Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 9_Forces And Their Effects

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

Figure 9 shows two forces, P and Q, acting at point X.

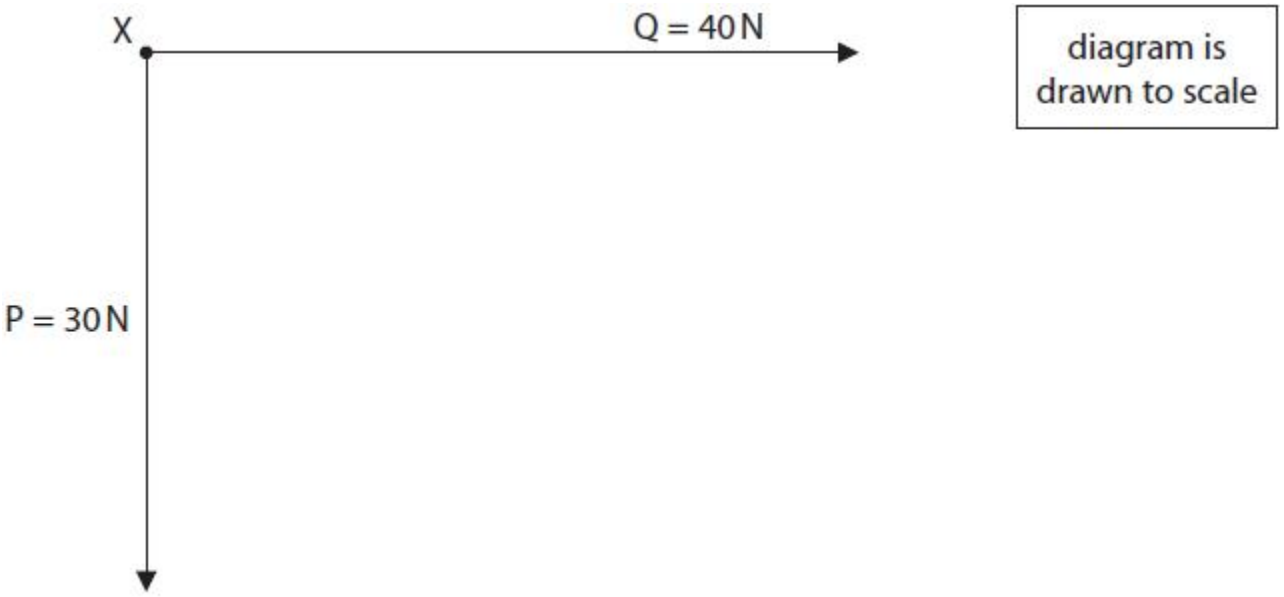


Figure 9

Complete the diagram in Figure 9 to show the size and direction of the resultant force, R, on point X.

(Total for question = 2 marks)

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Q2.

Figure 8 shows a demolition ball of mass 400 kg.

The ball is used to demolish a wall.

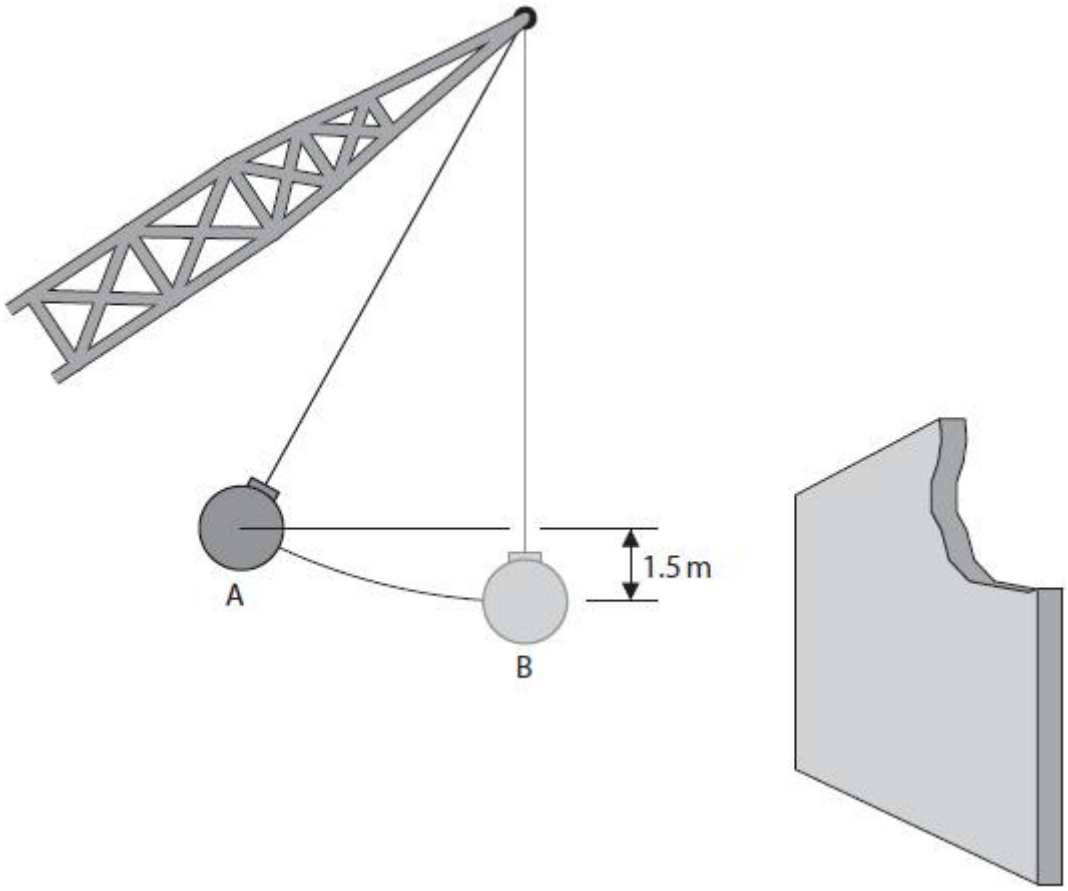


Figure 8

As the ball swings from A to B, it moves through a vertical height of 1.5 m.

(i) Calculate the change in gravitational potential energy.

Take gravitational field strength, g, to be 10 N/kg.

(3)

(ii) The heavy ball comes to rest soon after smashing into the wall. In doing this, the temperatures of the ball, wall and surroundings all increase slightly.

Explain this observation.

(2)

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(iii) Which of these quantities of the ball changes in **both** magnitude and direction while the ball is swinging?

Put a cross ☒ in the box next to your answer.

(1)

- ☐ **A** gravitational potential energy
- ☐ **B** velocity
- ☐ **C** the gravitational force acting
- ☐ **D** kinetic energy

(Total for question = 6 marks)

Q3.

Some forces act at a distance.

One example is the gravitational attraction between the Moon and the Earth.

Describe an example of another type of force acting at a distance, where the force is **not** gravitational.

(2)

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(Total for question = 2 marks)

Q4.

Figure 4 shows a toy that has a plastic cylinder, a plastic base and two similar magnets. Each of the two magnets is in the shape of a ring.

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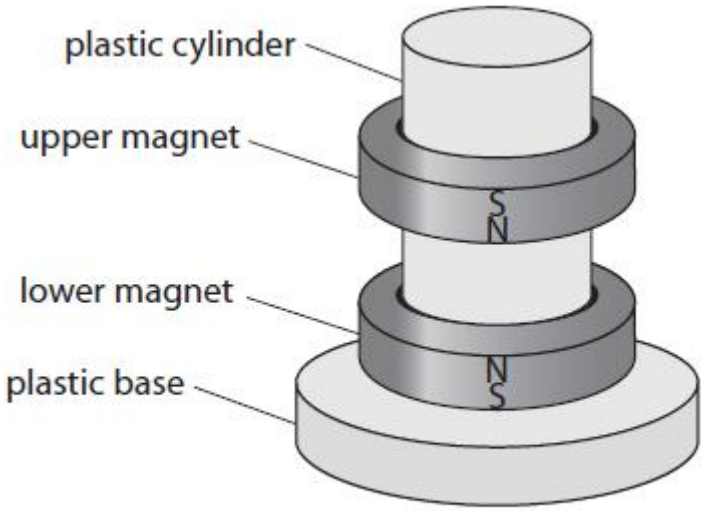


Figure 4

The upper magnet seems to float in the air above the lower magnet.

Describe the forces acting on the upper magnet.

Use the idea of magnetic fields in your answer.

(3)

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(Total for question = 3 marks)

Q5.

Figure 4 shows a drone.



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Figure 4

The drone has four spinning blades.

The upward force produced enables the drone to rise in the air.

The speed at which the blades spin is measured in turns per minute.

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Figure 5 shows how the upward force produced by the four blades depends on the speed at which the blades spin.

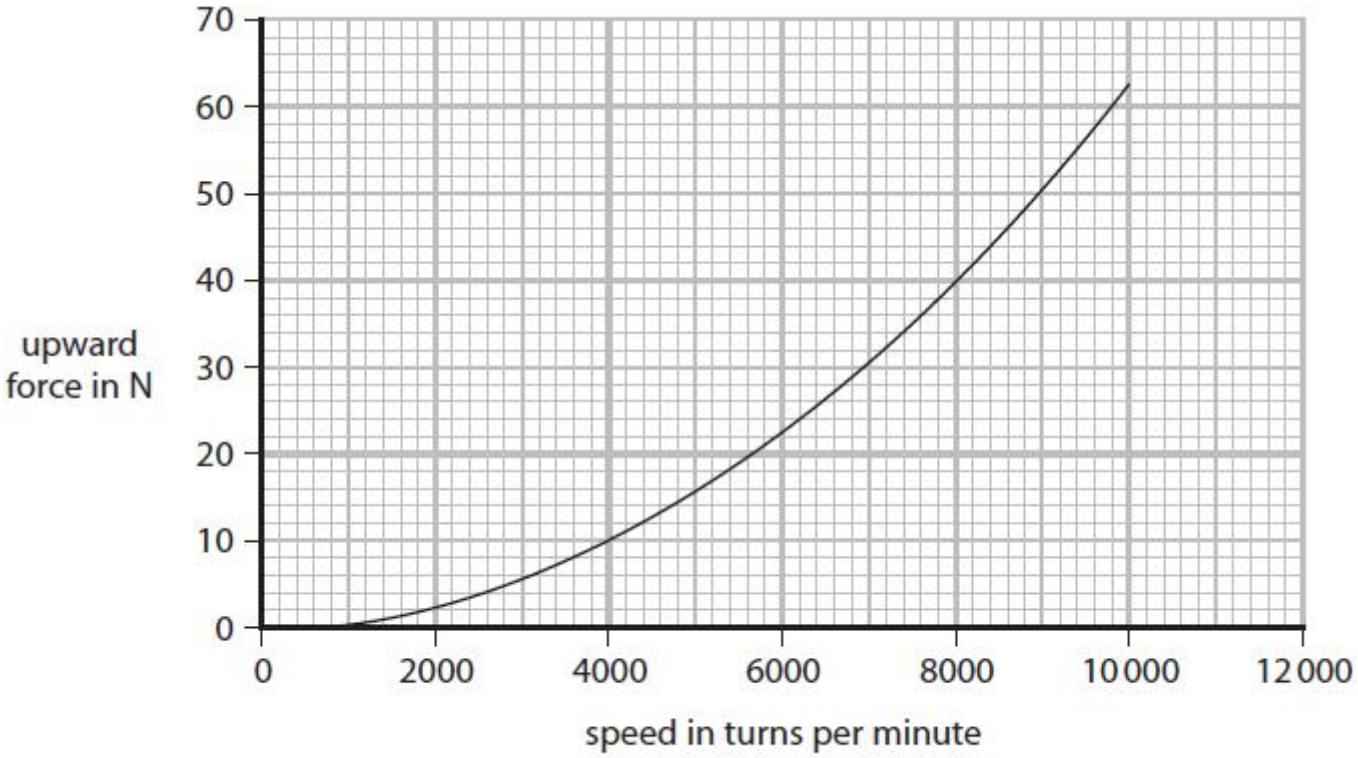


Figure 5

Describe the relationship between upward force and speed shown by this graph.

(2)

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(Total for question = 2 marks)

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Q6.

Figure 14 shows two small boats pulling a much larger ship.

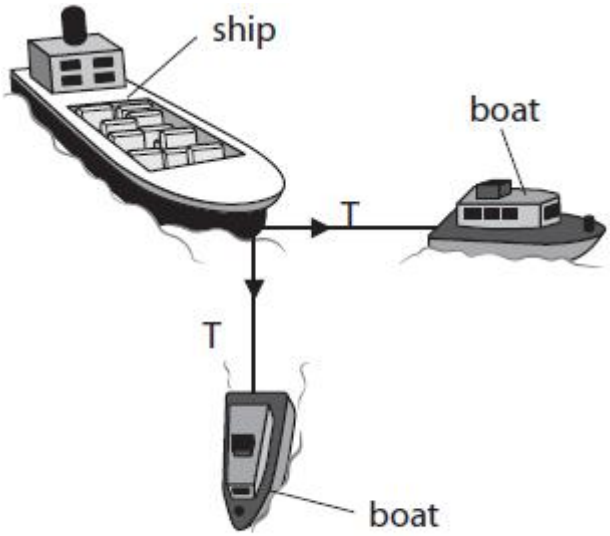


Figure 14

The ship is connected to the boats with ropes.

The tension, T, in each of the ropes has a magnitude of 20 kN.

The ropes are at right angles to each other.

Draw a vector diagram and use it to determine the resultant force that the boats exert on the ship.

(4)

magnitude of resultant force on the ship = ... kN

(Total for question = 4 marks)

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