Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Forces (Low Demand Questions)

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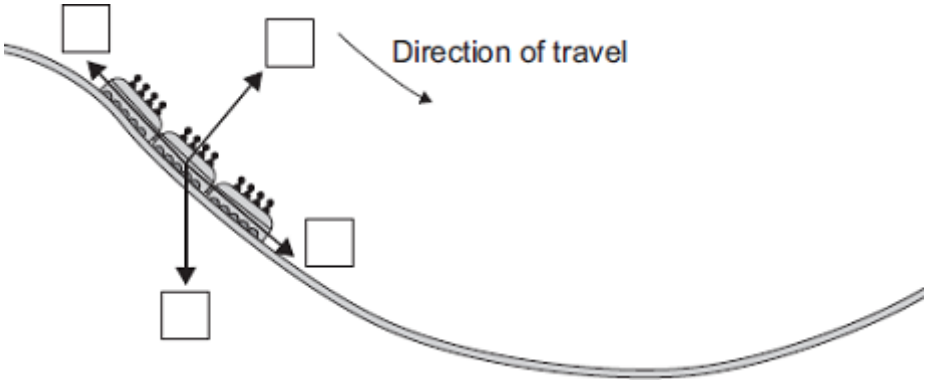
Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Mark Schemes

Q1.

The diagram shows the passenger train on part of a rollercoaster ride.

(a) Which arrow shows the direction of the resultant force acting on the passenger train?
Put a tick (✓) in the box next to your choice.



(1)

(b) For part of the ride, the maximum gravitational field strength acting on the passengers seems 3 times bigger than normal.

Normal gravitational field strength = 10 N/kg

(i) Calculate the maximum gravitational field strength that seems to act on the passengers during the ride.

_____

_____

Maximum gravitational field strength = _____ N/kg

(1)

(ii) One of the passengers has a mass of 75 kg.

Calculate the maximum weight this passenger seems to have during the ride.

Show clearly how you work out your answer.

_____

_____

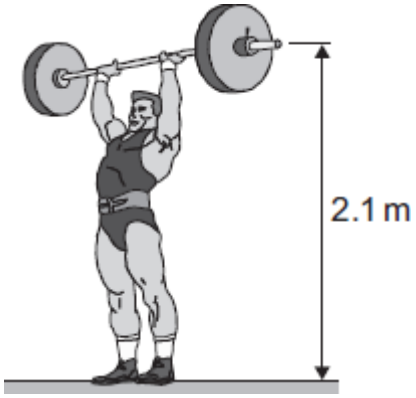
Maximum weight = _____ N

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(2)
(Total 4 marks)

Q2.

A powerlifter lifts a 180 kg bar from the floor to above his head.



(a) Use the equation in the box to calculate the weight of the bar.

weight = mass × gravitational field strength

gravitational field strength = 10 N/kg

Show clearly how you work out your answer.

_____

_____

Weight = _____ N

(2)

(b) The powerlifter uses a constant force to lift the bar a distance of 2.1 m.

Use the equation in the box to calculate the work done by the powerlifter.

work done = force applied × distance moved in direction of force

Show clearly how you work out your answer and give the unit.

Choose the unit from the list below.

joule **newton** **watt**

_____

_____

Work done = _____

(3)

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(c) At the end of the lift, the powerlifter holds the bar stationary, above his head, for two seconds.

How much work does the powerlifter do on the bar during these two seconds?

Draw a ring around your answer.

0 **90** **360** **900**

Give a reason for your answer.

_____

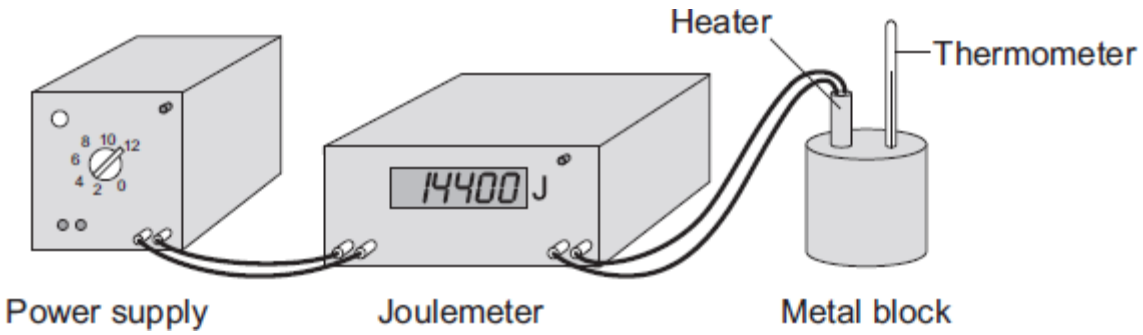
_____

(2)

(Total 7 marks)

Q3.

A student used an electric heater to heat a metal block. The student measured the energy input to the heater with a joulemeter.



Before starting the experiment, the student reset the joulemeter to zero. The student switched the power supply on for exactly 10 minutes. During this time, the reading on the joulemeter increased to 14 400.

(a) (i) Calculate the energy transferred each second from the power supply to the heater.

Show clearly how you work out your answer.

_____

_____

Energy transferred each second = _____ J/s

(2)

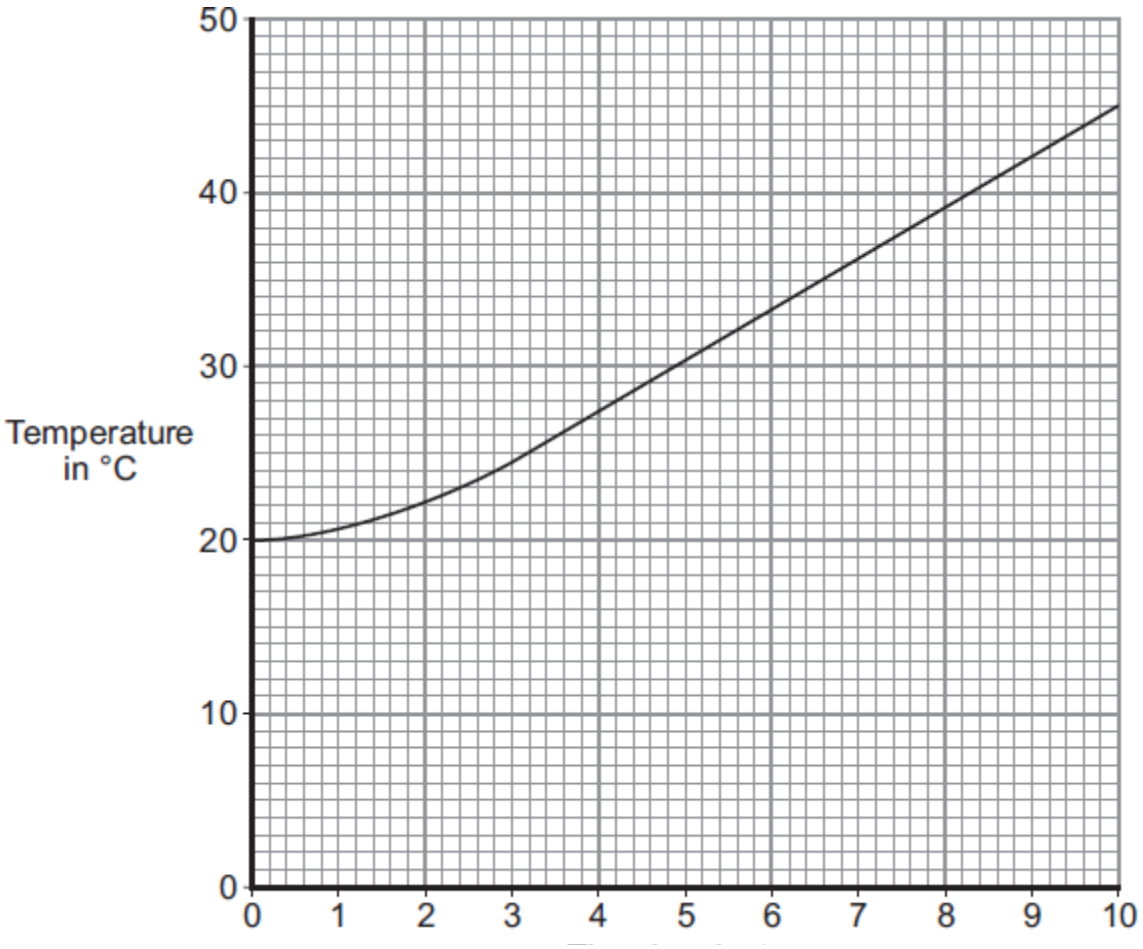
(ii) What is the power of the heater?

_____

(1)

(b) The student measured the temperature of the metal block every minute. The data obtained by the student is displayed in the graph.

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(i) What range of temperatures did the student measure?

From _____ °C to _____ °C

(1)

(ii) Before starting the experiment, the student had calculated that the temperature of the block would go up by 36 °C.

The student's data shows a smaller increase.

Which **one** of the following statements gives the most likely reason for this?

Put a tick (✓) in the box next to your answer.

The student does not read the thermometer accurately. ☐

The block transfers energy to the surroundings. ☐

The power supply is not connected correctly to the joulemeter. ☐

(1)

(Total 5 marks)

Q4.

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The diagram shows a worker using a constant force of 60 N to push a crate across the floor.



My Revision Notes AQA GCSE Physics for A* – C,
Steve Witney, © Philip Allan UK

(a) The crate moves at a constant speed in a straight line

(i) Draw an arrow on the diagram to show the direction of the friction force acting on the moving crate.

(1)

(ii) State the size of the friction force acting on the moving crate.

_____ N

Give the reason for your answer.

_____

_____

(2)

(b) Calculate the work done by the worker to push the crate 28 metres.

Show clearly how you work out your answer and give the unit.

Choose the unit from the list below.

joule **newton** **watt**

_____

_____

Work done = _____

(3)

(Total 6 marks)

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