

Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Q1.

This question is about pressure.

Figure 7 shows the atmospheric pressure at different heights above the Earth's surface.

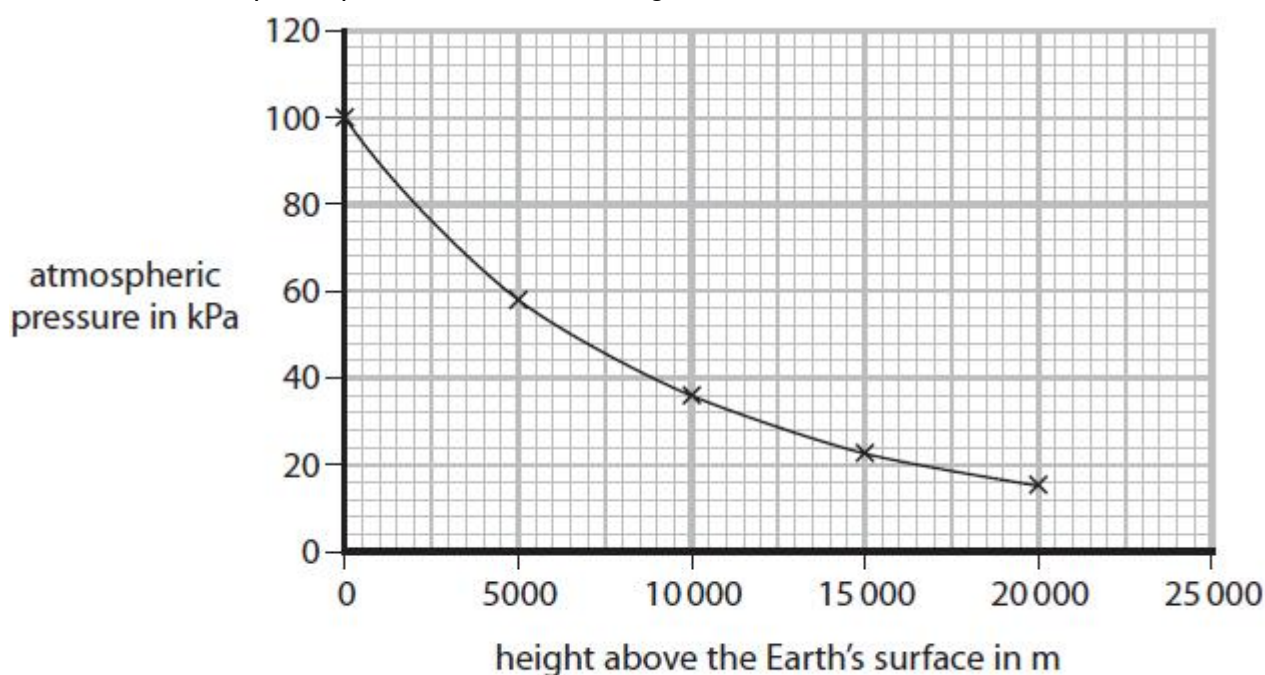


Figure 7

- (i) Describe how the atmospheric pressure changes with height above the Earth's surface.
Use data from Figure 7 to support your answer.

(3)

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- (ii) Suggest **one** reason why the atmospheric pressure changes with height above the Earth's surface.

(1)

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(Total for question = 4 marks)

Q2.

A student investigates the stretching of a long piece of rubber.

Figure 15 shows the apparatus to be used.

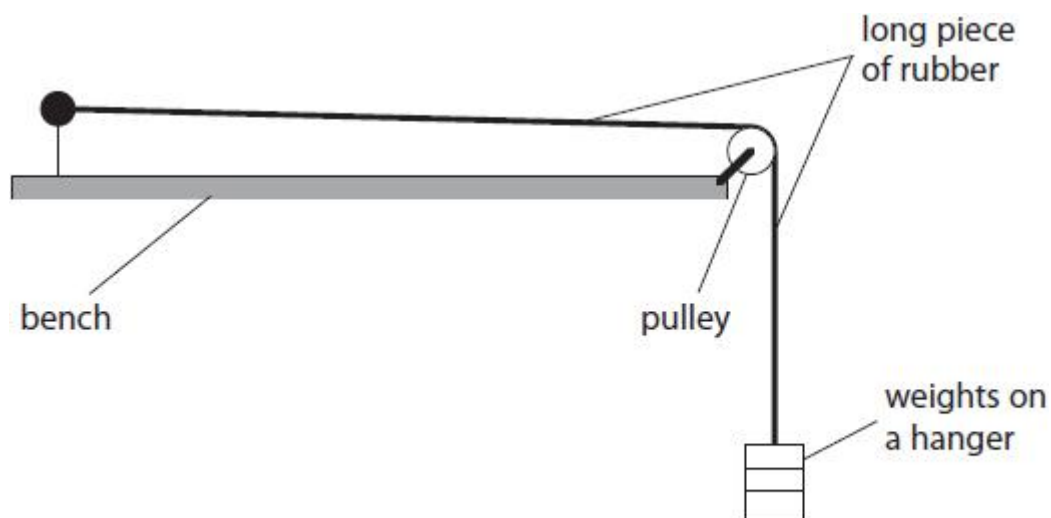


Figure 15

The student puts just enough weight on the weight hanger to make the piece of rubber just tight.

The student wants to plot a graph to show how the extension of the piece of rubber varies with the force used to stretch it.

The student adds a known weight to the weight hanger.

- (i) Describe how the student could measure the extension of the rubber when he adds another weight to the weight hanger.

(2)

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- (ii) The student obtains a series of values of force and extension while loading the piece of rubber and then unloading it.

Figure 16 shows the graph of the student's values.

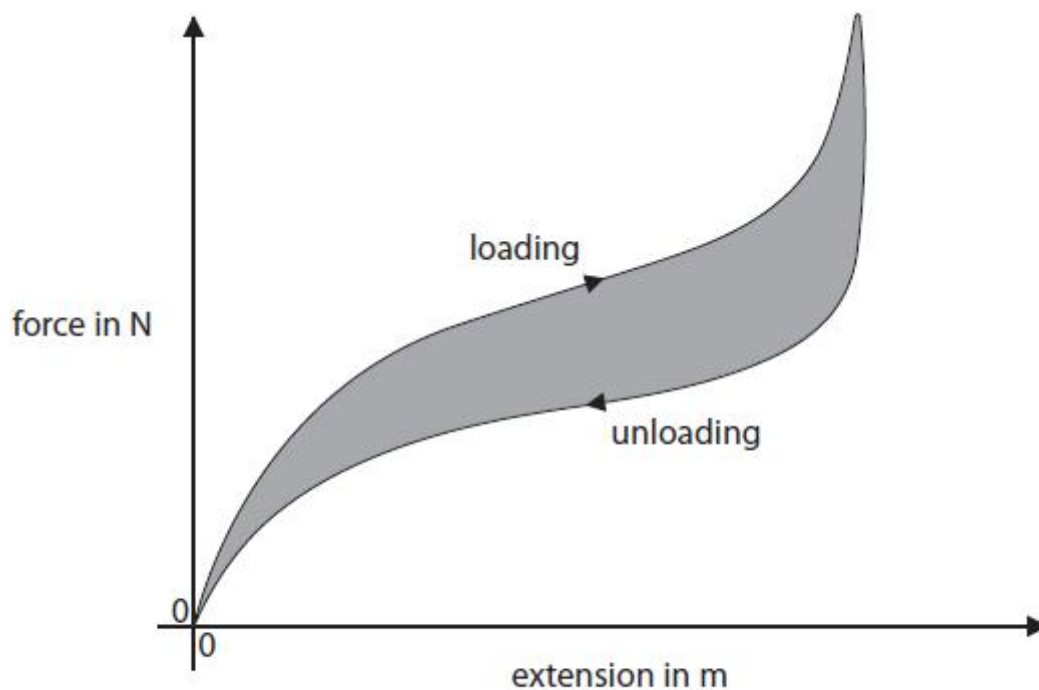


Figure 16

Explain how the shape of this graph shows that the distortion of the piece of rubber being stretched is different from the distortion of a spring being stretched.

(2)

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(Total for question = 4 marks)

Q3.

Figure 11 shows two drawings of the same person on a bed.

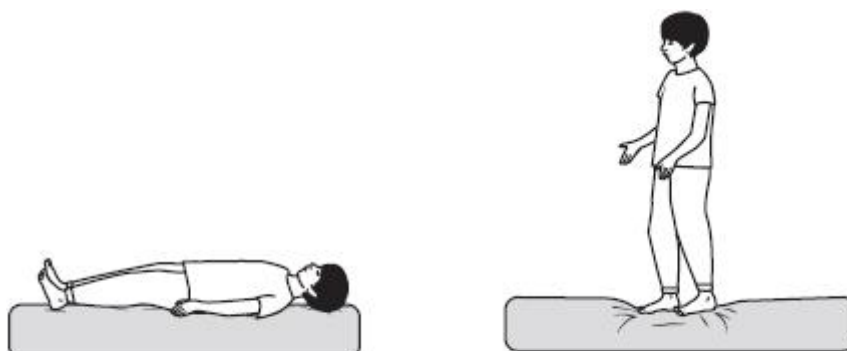


Figure 11

Explain why the person exerts a different pressure on the bed when standing up than when lying down.

(2)

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(Total for question = 2 marks)

Q4.

Figure 12 is a model representing molecules of the Earth's atmosphere.

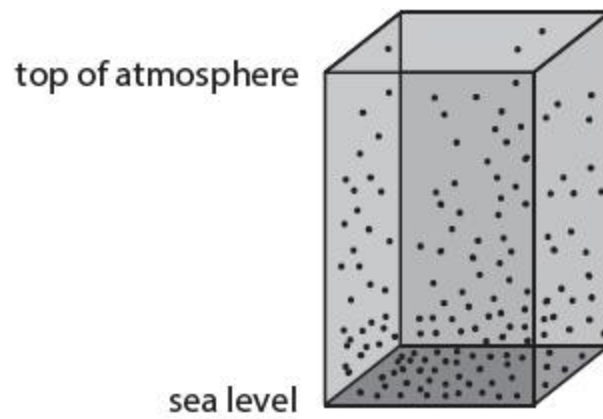


Figure 12

Use Figure 12 to explain how the density of the air varies with height above sea level.

(2)

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(Total for question = 2 marks)

Q5.

Figure 3 shows three containers A, B, and C.
Each container contains a liquid, as shown.

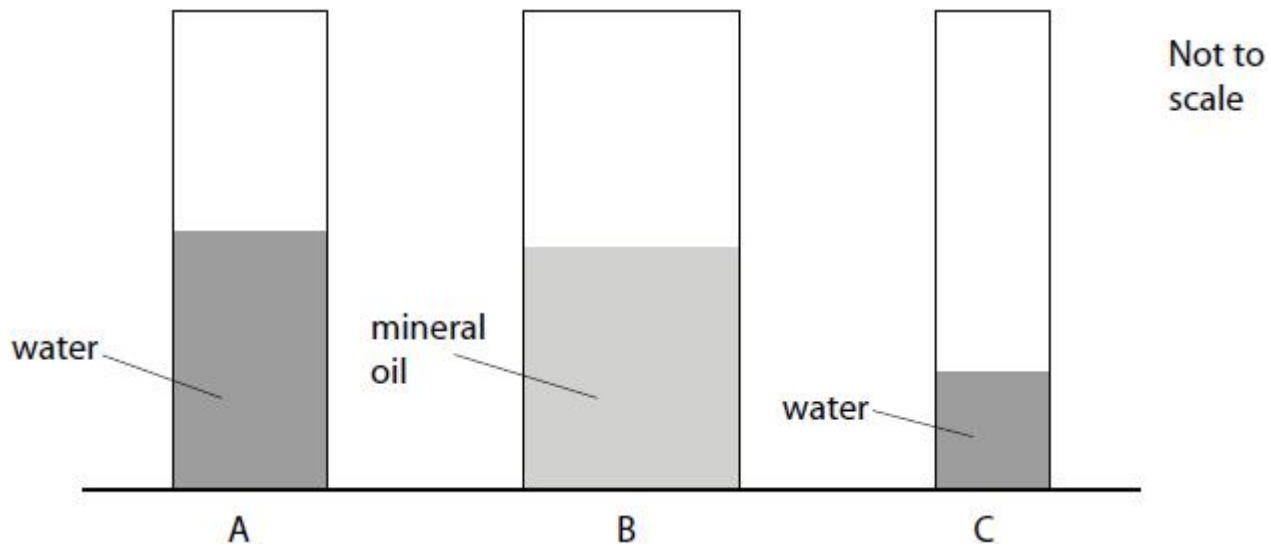


Figure 4 gives some data about the liquids and containers.

container	area of base (cm ²)	name of liquid	density of liquid (g / cm ³)	depth of liquid in container (cm)
A	16	water	1.00	50.00
B	32	mineral oil	0.91	50.00
C	12	water	1.00	25.00

Figure 4

Explain which container has the highest pressure at the bottom, and which container has the lowest.
Use information from Figure 3 and Figure 4.

(3)

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(Total for question = 3 marks)

Q6.

* Figure 26 shows the submarine stationary and submerged at a depth of 10 m.

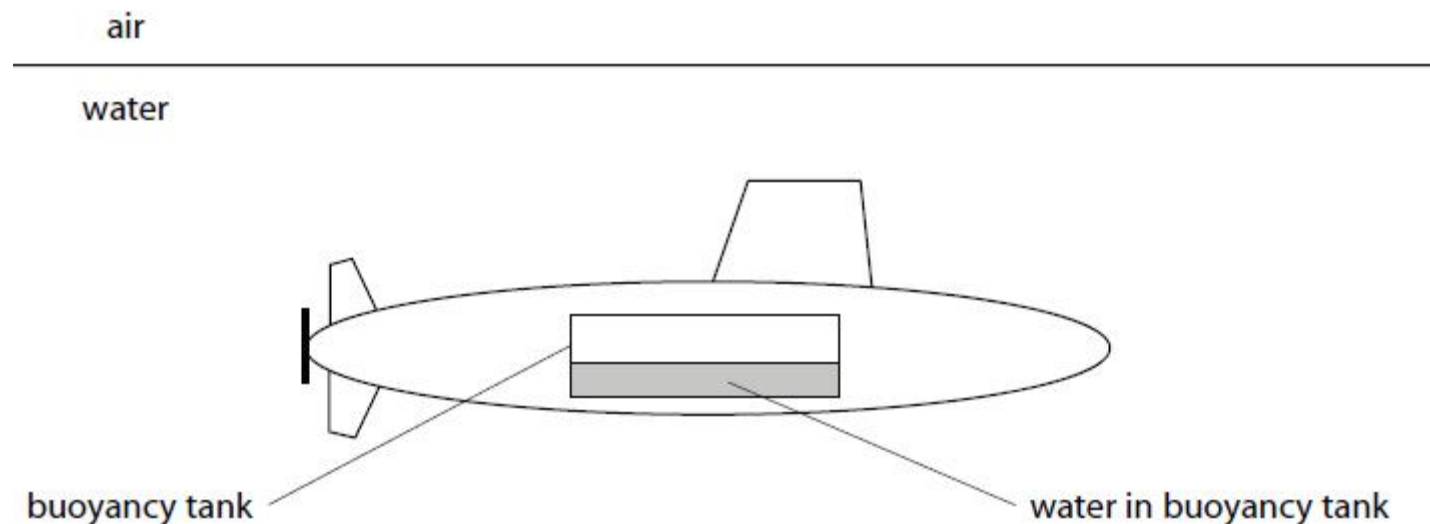


Figure 26

Explain how pumping water into and out of the buoyancy tank affects the depth of the submarine below the surface.

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(Total for question = 6 marks)