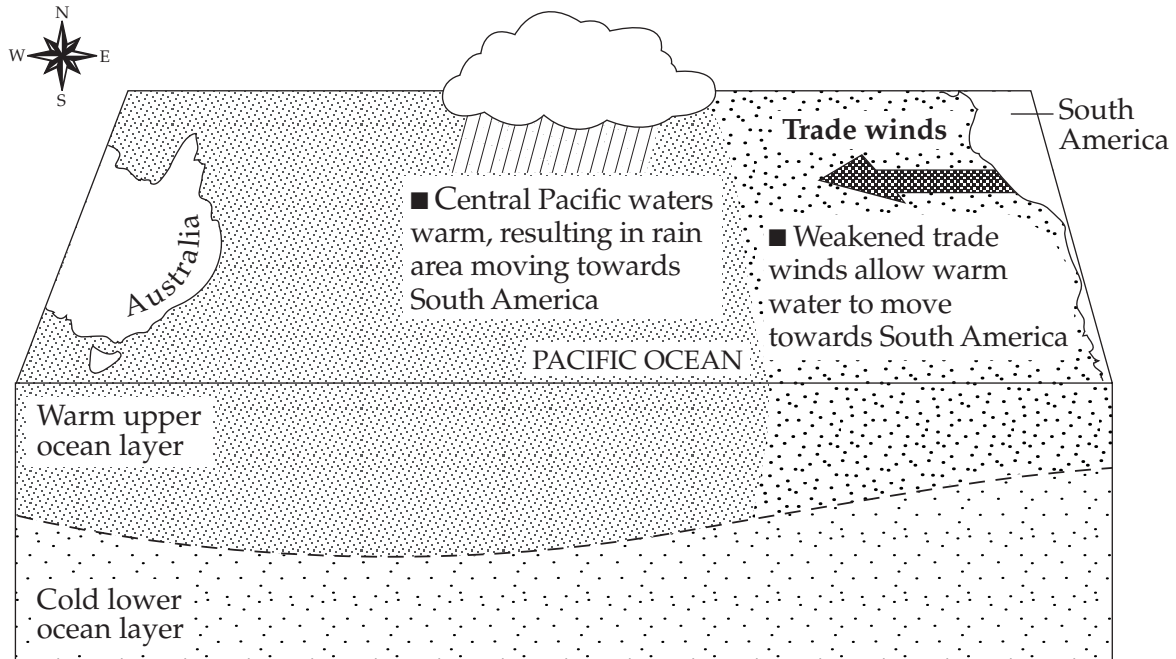
Question 64 (6 marks)

The diagrams illustrate the South Pacific Ocean under normal climate conditions and under El Niño conditions.

Normal climate conditions



El Niño conditions



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Question 64 continues on page 35

Question 64 (continued) Marks

- (a) State ONE feature of the South Pacific Ocean that changes when normal climate conditions are replaced by El Niño conditions. 1

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- (b) Using information in the diagrams, explain why the east coast of Australia is likely to experience drought during El Niño conditions. 5

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End of Section 2 Part C

Go on to Part D

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PART D

- Write your Centre Number and Student Number at the top of this page
- Complete your answers in this booklet

Question 65 (6 marks)

Marks

A nuclear reactor is nearing the end of its useful life. Many scientists and doctors want a new reactor built to serve the needs of the community. Some local residents and anti-nuclear groups want the nuclear facility closed. They are concerned about a fault line in the area that could move during an earthquake. They are also worried about wastes from the reactor being washed into local creeks and waterways.

- (a) Explain why people would worry if wastes from the reactor washed into waterways. **2**

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- (b) Other than wastes, state ONE additional problem associated with nuclear reactors. **1**

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- (c) Propose a supporting argument that a doctor or a scientist might use to justify the building of a new reactor. **3**

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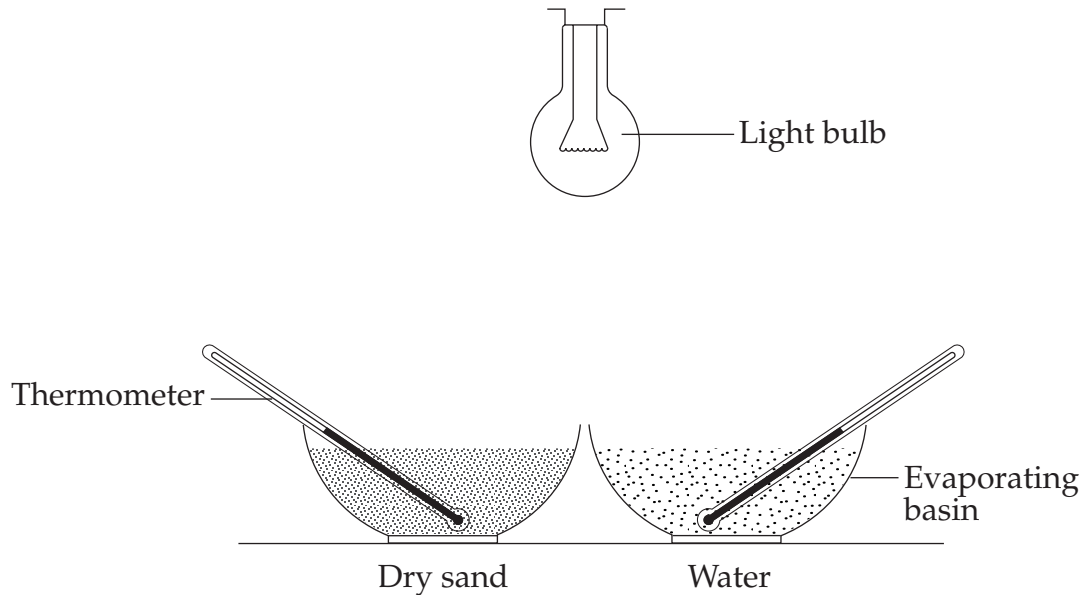
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Question 66 (8 marks)

A team of students wished to investigate how quickly two different materials absorb and release heat energy. They set up this experimental model. The light bulb was switched on at the start of the experiment and turned off after 10 minutes.



The results table that the students created is shown below.

	Time (minutes)	Temperature (°C)	
		Dry sand	Water
Light bulb on	0	20.0	20.0
	2	21.0	20.5
	4	22.0	21.0
	6	23.0	21.5
	8	24.0	22.0
	10	25.0	22.5
Light bulb off	12	26.0	23.0
	14	27.0	23.0
	16	27.0	23.0
	18	26.5	23.0
	20	26.0	23.0

Question 66 continues on page 39

Question 66 (continued)

Marks

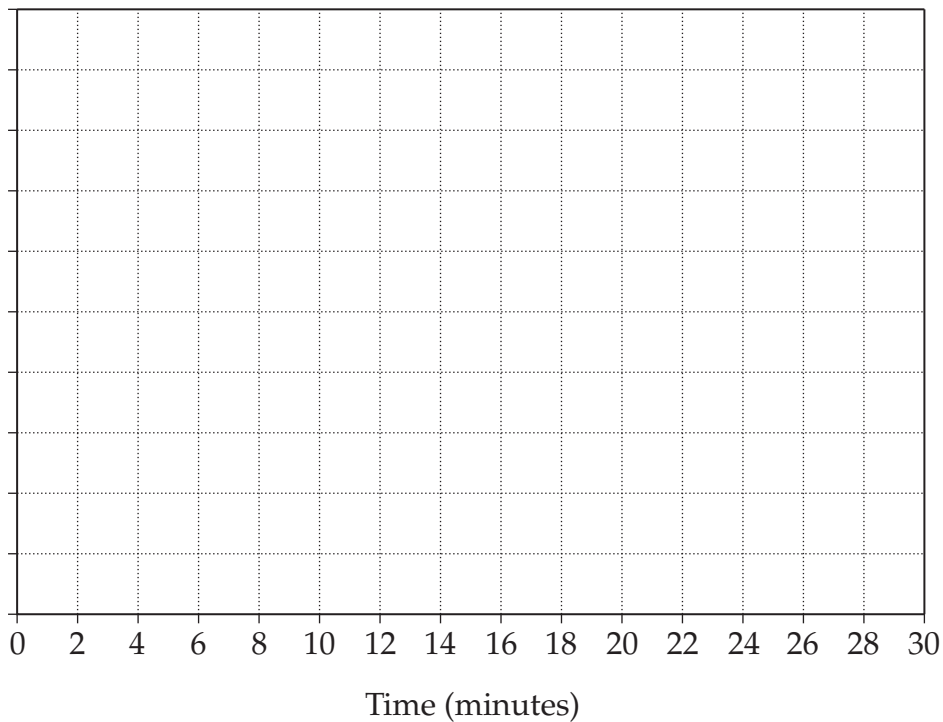
- (a) Name TWO variables that would have to be kept the same in this experiment.

2

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- (b) Graph the results for sand from the table.

4



- (c) State ONE trend that is shown in your graph.

1

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- (d) Use your graph to predict the sand temperature 20 minutes after the light bulb was turned off.

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End of test

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