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Level 3 Earth and Space Science, 2018

91414 Demonstrate understanding of processes in the atmosphere system

2.00 p.m. Thursday 22 November 2018
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of processes in the atmosphere system.	Demonstrate in-depth understanding of processes in the atmosphere system.	Demonstrate comprehensive understanding of processes in the atmosphere system.

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 attempt ALL the questions in this booklet.

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

Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

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

TOTAL

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QUESTION ONE: DESERTS AND RAINFORESTS

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The diagram below shows the locations of the Earth's deserts and tropical rainforests.

Source: https://askabiologist.asu.edu/explore/desert

Explain why deserts and rainforests are found in these locations.

In your answer, you should:

- on the above diagram, draw and label the atmospheric circulation cells relevant to deserts and rainforests
- explain the role of solar radiation in the formation of the relevant circulation cells.

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There is more space for your answer to this question on the following pages.

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QUESTION TWO: ATMOSPHERIC PROTECTION

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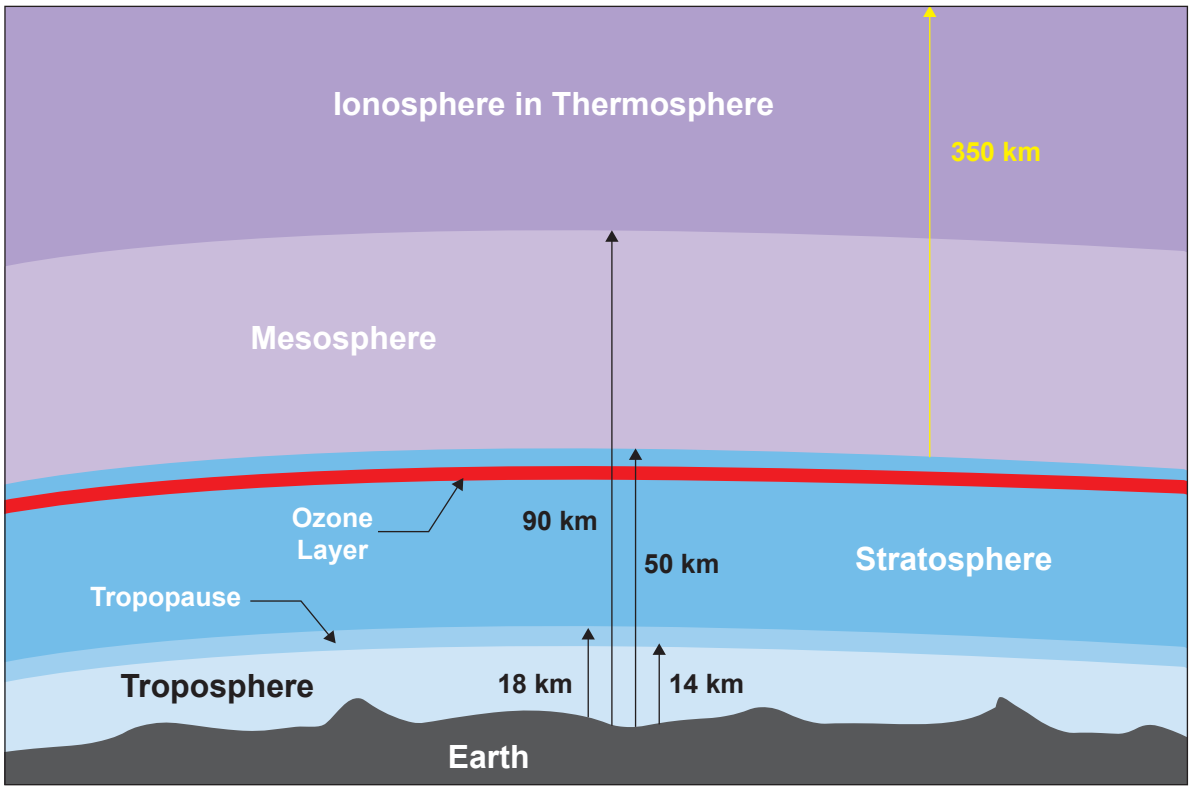
An important role of the atmosphere is to protect the Earth's surface.



Explain how different layers within the Earth's atmosphere protect the Earth's surface.

In your answer, you should consider:

- different forms of solar radiation, e.g. UV, infra-red, gamma rays, X-rays
- space objects, e.g. meteors
- how the troposphere prevents surface temperature extremes.

You may include a fully annotated diagram to help answer this question.

There is more space for your answer to this question on the following pages.

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QUESTION THREE: THE WATER CYCLE AND CLIMATE CHANGE

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Climate change affects every part of our planet, including the water cycle, increasing the risks of severe weather events.

Water cycle

Source: www.printablediagram.com/wp-content/uploads/2017/07/diagram-of-the-water-cycle-printable.jpg

Explain how climate change can affect the water cycle and lead to severe weather events.

In your answer, you should consider:

- the effect of increased global temperatures on the water cycle
- how changes to the water cycle impact different weather events.

You may include a fully annotated diagram to help answer this question.

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There is more space for your answer to this question on the following page.

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

QUESTION NUMBER

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