Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

Balloon **P** hangs from an insulating thread.

A teacher gives the balloon a positive electric charge, as shown in Figure 15.

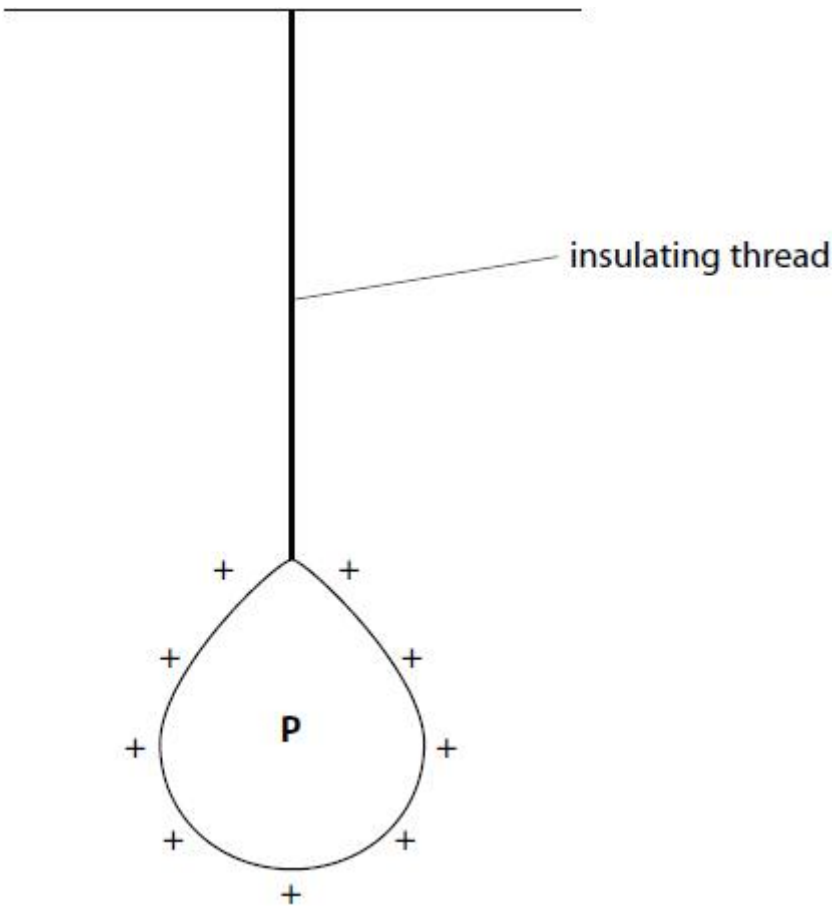


Figure 15

Two more balloons, **Q** and **R**, are charged and placed either side of balloon **P**.

The balloons move to the positions shown in Figure 16.

Add the charges on balloons **Q** and **R** in Figure 16.

(2)

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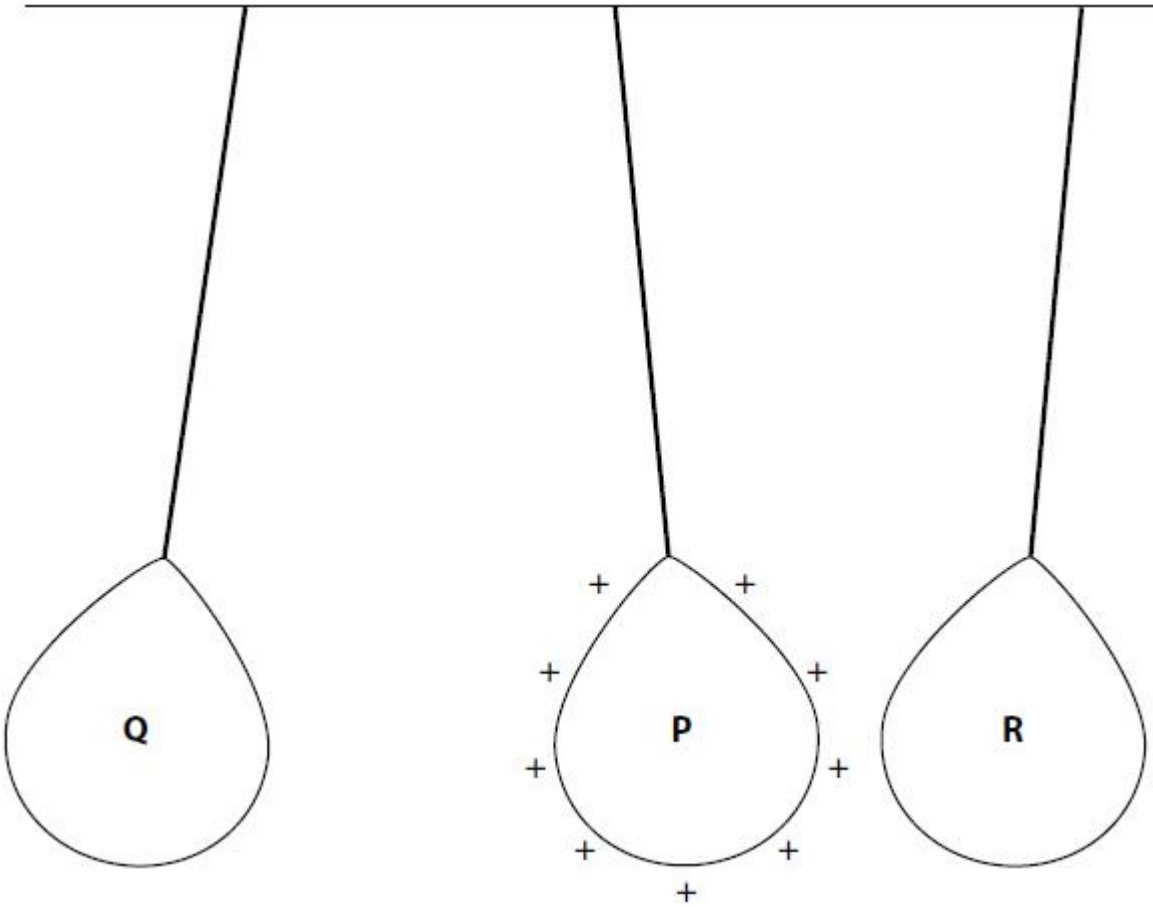


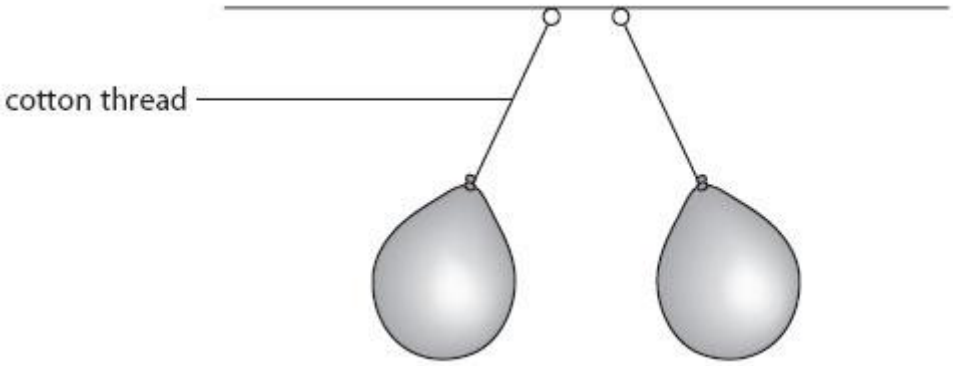
Figure 16

(Total for question = 2 marks)

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Q2.

A student charges two balloons and hangs them side by side.



Explain why the cotton threads are not vertical.

(2)

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Q3.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

This question is about static electricity.

A student has a rubber balloon tied to a long piece of cotton thread.

The student gives the balloon an overall electrostatic charge.

(i) Describe **one** way that the student could give the balloon an overall electrostatic charge.

(2)

.....

.....

.....

.....

(ii) The student gives the balloon an overall negative charge.

Which of these sentences explains why the overall charge on the balloon is negative?

(1)

- ☐ **A** Negative charge has been removed from the balloon.
- ☐ **B** Negative charge has been added to the balloon.
- ☐ **C** Positive charge has been removed from the balloon.
- ☐ **D** Positive charge has been added to the balloon.

(iii) The student charges another balloon on a long thread.

Explain how the student can show that the two balloons have the same type of charge.

(3)

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(Total for question = 6 marks)

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Q4.

Some questions must be answered with a cross in a box (☒). If you change your mind about an answer, put a line through the box (☒) and then mark your new answer with a cross (☒).

A cleaning company uses an electric sprayer to produce a cloud of disinfectant inside a bus.

The sprayer gives a negative electric charge to each droplet in the cloud of disinfectant.

(i) The droplets in the cloud of disinfectant have a negative charge because the sprayer

(1)

- ☐ **A** adds electrons to the droplets
- ☐ **B** adds protons to the droplets
- ☐ **C** removes electrons from the droplets
- ☐ **D** removes protons from the droplets

(ii) Figure 16 shows the shape of the clouds of droplets in the disinfectant from two sprayers.



Figure 16

Sprayer 1 gives a negative charge to each droplet.

Sprayer 2 does not give any charge to the droplets.

Explain the difference in the shape of the two clouds.

(2)

.....

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(iii) Figure 17 shows a cloud of disinfectant, containing charged droplets, moving towards a seat in the bus.

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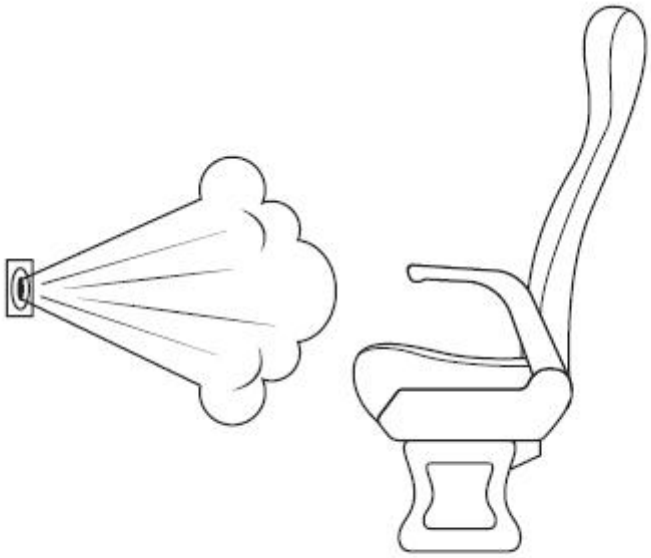


Figure 17

Explain how charging the droplets in the cloud of disinfectant makes sure that every part of the seat is disinfected.

(2)

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.....

(Total for question = 5 marks)

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Q5.

Complete the following sentences using words from the box below.

electrostatic	friction	gravitational	magnetic

(i) The force that keeps the Earth in orbit around the sun is

..... attraction.

(1)

(ii) The force that opposes motion between two surfaces is ..... .

(1)

(iii) The force that can move small pieces of paper towards a plastic comb is ..... attraction.

(1)

(Total for question = 3 marks)

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Q6.

A student rubs **two** balloons with a dry cloth.

The balloons become positively charged.

The student hangs the charged balloons using strings, as shown in Figure 5.

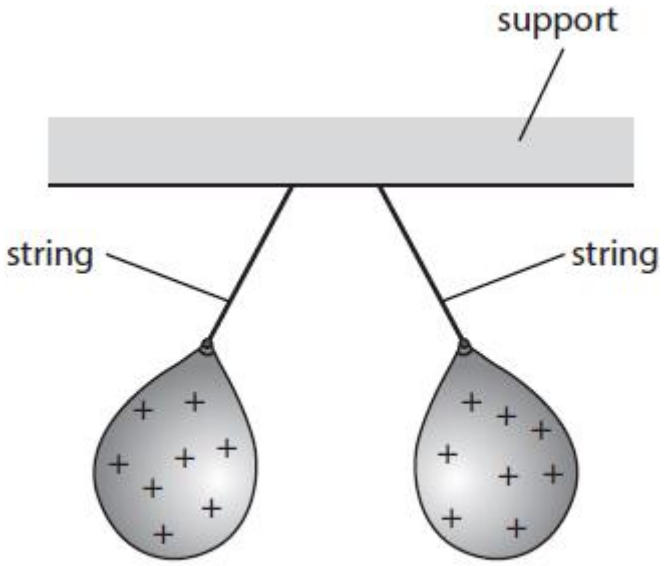


Figure 5

Use words from the box to complete the sentences.

(4)

ampere	attract	coulomb	electrons
negative	positive	protons	repel

The balloons have the same charge.

This means that these balloons ..... each other.

The charged particles transferred from the balloons to the cloth are called ..... .

The cloth is left with a ..... charge.

The unit of charge is the ..... .

(Total for question = 4 marks)

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