Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 9_Forces and their effect

Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

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)

Q2.

A student investigates moments of forces.

Figure 14 shows the apparatus used.

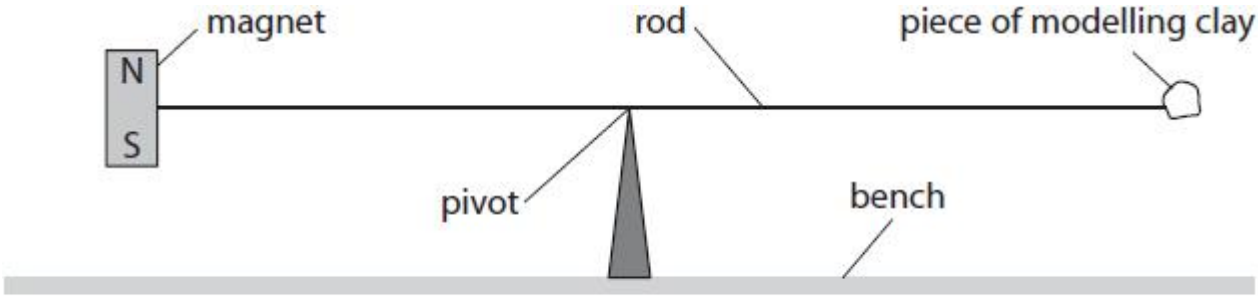

Figure 14

The pivot is under the centre of the rod.

A magnet is fixed to one end of the rod.

A piece of modelling clay is fixed to the other end of the rod.

The system is in equilibrium.

The student reverses the direction of the current in the coil.
Describe how the student can bring the system back into equilibrium without making any changes to the magnet.

(2)

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(Total for question = 2 marks)

Q3.

Figure 9 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.

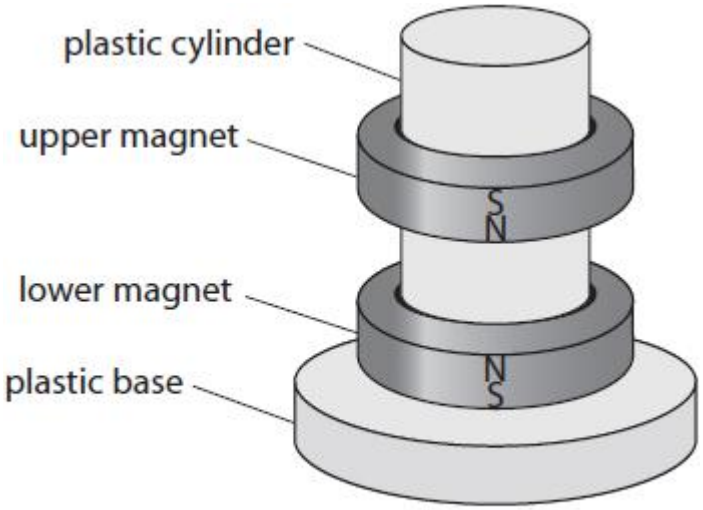

Figure 9

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)

Q4.

Figure 7 shows a drone.

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Figure 7

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.

Figure 8 shows how the upward force produced by the four blades depends on the speed at which the blades spin.

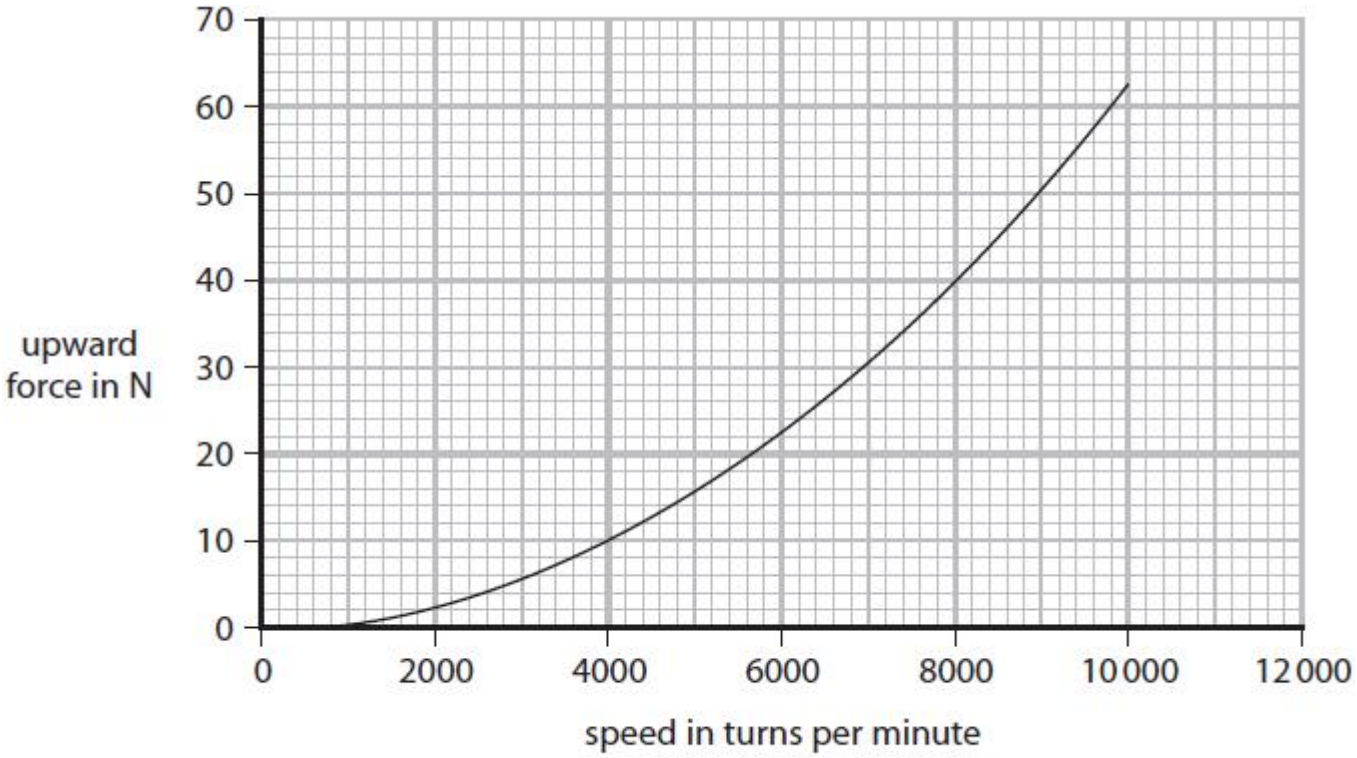

Figure 8

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

(2)

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(Total for question = 2 marks)

Q5.

Figure 23 shows two small boats pulling a much larger ship.

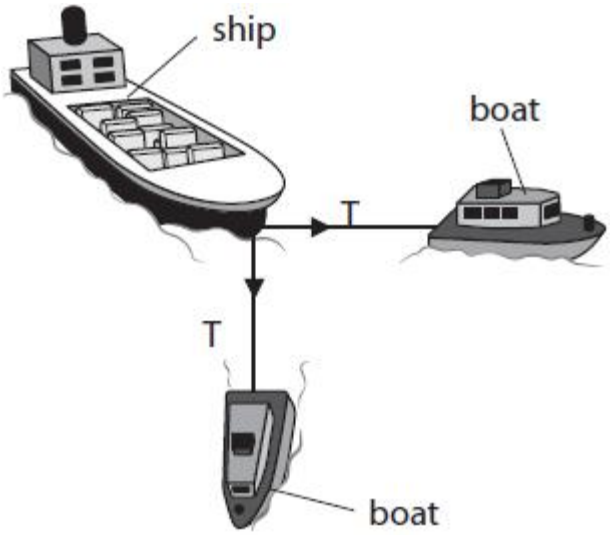


Figure 23

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)

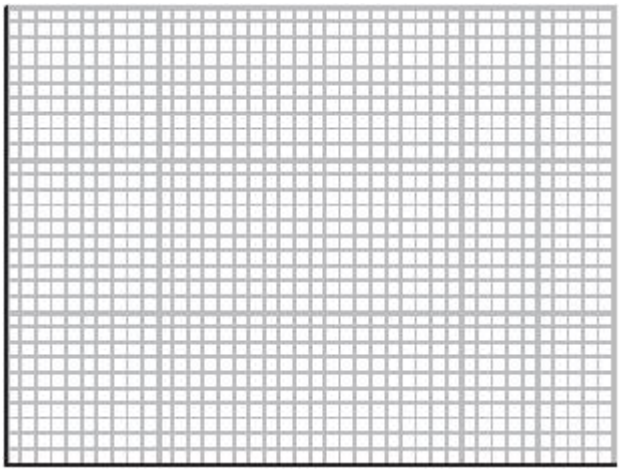
Q6.

Figure 7 shows two astronauts in space pushing at a satellite.

Figure 7

(i) The force F_1 is 3.0 N and the force F_2 is 2.0 N, acting at right angles to each other.
Draw a vector diagram to scale showing these forces.

(2)



(ii) Use the diagram in (i) to estimate the magnitude of the resultant force acting on the satellite.

(2)

resultant force = ... N

(Total for question = 4 marks)