Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 8_Energy

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Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Q1.

A rock falls off the top of a cliff of height *h*.

Figure 13 shows the rock falling.

The Earth exerts a force of 150 N on the rock.

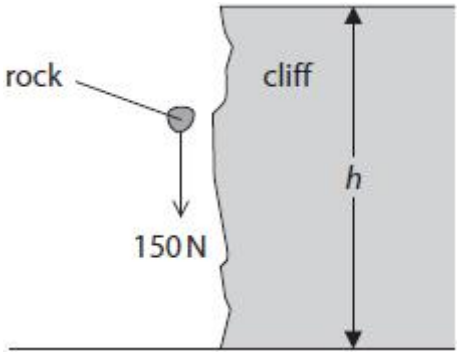


Figure 13

The work done by this force when the rock falls from the top to the bottom of the cliff is 2700 J.

(i) Calculate the height, *h*, of the cliff.

(2)

h = ... m

(ii) State the value of the kinetic energy of the rock just before it hits the ground.

(1)

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kinetic energy = ... J

(iii) The mass of the rock in Figure 13 is 15 kg.

Calculate the velocity of the rock just before it reaches the bottom of the cliff.

(2)

velocity = ... m/s

(Total for question = 5 marks)

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Q2.

A cyclist is riding a bicycle at a steady velocity of 12 m/s.
The cyclist and bicycle have a total mass of 68 kg.
The cyclist starts to cycle again.
The cyclist does 1600 J of useful work to travel 28 m.
Calculate the average force the cyclist exerts.

(3)

average force = ... N

(Total for question = 3 marks)

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Q3.

They take turns to run up the stairs and use a stopwatch to measure the time taken.

The students estimate their own weight.

Figure 15 shows a table of their results.

The table is not complete.

student	student estimate of weight in N	distance in m	work done	time taken in s	power in W
A	550	4.0	2200	5.0	440
B		4.0	1960	4.5	436
C	510	4.0	2040		425

Figure 15

(i) State the unit for work done.

(1)

unit for work done is .....

(ii) Use the data for student B to calculate his estimated weight.

(2)

weight = ... N

(iii) Use the data for student C to calculate the time she takes.

(2)

time taken ..... s

(iv) Use the data for all three students to calculate the average power of the students.

(2)

average power = ... W

(Total for question = 7 marks)

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Q4.

A cyclist is riding a bicycle at a steady velocity of 12 m/s.

The cyclist and bicycle have a total mass of 68 kg.

* A class of students investigate the power output of each student in the class.

The class must decide whether they use a method using steps or a method using weights.
The whole class must use the same method.

Plan what measurements the students should take and how these can be used to calculate and compare the power output of each student.

You may draw a diagram to help with your plan.

(6)

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(Total for question = 6 marks)

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