SUPERVISOR'S USE ONLY

93104



Draw a cross through the box (⋈) if you have NOT written in this booklet



Mana Tohu Mātauranga o Aotearoa New Zealand Qualifications Authority

Scholarship 2023 **Earth and Space Science**

Time allowed: Three hours Total score: 24

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

Pull out Resource Booklet 93104R from the centre of this booklet.

Show ALL working.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–16 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (no NOT We). This area may be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Question	Score
ONE	
TWO	
THREE	
TOTAL	
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QUESTION ONE: PHYTOPLANKTON AND THE CARBON CYCLE

In your answer, include how it could be affected by climate change, and how it could be enhanced using human intervention.	Discuss the significance of phytoplankton compared to plants in the global carbon budget.		
	In your answer, include how it could be affected by climate change, and how it could be enhanced using human intervention.		

QUESTION TWO: SLOW-SLIP EVENTS

Explore the differences between earthquakes and slow-slip events, referring to the Eketāhuna and Kaikōura earthquakes.		
In your answer, include how the information collected by geologists can help further their understanding of slow-slip events, and the difficulties with monitoring on land, and at sea.		

QUESTION THREE: JUPITER'S ATMOSPHERIC CELLS

Analyse the differences between the Earth's atmospheric cells and the bands on Jupiter. Explain why these differences occur, and how these relate to the size, rotational speed, and composition of both planets.

In your answer, include a comparison of the depth of the cells between the two planets, and discuss the significance of the Giant Red Spot.			

Extra space if required. Write the question number(s) if applicable.

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NUMBER		

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